ISSN 2411-7390

jle

JOURNAL OF LANGUAGE & EDUCATION

Volume 8 Issue 2, 2022

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY

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https://doi.org/10.17323/jle.2022.14586

An In-Depth Glimpse into Research on Academic Writing

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ABSTRACT

Background. Though research on academic writing has been in focus for many years, it has been changing recently to embraces new linguistic and pedagogical aspects. The "Publish and perish" concept went global some time ago and became the measure of academic excellence and performance for universities and faculty. Subsequently, the field has widened to include issues of writing for publication, research article structured formats, rhetoric of the scholarly text, genre-specific issues.

Purpose. The editorial review aims to identify and offer the emerging landscapes in academic writing as guidelines for JLE aspiring and recurrent authors.

Methods. The review covers the 167 top cited publications (articles and reviews) selected from the Scopus on the basis of the inclusion criteria (published articles and reviews in the period between 2012 and 2021 in English with more than 14 citations in Social Sciences and Arts & Humanities).

Results and Implications. The initial search for publications on the "academic writing" keyword brought 1,792 as of May 21, 2022.After the inclusion criteria were applied, the list boiled down to 1,002 publications. Based on the prevailing keywords in these articles and reviews, 14 thematic clusters were formed, later increased to 15 to comply with the papers on the selected list. Then the 167 publications were distributed among the clusters, based on the keywords, and focus of the research. An in-depth analysis highlighted the popular aspects and issues within the clusters. Thus, the major directions of research were determined. The review findings contribute to better understanding of the field of AW and encourage researchers to further explore the emerging gaps and challenges in AW. 25 keywords were outlined as the most frequent in the field of academic writing. The major directions of research entail teaching and learning AW in higher education; digital issues of AW; lexical bundles and vocabulary; identity, complexity, stance, and voice; country-related research; genre issues in AW; feedback and assessment in AW; writing for publication; plagiarism and integrity; academic literacies; discourse and metadiscourse; discipline-related issues; citation issues in AW; writing a thesis; and rhetorical aspects in AW.

Implications. Following the findings of the JLE editors' review, our readers may get focused on popular and pertinent directions in their future research.

KEYWORDS:

academic writing, scholarly writing, writing for publication, lexical bundle, rhetoric, genre, discourse

Citation: Raitskaya, L., & Tikhonova, E. (2022). An in-depth glimpse into research on academic writing. *Journal of Language and Education, 8*(2), 5-17. https://doi.org/10.17323/jle.2022.14586

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Received: May 17, 2022
Accepted: June 20, 2022
Published: June 30, 2022

INTRODUCTION

Academic, or scholarly, or scientific writing is "a multidimensional activity" and "culturally loaded event" (Sadeghi & Alinasab, 2020). Being a lingua franca, English facilitates research collaboration on an international scale. All meta data and most international journals are issued in English. The global academic community is diverse, with specific features across countries and disciplines. Disciplinary variation in academic writing stems from in a wide range of "communicative purposes, priorities, and conventions" (Lu et al., 2021). The scope and essence of academic writing (AW) seems quite established.

The research field of academic writing embraces various linguistic aspects (discourse and style issues, including com-

mand of English, linguistic repertoire, genres in AW) and strategies to overcome language problems (surface and discourse level errors, poor coherence, grammatical errors, limited or unproper vocabulary). At the same time, AW has been studied for years in educational contexts (levels of education; efficient teaching methods; assessment; courses, and educational outcomes). In addition, most of research on English academic writing focuses on native speakers or compares Anglophone authors with L2 authors (Wu, Mauranen & Lei, 2020).

With the "Publish or Perish" concept introduced in the academia, "the expectation to create knowledge through research became overemphasized" (Amutuhaire, 2022, p.281). The "Publish or Perish" concept went global and spread across countries and universities, research on academic writing refocused to cover issues of writing for publication, research article structured formats, rhetoric of the scholarly text, genre-specific issues, including lexical bundles, punctuation, and others. At universities, writing-enriched curricula were introduced to promote writing skills across higher education and post-graduate studies. Aiming for academic excellence, universities support their faculty and students in publishing their research outcomes in established international peer-reviewed journals. Publishing in them has become an increasingly widely used measure of academic performance (Wu, Mauranen & Lei, 2020). In the early 2000s, most researchers did not receive "any formal training in academic writing" (Keen, 2007). Due to a changed attitude to academic writing as an integral part of the academic research and publishing process, the discipline of academic writing found its way into university curricula across the globe.

The field has widened. New topics of interest have been emerging. AW is evolving (creativity in AW, requirements for more references, a simplified academic language, a severe fight against plagiarism, etc.). In addition, authors often turn to grammar checkers and other online services. Teaching and learning academic writing have also come to the fore.

Reviews on AW are published regularly (Zwiers, 2004; DiCerbo, Anstrom, Baker, & Rivera, 2014; Tribble, 2015; Nigar, 2020). It proves both the existing research interest AW and multiple facets of the field. Some researchers subtly doubt that AW may be defined as one discipline (Zashikhina, 2021), considering that AW is a set of disciplines. Though, it tends to be approached as a multidisciplinary field.

As a journal focused on languages, higher education, and scholarly communication, JLE sees academic writing high on its agenda. We would like to highlight the cutting-edge trends in the field of AW for our readers in hope for more submissions on the topics of prominence related to academic writing. The review aims to tackle the highly cited publications on academic writing in the period between 2012 and 2021 with a view to clustering the directions of research and their key features. In reviewing the publications indexed in the Scopus database, we are to answer the following Review Questions: (1)What keywords best describe the research field of academic writing? (2)What are the prevailing directions of research in the field of academic writing? (3)What are the characteristics of the research field?

METHODS

Databases

A review of publications tends to give a useful hint for researchers as of the scope and other essential characteristics of the research field. To define the scope of the field, its basic characteristics, and major directions of research, we conducted an analysis of the publications extracted from the Scopus database by various criteria. The Scopus database was selected as it covers the leading sources in the field, including the Journal of English for Academic Purposes, English for Specific Purposes, Journal of Second Language Writing, Assessing Writing, Written Communication, Asian ESP Journal, and other authorities in the field. Besides, Scopus contains over 4,500 documents related to academic writing.

Inclusion and Exclusion Criteria

To make up a list of highly cited publications representing the field research, the following inclusion and exclusion criteria best fit the aim of the review were set (see Table 1).

Table 1

Criteria of Inclusion and Exclusion

Criteria	Inclusion	Exclusion
Database	Scopus	Bases other than Scopus
Language	English	Other languages
Levels of Education	Higher Education Post-Graduate Education	Other levels of education
Period	2012-2021 (10 full years)	Years beyond the period between 2012 and 2021
Subject Area	Social Sciences Arts & Humanities	Other areas
Type of Publications	Articles Reviews	All other types of publications
Language-Focus Research	Academic Writing	All other aspects
Citation	15 citations or more	14 citations or fewer

To determine the prevailing keywords, a frequency list of the top 50 keywords was compiled. In addition, the following characteristics of the research field were analysed: (1) geographic breakdown of the publications; (2) leading research centres focused on AW; (3) prolific authors related to AW. The geographic breakdown, prolific authors, and leading centres were identified on the basis of 1,002 search results.

Procedure

The search on the keyword "academic writing" was launched. The publications found as the search results were refined and limited to the period (2012-2021); type of publications (article, review); language (English); subject area (social sciences; arts & humanities).

The keywords outlined in the publications on the highly cited list were analysed and the first 40 most popular keywords were ranked. Then, the analysis was conducted manually based on the clusters, outlined within the keywords of the field. The characteristics of the selected publications were scrutinized and summed up.

RESULTS AND DISCUSSION

Based on the keyword "academic writing", the search brought 1,792 publications as of May 21, 2022.The initial search was limited by the period (2012-2021); language (English); subject area (social sciences, arts & humanities); types of publication (article, review). The results were refined and subsequently reduced to 1,002 publications.

Then the remaining search results were placed by citation, with the publications cited 15 or more times set aside as a final list for further analyses. As 10 citations are generally considered as an essential and influential level of citation for social sciences (education, communication) and arts and humanities (language and linguistics), the authors increased the minimum criterium to suit all subject areas in this review. The list, thus, totalled 185 publications.

At the next stage, the authors manually filtered the 185 publications on the inclusion – exclusion criteria.18 out of the 185 publications were excluded (see Appendix 1). The final list contained 167 highly cited articles and reviews on academic writing. The citations were distributed between 161 and 15.

Keywords Describing the Research Field

The ultimate 1,002 search results included the following highly frequent 40 keywords (the frequency is shown in the brackets): (1) Academic Writing (897); (2) Higher Education (53); (3) Academic Literacies (31); (4) Plagiarism (30); (5) Writing (30); (6) EAP (28); (7) Lexical Bundles (27); (8) Genre Analysis (26); (9) Metadiscourse (26); (10) English For Academic Purposes (21); (11) Peer Feedback (21); (12) Academic Literacy (19); (13) Corpus Linguistics (19); (14) EFL (19); (15) L2 Academic Writing (19); (16) Students (18); (17) Corpus Analysis (17); (18) Identity (17); (19) Research Articles (17); (20) Systemic Functional Linguistics (17); (21) Academic Writings (16); (22) English Academic Writing (16); (23) Human (16); (24) Feedback (15); (25) Peer Review (15); (26) Humans (14); (27) Research Article (14); (28) Stance (14); (29) Critical Thinking (13); (30) Publishing (13); (31) Teaching (13); (32) Writing Instruction (13); (33) Citation (12); (34) Second Language Writing (12); (35) Writing Assessment (12); (36) Article (11); (37) Assessment (11); (38) International Students (11); (39) Education (10); (40) Academic Writing Skills (9).

The 167 articles and reviews brought the following 40 frequent keywords (the frequency is shown in the brackets): (1) Academic Writing (110); (2) EAP (15); (3) Academic Literacies (11); (4) Lexical Bundles (9); (5) Plagiarism (9); (6) Stance (8); (7) Corpus Linguistics (7); (8) Higher Education (7); (9) Writing (7); (10) Education (5); (11) Genre (5); (12) Human (5); (13) Humans (5); (14) L2 Writing (5); (15) Metadiscourse (5); (16) Doctoral Education (4); (17) Engagement (4); (18) English For Academic Purposes (4); (19) English For Specific Purposes (4); (20) Genre Analysis (4); (21) Peer Feedback (4); (22) Second Language Writing (4); (23) Teaching (4); (24) Academic Discourse (3); (25) Academic Writing Skills (3); (26) Assessment (3); (27) Citations (3); (28) Concordancing (3); (29) Contract Cheating (3); (30) Corpus (3); (31) Corpus Analysis (3); (32) Corpus Pedagogy (3); (33) Diachronic Change (3); (34) Disciplinary Variation (3); (35) EFL Learners (3); (36) Feedback (3); (37) History Writing (3); (38) Identity (3); (39) MD Analysis (3); (40) Nursing (3).

The frequently used keywords added to defining the clusters of research in the analysis (see below). The following keywords are overlapped in both lists: (1) Academic Literacies; (2) Academic Writing; (3) Academic Writing Skills; (4) Assessment; (5) Citation; (6) Corpus Analysis; (7) Corpus Linguistics; (8) EAP; (9) Education; (10) English For Academic Purposes; (11) Feedback; (12) Genre Analysis; (13) Higher Education; (14) Human; (15) Humans; (16) Identity; (17) Lexical Bundles; (18) Metadiscourse; (19) Peer Feedback; (20) Plagiarism; (21) Research Article; (22) Second Language Writing; (23) Stance; (24) Teaching; (25) Writing.

This list includes the keywords that are outlined by both the highly frequent and most cited articles and reviews on academic writing in the period between 2012 and 2021. While forming the thematical clusters best suit this review, this list was used as a starting point for analysis.

Though after the publications were manually filtered, the headlines of the thematic clusters were revised and extended to describe the sub-fields more precisely. The keywords "human", "humans", "second language writing", "education", and "research article" were taken over by more general themes.

Major Directions of Research

The analysis of the 167 highly cited publications categorised the publications into 15 thematic clusters. The latter were initially formed on the basis of the most frequent keywords (see above).

Identity, Complexity, Stance, and Voice

These sub-fields are thoroughly studied. Though, some fresh-new aspects are emerging with the academic discourse and genres development. Thus, in this cluster, there are publications on changes in the notion of stance in the context of gradual evolution of research genres (Hyland & Jiang, 2018); an authorial voice in PhD multilingual writing (Morton & Storch, 2019); writing with attitude for medical students (Crosthwaite, Cheung & Jiang, 2017); attitudes across disciplinary cultures (Gnutzmann & Rabe, 2014); syntactic complexity and writing quality (Casal & Lee, 2019); noun phrase complexity in AW (Parkinson & Musgrave, 2014); grammatical complexity in L2 English writing research (Biber, Gray, Staples & Egbert, 2020), and others.

Country-Related Research

The review entails research on country-related issues of teaching AW at universities around the globe, including practices from Sweden, UK, China, Hungary, Qatar, Kenia, Hong Kong, Iran, Turkey, Australia, and Taiwan. The details of some publications are given below as there is an overlapping of the clusters.

Teaching and Learning AW and EAP in Higher Education

AW has been approached in the pedagogical contexts for a long time. Research focuses on technologies of teaching, effectiveness of learning, skills, and traits necessary to develop one's AW. The highly cited publications include the ones on self-regulated strategic writing and self-regulatory control strategy in AW (Csizér & Tankó, 2017; Hu & Gao, 2018); an English-medium university as a rich immersion environment and its impact on English proficiency of international students in writing (Knoch, Rouhshad, Oon & Storch, 2015); the effects of strategy instructions on writing strategy (De Silva & Graham, 2015); PhD students' conceptions of AW (Lonka et al., 2013); real-life academic tasks (McCullock, 2013); critical thinking and appraisal in AW (Borglin & Fagerström, 2012); potential of mobile learning in teaching ESP academic writing (Zaki & Md Yunus, 2015); gamification in developing AW (El Tantawi, Sadaf & AlHumaid, 2018). Other themes of research cover L2 students' AW from sources in English (Cumming et al., 2018); data-driven learning (DDL) in the academic writing classroom (Chen & Flowerdew, 2018); taxonomy of errors in writing (Salmani Nodoushan, 2018) and software tools of error analysis (Al-Ahdal, 2020); writing across the curriculum (Harper & Vered, 2017) and others.

Software and Digital Issues of AW

Teaching and learning AW widely apply software specially devised to meet various needs. As the publications under review prove that the studies focus on constructing discipline-specific corpora in ASP courses for students to learn to write academic texts (Charles, 2012; Charles, 2014); on the Leximancer text mining software (Hyndman, 2018); on corpus-based analysis of academic vocabulary in research articles (Valipouri & Nassaji, 2013); on AcaWriter, a learning analytics tool on rhetorical feedback (Knight et al., 2020); on software tool of error analysis (Al-Ahdal, 2020); on Turnitin software against plagiarism (Mphahlele & McKenna, 2019); and other technologies used for digital support for AW.

Lexical Bundles and Vocabulary

Academic discourse has its own features, including very specific and science-only vocabulary (terms) and lexical bundles, frequently used combinations of words. The publications encompass research on lexical bundles in AW by native and L2 speakers of English (Adel & Erman, 2012; Shin, 2019, etc.); connecting lexical bundles and rhetorical moves in AW (Cortes, 2013); phrasal complexity through complex phrases constructions (Ansarifar, Shahriari & Pishghadam, 2018); linking adverbials (Lei, 2012); phrase-frame lists in social science articles (Lu, Yoon & Kisselev, 2018); academic phraseology (Vincent, 2013), etc.

Genre Analysis and Genre Issues in AW

Genre analysis often forms the basis for an EAP course. Understanding academic genres is the key to successful writing. The articles in this review contains studies on students' genre uptake (Miller, Mitchell & Pessoa, 2016); on move analysis (Parkinson, 2017); on challenges to genre approaches in EAP (Tribble, 2017); on genre of business case report (Nathan, 2013); on effects of data-driven learning on genre uptake (Cotos, Link & Huffman, 2017), etc.

Feedback and Assessment

The issues of assessment and feedback are a central piece in many instructional methods. They may add effectiveness to the learning process, serving as motivation. The cluster entails various approaches to feedback and peer feedback as well as assessment in AW, including the effects of peer feedback on academic writing (Huisman, Saab, van Driel & van den Brock, 2018; Huisman, Saab, van den Brock & van Driel, 2019); participating in a doctoral writing group and reflective practice skills development (Cahusac de Caux, Lam, Lau, Hoang & Pretorius, 2017); assessment of writing in an academic writing course (Rakedzon & Baram-Tsabari, 2017); processing written corrective feedback by L2 learners; assessment of metacognitive strategy knowledge about AW (Karlen, 2017); the effects of research evaluation on academics' writing practices (McCulloch, 2017), etc.

Table 2

Thematic Clusters of the 167 Highly Cited Publications on AW

Thematic Cluster	Number of Publications on the list	Brief Cluster Description
Identity, Complexity, Stance, and Voice	32	Syntactic, lexical, and grammatical complexity of an academic text. Stance expression. Writing with attitude. Research on an authorial voice and voice features. Attitudes across disciplinary cultures
Country-Related Research	28	Country-related experiences in teaching and learning AW
Teaching and Learning AW and EAP in Higher Education	24	Various aspects of teaching and learning of AW. AW at universities. Techniques and technologies of learning of AW. Research related to EAP
Software and Digital Issues of AW	23	Research on software-related issues of AW. Digital support of AW
Lexical Bundles and Vocabulary	23	Lexical bundles in AW. Linguistic resources used in AW. Vocabulary and lexical bundles used in various sections of the research article
Genre Analysis and Genre Issues in AW	13	Community and identity in genre analysis. Genre uptake
Feedback and Assessment in AW	11	Peer feedback process in teaching AW at universities, its efficiency, and perceptions. Research into the teaching and assessment of student AW
Publish or Perish, Writing for Publication	10	Research on individual and institutional traits of academic publishing, its links to academic literacies. International journals: editing policies, language ideologies, knowledge production, evaluation, and circulation. Peer review: challenges, and functions in knowledge production
Plagiarism, Cheating, and Integrity	10	Culturally based interpretations of plagiarism. Qualitative and quantitative analyses of blatant and subtle plagiarism. Plagiarism detection
Academic Literacies	8	Research on Academic Literacies, an influential model in the UK focused mainly on the situations of "non-traditional" students, and its links to developing a mainstream instructional model. Analyses of academic literacy in all contexts
Discourse and Metadiscourse	7	Discourse analyses in AW contexts. Corpus Building. Corpus-based studies. General and specialized corpora in AW. Studies on the ways in which writers interact through their use of language with readers, i.e. metadiscourse
Discipline-Related Issues	7	AW learning and teaching related to various disciplines
Citation Issues in AW	7	Research on multiple citation features, motives to cite, and citation practices. Analyses of functions of citations in theses and research articles
Writing a Thesis	6	Genre and various aspects of writing a PhD thesis
Rhetoric. Moves & Steps	6	Research based on Moves and Steps Analysis (Swales, 1990). Rhetoric of research texts

Publish or Perish, Writing for Publication

Writing for publication came to the fore as the "Publish or Perish" period began. Greater pressures on researchers forced them to publish their research in international journals, though often negatively motivated (Lambovska & Todorova, 2021). At present, such publications in highly reputed journals, mainly indexed at the international databases Scopus, and Web of Science, are supposed the major results of their productivity. University scholars' funding and

careers as well as the ranking of their affiliated universities are subject to published academic work.

The cluster entails research productivity (Nygaard, 2017); language ideologies enacted in the comments on the submissions to international English-medium journals (Lillis & Curry, 2015) and referees' comments on submissions and indirect requests addressed to authors (Paltridge, 2015); publishing research in the international context (Gea-Valor, Rey-Rocha & Moreno, 2014); the use of English in academic publishing (Olsson & Sheridan, 2012); and navigating scholarly writing and international publishing (Ho, 2017).

Plagiarism, Cheating, and Integrity

The recent research is focused on university teachers' and students' attitudes towards plagiarism (Adam, Anderson & Spronken-Smith, 2017); the effectiveness of anti-plagiarism software, including the most popular service Turnitin used for 10 languages (Stapleton, 2012); intentional, unintentional, and contextual plagiarism; detecting cheating in essay and report submissions at universities (Rogerson, 2017); academic integrity (Morris, 2018); and plagiarism reasoning (Selemani, Chawinga & Dube, 2018).

Academic Literacies

Academic Literacies (AL) as well as English for Academic Purposes are the two dominant approaches to academic writing instruction. The former is applied mainly in the UK, the latter is internationally recognized. Wingate & Tribble (2012) made a review of these two approaches, analysing the shared principles. The other publications on the academic literacies model include studies on a combination of AL with a genre-based model (Wingate, 2012); on a systemic functional linguistics (SFL) approach (Coffin & Donohue, 2012); etc.

Discourse and Metadiscourse

The pursuit to explain the relationship between language and the contexts it is used encourages metadiscourse studies. Researchers face some difficulties in defining and categorising the field. Though new research papers were also published (2012-2021), including studies on a general analysis on metadiscourse (Hyland, 2017); metadiscourse features of successful and unsuccessful writings of university students (Lee & Deakins, 2016) and metadiscourse repertoire (Li & Wharton, 2012); changing patterns of metadiscourse across disciplines (Hyland & Jiang, 2018); etc. Metadiscourse studies form an integral part of discourse analysis.

Discipline-Related Issues

AW is not universal across disciplines. Separate research is required to cover discipline-specific issues. In the review, we outlined research on AW in nursing (Borglin & Fagerström, 2012); psychology (Willis, 2018); biological sciences (Divan, Bowman & Seabourne, 2015); etc. The cluster also includes a publication on variations of research articles across disciplines (Gray, 2013).

Citation Issues in AW

The cluster covers studies on multiple citation features, including publications on cross-disciplinary and cross-linguistic influences on citation in research articles (Hu & Wang, 2014); rhetoric functions of intertextual links in different academic genres; and citing behaviour, including a taxonomy of motives to cite (Erikson & Erlandson, 2014); development of source use and citation (Davis, 2013; Cumming et al., 2018).

Writing a Thesis

AW is one of the foundations for any research work, including theses. There are a few publications related to writing a thesis. They dwell upon facilitating experiences and strategies for doctoral students' and graduates' thesis writing (Odena & Burgess, 2017); specific features of doctoral theses in the visual and performing arts (Paltridge, Starfield, Ravelli & Tuckwell, 2012); challenges encountered by novice doctoral writers (Maher, Feldon, Timmerman & Chao, 2014), etc.

Rhetoric. Moves & Steps

Research on AW tends to include studies of generic structure of articles. It was offered by John Swales as Moves Analysis in 1981 (Swales, 1990). This review entails publications on connecting lexical bundles with moves in research article introductions (Cortes, 2013); strengthening move analysis methodology (Moreno & Swales, 2018); etc.

Characteristics of the Research Field of Academic Writing

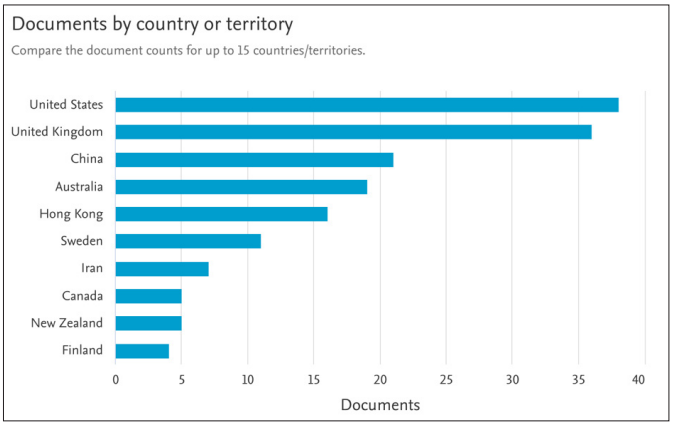
The reviewed papers were published in 57 peer-reviewed journals, with 162 research articles (97 per cent) and 5 reviews (3 per cent). Three journals topped the list with 41, 17, and 13 publications respectively. They are *Journal of English for Academic Purposes* (47), *English for Specific Purposes* (17), and *Journal of Second Language Writing* (13). The remaining journals published fewer than 10 articles or reviews.

The most prolific authors in the field of AW (2012-2021) were K. Hyland (12 publications), F. Jiang (7 publications), and J.J. Lee (5 publications). The geographic breakdown is shown in Diagram 1, with the USA, the UK, and China taking the lead.

The distribution of publications by year showed more or less even pattern (See Diagram 2), with hikes in 2017 and 2018. It may begin a new upward trend in highly cited publications on AW. The data are lower for 2020 and 2021 as these were pandemic years and citations on them may rise in 2022 and 2023.

Diagram 1

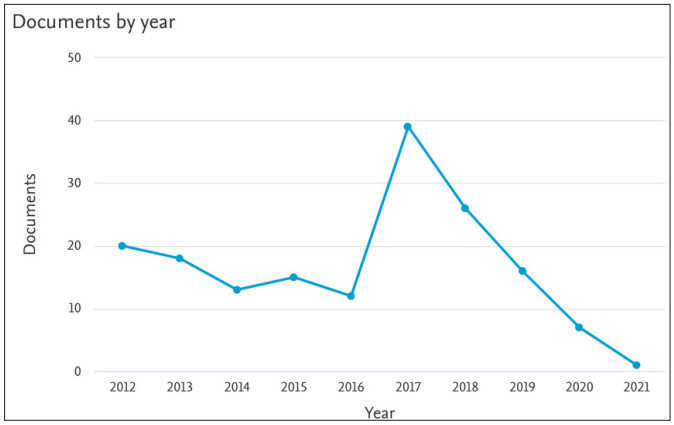
Geographic Breakdown of the Highly Cited Publications on AW (2012-2021)



Note. From the Scopus database. Copyright 2022 by the Scopus.

Diagram 2

Distribution of the Highly Cited Publications on AW by Year (2012-2021)



Note. From the Scopus database. Copyright 2022 by the Scopus.

CONCLUSION

The review found that in the period between 2012 and 2021 the key lines of research encompassed: (1) Teaching and Learning AW and EAP in Higher Education, (2) Software and Digital Issues of AW, (3) Lexical Bundles and Vocabulary, (4) Identity, Complexity, Stance, and Voice, (5) Country-Related Research, (6) Genre Analysis and Genre Issues in AW, (7) Feedback and Assessment in AW, (8) Plagiarism, Cheating, and Integrity, (9) Academic Literacies, (10) Discourse and Metadiscourse, (11) Publish or Perish, (12) Writing for Publication, Discipline-Related Issues, (13) Citation Issues in AW, (14) Writing a Thesis, (15) Rhetoric Moves & Steps.

The JLE editors expect their potential authors will focus in their research on the themes mentioned above as the outlined directions tend to prevail in global AW research in the near future. The JLE sees these sub-fields as promising for the journal scope development. As this editorial review is limited to one database, though essential, further reviews may be conducted on a wider basis. A scoping review could contribute more to a general understanding of the field development.

DECLARATION OF COMPETING INTEREST

None declared. ■

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APPENDIX 1

Articles Excluded from the Highly Cited Publications by Exclusion Criteria

No	Publication Description	Non-Compliance with the Criteria
1	Allen, D., & Mills, A. (2016). The impact of second language proficiency in dyadic peer feedback. *Language Teaching Research, 20*(4), 498-513. https://doi.org/10.1177/1362168814561902	Scope Criterium
2	Cotos, E. (2014). Enhancing writing pedagogy with learner corpus data. *ReCALL, 26*(2), 202-224. https://doi.org/10.1017/S0958344014000019	Scope Criterium
3	Curry, M. J., & Lillis, T. M. (2014). Strategies and tactics in academic knowledge production by multilingual scholars. [Estrategias y tácticas en la producción de conocimiento académico por investigadores multilingües] *Education Policy Analysis Archives, 22.* https://doi.org/10.14507/epaa.v22n32.2014	Language Criterium
4	De Bhailís, C., & Flynn, E. (2017). Recognising legal capacity: Commentary and analysis of article 12 CRPD. *International Journal of Law in Context, 13*(1), 6-21. https://doi.org/10.1017/S174455231600046X	Scope Criterium
5	Gao, Y., Schunn, C. D. D., & Yu, Q. (2019). The alignment of written peer feedback with draft problems and its impact on revision in peer assessment. *Assessment and Evaluation in Higher Education, 44*(2), 294-308. https://doi.org/10.1080/02602938.2018.1499075	Scope Criterium
6	Ho, V., & Li, C. (2018). The use of metadiscourse and persuasion: An analysis of first year university students' timed argumentative essays. *Journal of English for Academic Purposes, 33*, 53-68. https://doi.org/10.1016/j.jeap.2018.02.001	Scope Criterium
7	Lisle, D., & Johnson, H. L. (2019). Lost in the aftermath. *Security Dialogue, 50*(1), 20-39. https://doi.org/10.1177/0967010618762271	Scope Criterium
8	Moreno, A. I., Rey-Rocha, J., Burgess, S., López-Navarro, I., & Sachdev, I. (2012). Spanish researchers' perceived difficulty writing research articles for English-medium journals: The impact of proficiency in English versus publication experience. *Iberica, 24*, 157-184.	Language Criterium
9	Naheem, M. A. (2017). Suspicious alerts in money laundering-the crédit agricole case. *Journal of Financial Crime, 24*(4), 691-703. https://doi.org/10.1108/JFC-12-2015-0074	Scope Criterium
10	Nordberg, D. (2017). First and second drafts of history: The case of trump, foucault and pre-modern governance. *Geopolitics, History, and International Relations, 9*(2), 107-117. https://doi.org/10.22381/GHIR9220175	Scope Criterium
11	Peeters, W. (2018). Applying the networking power of web 2.0 to the foreign language classroom: A taxonomy of the online peer interaction process. *Computer Assisted Language Learning, 31*(8), 905-931. https://doi.org/10.1080/09588221.2018.1465982	Scope Criterium
12	Prahmana, R. C. I., & Kusumah, Y. S. (2016). The hypothetical learning trajectory on research in mathematics education using research-based learning. *Pedagogika, 123*(3), 42-54. https://doi.org/10.15823/p.2016.32	Language Criterium
13	Prasopoulou, E. (2017). A half-moon on my skin: A memoir on life with an activity tracker. *European Journal of Information Systems, 26*(3), 287-297. https://doi.org/10.1057/s41303-017-0040-7	Scope Criterium
14	Ranalli, J., Link, S., & Chukharev-Hudilainen, E. (2017). Automated writing evaluation for formative assessment of second language writing: Investigating the accuracy and usefulness of feedback as part of argument-based validation. *Educational Psychology, 37*(1), 8-25. https://doi.org/10.1080/01443410.2015.1136407	Scope Criterium
15	Révész, A., Michel, M., & Lee, M. (2019). Exploring second language writers' pausing and revision behaviors. *Studies in Second Language Acquisition, 41*(3), 605-631. https://doi.org/10.1017/S027226311900024X	Scope Criterium
16	Tateo, L., Español, A., Kullasepp, K., Marsico, G., & Palang, H. (2018). Five gazes on the border: A collective auto-ethnographic writing. *Human Arenas, 1*(2), 113-133. https://doi.org/10.1007/s42087-018-0010-1	Scope Criterium

No	Publication Description	Non-Compliance with the Criteria
17	Teng, L. S., & Zhang, L. J. (2020). Empowering learners in the second/foreign language classroom: Can self-regulated learning strategies-based writing instruction make a difference? *Journal of Second Language Writing, 48.* https://doi.org/10.1016/j.jslw.2019.100701	Scope Criterium
18	Zhu, Q., & Carless, D. (2018). Dialogue within peer feedback processes: Clarification and negotiation of meaning. *Higher Education Research and Development, 37*(4), 883-897. https://doi.org/10.1080/07294360.2018.1446417	Scope Criterium

https://doi.org/10.17323/jle.2022.12467

Determinants of Technology Acceptance Model (TAM) Towards ICT Use for English Language Learning

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ABSTRACT

Background. The use of ICT in learning English can assist learners to improve their language skills, aside from empowering and motivating them in English language learning. ICT utilization can provide opportunities for collaboration and interaction in the learning process.

Purpose. The present study was conducted to examine the motivation, ICT skills, equipment, and attitudes factors towards the use of ICT tools for English learning in English as a Foreign Language (EFL) context.

Methods. The quantitative method was applied involving 303 pre-service teachers of English department at a state university in Jambi, Indonesia. A questionnaire was employed to collect the data and Structural Equation Modeling (SEM) was used to analyze the proposed hypotheses developed in fulfilling the study objectives. Technology Acceptance Model (TAM) was used to examine the attitudes of student teachers toward the use of ICT for English language learning.

Results. Findings suggested that the determinants of the technology acceptance model are the major factors influencing the usage of ICT. In addition, the effect of equipment, motivation, and ICT skills towards the use of ICT had been mediated by three main variables of TAM, namely perceived ease of use, perceived usefulness, and attitudes. Furthermore, it was found that the motivation, ICT skills and attitudes factors affect the actual use of ICT for English learning while the equipment factor does not.

Implications. The results of this study are beneficial for students and teachers both in schools and universities. For students, they need to equip themselves with ICT literacy, ICT skills, motivation, and positive attitudes towards the use of ICT in English learning activities. Teachers should also equip themselves with ICT skills so that they can provide learning experiences according to the needs of students in today's digital age.

KEYWORDS:

English Language Learning, ICT, student teacher, technology acceptance model

Citation: Al Arif, T. Z. Z., Sulistiyo, U., & Handayani, R. (2022). Determinants of Technology Acceptance Model (TAM) towards ICT use for English language learning. *Journal of Language and Education, 8*(2), 17-30. https://doi.org/10.17323/jle.2022.12467

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Received: May 26, 2021
Accepted: June 24, 2022
Published: June 30, 2022

INTRODUCTION

Nowadays, technological advances have had significant impacts on the field of education, especially in learning English as a foreign language. The use of ICT in learning English can assist learners to improve their language skills, aside from empowering and motivating them in English language learning. ICT utilization can provide opportunities for collaboration and interaction in the learning process. Further, the instructional practice can be scaffolded for learners to benefit from such opportunities (Jeong, 2017).

Information and Communication Technology (ICT) is defined as forms of technology used for creating, displaying, storing, manipulating, and exchanging information (Meleisea, 2007). ICT refers to computer-based and network-based technologies that provide a context for information production, delivery, and sharing. In general, ICT relates to computers, hardware and software, smartphones, gadgets, networks, internet, website, e-mail, television, radio, and other computer-based technologies. Empirically, ICT has brought profound changes to all aspects of our lives, and it has a vital role to play in education. The ICT utilization

in the last decade has made a high contribution to English language teaching and learning (Al Arif & Handayani, 2021; Chouthaiwale & AlKamel, 2018).

ICT covers all aspects of computers, networks (internet), and specific other devices with information storage and processing capacities such as TV, mobile phones, and automatic control devices (Caldwell, 2020). In this study, ICT refers to computer-based and internet-based technologies such as desktop, laptops, smartphones, gadgets, e-mail, social networking, website, and software related to English language learning and teaching (Davies & Hewer, 2009; Thamarana, 2015).

In recent times, technologies that interact through the use of computers, the Internet, and telephones have become the subject of most educational studies. The digital era offered technological sophistication including internet and mobile computing that can be brought to educational field. ICT in education can therefore be characterized as an educational practice based on pedagogic theory, resource development and management, method, implementation and evaluation (Jose & Abidin, 2015). The development of ICT enable teachers and educators to make online course and share learning materials to be accessed by students anytime and anywhere (Bauwens, Muylaert, Clarysse, Audenaert, & Decramer, 2020).

Information and Communication Technology (ICT) is more commonly used in language learning and teaching for the last decades (Al Arif, Sulistiyo, Ubaidillah, Handayani, Juninging, & Yunus, 2022; Hwang, 2014; Taj, Ali, Sipra, & Ahmad, 2017). ICT is used for creating, storing, displaying, and sharing information. ICT provides a context for human-human and human-machine communication, and it gives a framework for information production, display, delivery, and sharing. In the context of EFL, ICT can provide English language learners with opportunities for interaction with native speakers through ICT tools such as e-mail, social networking, and video-based communication like Skype.

Since the first appearance of ICT integration in education in the last decades, a substantial investment has been made in ICT facilities and training in Indonesia universities. In Indonesia, as in other countries, the use of ICT in education concentrates on the potential contribution of ICT on teaching and learning process. ICT integration makes teaching and learning more dynamic, which contributes to increase students' engagement. ICT use in English language teaching makes the students tend to have a positive perception and positive attitudes towards ICT integration in the classroom (Mei, Brown, & Teo, 2018; Youssef, Dahmani, & Ragni, 2022).

As one of the most influential frameworks for exploring concerns of technology acceptance and rejection, the Technology Acceptance Model (TAM; Davis, 1989; Venkatesh & Davis, 2000) has been widely employed in teaching and learning contexts (Koç, Yüksel, & Altun, 2021). Numerous studies have proven TAM's strength, and the model has grown to become the common ground theory in explaining determinants of user intention toward the adoption of a technology (Jiang, Jong, Lau, Meng, Chai, & Chen, 2021; Mallya, Lakshminarayanan, & Payini, 2019). Although the TAM model is being widely used to examine users' willingness to adopt a technology, only a few empirical studies have been conducted pertaining to EFL learners' technology acceptance (Hu & AlSaqqaf, 2021; Ketmuni, 2021). Particularly, little is known about the factors driving students' adoption of technologies for learning purposes (Zhou, Xue & Li, 2022).

The current study varies from previous studies in that it explores ICT integration among EFL university students in Indonesia, which has a distinct culture that differs from that of other countries. The primary contribution of this study is to use TAM (Technology Acceptance Model) to examine the acceptance of ICT use for English language learning in Indonesia. For that reason, this study aims to examine the determinants of TAM that influence the acceptance of ICT use for English language learning. This study attempts to analyze the relationship of pre-service teachers' attitude toward ICT use with decided constructs such as their ICT's equipment, ICT's skills, and motivation to use ICT for English learning.

LITERATURE REVIEW

Research Focus on the Use of ICT in English Learning

Using ICT in the classrooms has a high potential for English language learning. It can offer an active learning process and motivate the learners. The technological equipment such as Television, Laptop, Projector, and Interactive Video may affect the learners' attitudes in the English language learning process. The learners can improve their language skills while gaining a sense of independence and encouragement through the use of various technological devices (Caldwell, 2020).

The widespread growth of ICT integration for English language learning has made the process of learning easily accessible by students. ICT devices such as tablet, smartphone and laptop, have become learning tools with great potential outside and inside the classrooms. Students have a great motivation when they used ICT tools to access the materials for learning English (Jakob & Afdaliah, 2019; Kohnke, 2020). Using ICT also may reduce the amount of anxiety that learners have and encourage them to perform English language skills (Balbay & Kilis, 2017; Shamsi, Altaha, & Gilanlioglu, 2019).

ICT can assist both teachers and students in English language learning, and it promotes students' engagement and independent learning (Caldwell, 2020; Floris, 2014). ICT has been used in the classrooms from elementary school to higher education (Azevedo, Catholic, Grande, Sul, Orsi, Delgado, & Silva, 2017; Kalra, 2018). ICT utilization provides the opportunity for students to find out the learning material and practice

their English language skills. Moreover, ICT can be used to attract and grow students' interest and their positive attitudes in learning English, and it is also expected that ICT should be used more frequently in the classroom in order to maximize language teaching and learning. The use of ICT can provide students with the opportunities to practice their English in the real context of language use (Kramsch & Thorne, 2002). The learners can use Skype to interact with a native speaker (Dalton, 2011). Also, teachers can use video resources in the classroom to enhance English language learning (Boutonglang & Flores, 2011). ICT can be used to develop students' English language skills (Jakob & Afdaliah, 2019).

The use of ICT can help English language learners to improve their English language skills in the English language teaching process. The university students are more interested in English language learning when the teachers make use of ICT in the English language teaching process (Alfarwan, 2019; Kreutz & Rhodin, 2016). The effects of technology use in the classrooms make the students active and enjoy classroom activities. The integration of ICT also increases students' motivation in the EFL context (Ilter, 2009; Kohnke, 2020).

Many claims are made regarding the benefits of ICT integration in English language teaching (ELT) (see Benghalem, 2015; Dugartsyrenova & Sardegna, 2017; Howlett & Zainee, 2019). Technological equipment, including the Internet, makes the process of teaching and learning more comfortable and faster, but also to increase the students' engagement and motivation (Fatiha, Sliman, Mustapha, & Yahia, 2014; Ilter, 2009). The use of ICT brings many advantages to learners. The learners may have the opportunity to search for a variety of materials. The advantages of utilizing ICT in education included social interaction, learning motivation, and experiential assistance (Habibi, Mukminin, Riyanto, Prasojo, Sulistiyo, Sofwan, & Sudagar, 2018).

The implication of ICT integration in ELT can support both teachers and learners. Technological devices have been viewed and realized as essential and useful tools, especially in English language teaching. ICT use in ELT helps the students to increase their attitudes in learning English (Idowu & Gbadebo, 2017; Sabti & Chaichan, 2014). Using ICT in the classroom may bring positive attitudes for both teachers and learners (Benghalem, 2015).

Moreover, other research conducted to support the benefits of ICT integration in ELT often relies on introducing the learners to the new devices, software, and websites for learning and practicing the English language (Fitriah, 2018; Zhang et al., 2011). Various devices, software, and websites can be accessed by the learners to improve their English skills. The internet-based technologies allow the learners to access the authentic materials to make them enjoy the English language learning (Shevchenko, 2018). These technological devices allow learners to communicate and exchange knowledge as well as learning experience in contextual settings.

Previous Studies on the ICT Integration

A number of studies on ICT integration for education have been conducted worldwide. For instance, in the U.S, Foti and Mendez (2014) investigated mobile devices in enhancing students' achievement in a graduate program. Forty-six respondents participated in this study. The findings indicated that the students used their mobile devices to enhance learning outside the classroom. Another study in the U.S was conducted by Johri et al. (2014) that investigated digital media and information used by the students. Two hundred and four students participated in a multiple-item survey on the frequency of digital media usage, academic activities, participation in social networking, and searching for information on the internet. The result of the study showed that the students used ICT extensively and frequently. The students asserted that they utilized ICT for general purposes, such as enjoyment and teacher assignments. In Australia, Manakil and George (2017) explored the influence of mobile technology used by students for learning. An online questionnaire was distributed to 251 students enrolled in an Australian university's school of dentistry. The study indicated that the majority of participants (93.2%) used mobile devices for various activities including for educational purposes. The majority of the participants (78.8%) shows that mobile devices and their software may be of positive assistance in education and management. The abovementioned studies investigated the use of ICT for education, however, they did not address the use of ICT for English learning in EFL context.

Situating Previous Studies on the Use of ICT in EFL Contexts

In the EFL context, Shanthi, Adnan, Jamil, Rosle, & Sharminnie (2021) explored university students' acceptance of open distance learning (ODL) using TAM model. ODL took the place of traditional classrooms and created new chances for students and teachers to interact and communicate. The findings reveal that ODL was not a popular choice of learning approach among students. Although students had a positive perception of ODL, the student's attitude and intention to use ODL for future learning were lacking. Alfadda & Mahdi (2021) investigated the correlation between the variables of TAM on using Zoom application in language learning. The study involved 75 undergraduate EFL learners who have studied for online language learning. The results of the study reveal a strong positive correlation between the actual use of ICT and the students' attitudes and behavioral intention. In addition, there is a positive correlation between self-efficacy and other TAM's variables.

Ketmuni (2021) investigated acceptance of Online English Language Learning of Undergraduate Students at a university in Thailand. His study was employed by the technology Acceptance Model (TAM) and conducted as a quantitative and qualitative research. 400 respondents were selected by simple random sampling, and the 30 participants were chosen by purposive sampling. The findings indicated that the

greatest factor affecting the acceptance of online English learning was Perceived Ease of Use. The students suggested that the teachers should have teaching techniques to stimulate students' interests and provide a variety of activities. Other related studies were conducted to investigate ICT use in English learning of EFL university students (Alfarwan, 2019). One hundred and thirty-eight of Saudi English and business students at a Saudi university participated in this survey. The findings indicated that the smartphone had the most significant potential for further exploitation concerning English, followed by the laptop and tablet.

Another study related to ICT use in EFL context was conducted by Tri and Nguyen (2014). It involved one hundred and forty-nine EFL students at a university in Vietnam as respondents of the survey. The findings indicated that the learners spent more time using ICT for private purposes than for English learning purposes. Specifically, 88.4% of them used ICT for general purposes, and only 12.6% of them used ICT for English learning purposes.

In the Indonesian context, the students perceive that ICT was useful to be used in English language learning. They used ICT as media in the teaching and learning process (Oktalia et al., 2018). The students used ICT for searching information given by the lecturer, and the lecturer used the ICT for presenting material and as media in teaching. Therefore, ICT integration in English learning should be further investigated to ascertain the factors that influence the technology acceptance model toward the use of ICT in English language learning.

While research studies on the impact of ICT integration on English language learning have been extensively carried out (Alfarwan, 2019; Sabti & Chaichan, 2014; Tri &Nguyen, 2014), typically, these studies examined the effect of ICT use on English-language skills such as listening, reading, speaking and writing. Nevertheless, a few studies, especially in an Indonesian context, focused on the relationship of students' attitudes, motivation, ICT skills, and ICT equipment towards the use of ICT for English language learning. To fill such a gap in knowledge, the present study was designed to examine to what extent TAM variables influence the ICT use in English language learning.

The technology acceptance model (TAM) is a valid model which includes the perceived usefulness (PU) and perceived ease of use (PEoU) as beliefs on a new technology that affect attitude on the use of that technology (Davis, 1989). Despite widespread acceptance for the TAM, researchers urge others to investigate whether the TAM's belief variables are mediators of the effect of external variables and, if so, which external variables are essential (Venkatesh, 2000; Venkatesh and Brown, 2001). There is no previous literature research has included collectively motivation and ICT skills in a single TAM model, even though these variables are relevant in the context of exploring ICT use for English language learning. Also, while previous research shows that access barriers, such as cost, could influence the use of personal technology (Venkatesh and Davies, 2000), perceived of motivation and ICT skills have not been included as an additional belief variable in previous applications of the TAM.

METHODS

Study Design

This study employed a survey design since it analyzed data in the form of numbers. A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or draws inferences to the population (Creswell, 2014). The current study employed quantitative method to examine factors of TAM toward ICT use for English language learning. Besides, it investigated students' activities related to the usage of ICT for general and English language learning purposes.

Participants

This study used a convenience sample of 303 student teachers of the English Department at a state university in Jambi, Indonesia. The participants are all pre-service teachers majoring English from the first-year to the fourth-year students enrolled in 2020. The student teachers had formally learned English for three years at secondary school level, three years at high school level, and continue to study English courses as well as receive instruction through the medium of English during their undergraduate study at university. Two hundred thirty-seven respondents were female (78.2%), and sixty-six respondents were male (21.8%).

Data Collection

The primary instrument to collect data in this study was a questionnaire. The online questionnaire was modified by the researchers based on the research question and previous related studies in a close-ended format, and distributed to all of the respondents. The modified questionnaire consists of 33 items. The first section elicited background information of the respondents including gender, academic years, ICT devices ownership, the use of ICT for English learning purposes, and their activities in using ICT for English learning purposes (5 items). The second section entailed the variables of TAM in using ICT for English language learning, which included equipment (Eq), 2 items (adapted from Sabti & Chaichan, 2014); motivation (Mo), 2 items (adapted from Sabti & Chaichan, 2014); ICT skills (Sk), 3 items (adapted from Sabti & Chaichan, 2014); perceived ease of use (PEoU), 5 items (adapted from Davies, 1989; Park, 2009; and Venkatesh & Davies, 2000); perceived usefulness (PU), 5 items (adapted from Davies, 1989; Park, 2009, and Venkatesh & Davies, 2000); attitude (At), 3 items (adapted from Davies, 1989; Park, 2009, and Venkatesh & Davies, 2000); and actual use (AU), 4 items (adapted from Davies, 1989; Park, 2009,

and Venkatesh & Davies, 2000), with four-point Likert-type scales, from 1 = strongly disagree to 4 = strongly agree.

Before administering the questionnaire in this study, a representative group (25 students) who were not involved in the main study were piloted to allow the researchers to identify and adjust the instrument. Expert judgment and literature review were employed in developing the questionnaire validity. For the content validity, the questionnaire was validated by two experts in the field of ICT in face-to-face discussions to make sure the relevance and overall quality of each item in the questionnaire. Modifications, including the layout, the scale, and language translation of the questionnaire were made. Considering that the student teachers (ranged from Year 1 to Year 4) possessed varying levels of English proficiency, a combined three-step (i.e., forward translation, review, and back translation) adaptation method was employed to produce a reliable Indonesian version of the questionnaire. Besides, we also used convergent validity and discriminant validity for the instrument. The result of convergent validity was the outer loading's score of each construct > 0.7, and the AVE's score > 0.5. It means that the constructs of the instrument in this study were valid. Discriminant validity was done by using the fornell-larcker criterion. The score of Actual Use (AU), Attitude (At), Equipment (Eq), ICT Skills (Sk), Motivation (Mo), Perceived Ease of Use (PEoU), and Perceived Usefulness (PU) were 0.828, 0.808, 0.893, 0.879, 0.887, 0.805, 0.715, respectively. Each construct had a score > 0,7. It means that each construct is valid. The questionnaire items were translated into Indonesian language to ensure the respondents understand each item being asked.

Data Analysis

The data collected through the online questionnaire (using Google Form) were coded by researchers. First, the data were put in an MS Excel program. Then, they were transferred to SmartPLS3 program (version 3.2.9) to get descriptive statistic which covers mean, standard deviation, frequency, percent, and correlation. To test the hypotheses by Partial Least Squares -Structural Equation Modeling (PLS-SEM). Confirmatory factor analysis and path analysis in partial least squares (PLS-SEM) were performed to examine the effects of TAM factors that affect the use of ICT for English learning purposes. PLS-SEM was performed in order to test the hypotheses with the significant rate 0.05. Before testing the hypothesis, the researchers performed validity and reliability tests to fulfill the requirements of analysis using PLS-SEM. The researchers also checked the factor loading's value of each item in the constructs to make sure that the values > 0.70. The proposed research model and hypotheses are presented in Figure 1 and Table 1.

Figure 1

Proposed Research Model

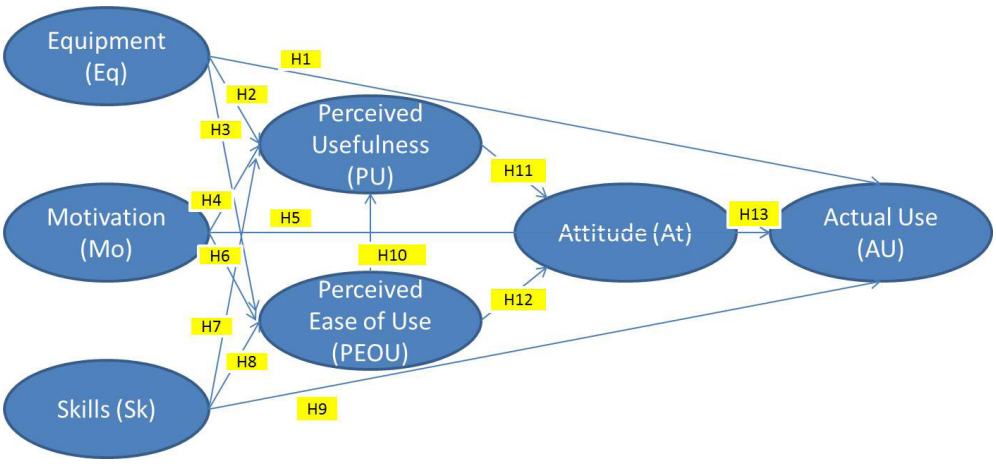

Table 1

Research Hypotheses

No		Hypotheses
H1	Ho	There is no significant effect of Equipment on Actual Use
	Ha	There is a significant effect between Equipment and Actual Use
H2	Ho	There is no significant effect of Equipment on Perceived Usefulness
	Ha	There is a significant effect of Equipment on Perceived Usefulness

No		Hypotheses
H3	Ho	There is no significant effect of Equipment on Perceived Ease of Use
	Ha	There is a significant effect of Equipment and Perceived Ease of Use
H4	Ho	There is no significant effect of Motivation on Perceived Usefulness
	Ha	There is a significant effect of Motivation on Perceived Usefulness
H5	Ho	There is no significant effect of Motivation on Actual Use
	Ha	There is a significant effect of Motivation on Actual Use
H6	Ho	There is no significant effect of Motivation on Perceived Ease of Use
	Ha	There is a significant effect of Motivation on Perceived Ease of Use
H7	Ho	There is no significant effect of Skills on Perceived Usefulness
	Ha	There is a significant effect of Skills on Perceived Usefulness
H8	Ho	There is no significant effect of Skills on Perceived Ease of Use
	Ha	There is a significant effect of Skills on Perceived Ease of Use
H9	Ho	There is no significant effect of Skills on Actual Use
	Ha	There is a significant effect of Skills on Actual Use
H10	Ho	There is no significant effect of Perceived Ease of Use on Perceived Usefulness
	Ha	There is a significant effect of Perceived Ease of Use on Perceived Usefulness
H11	Ho	There is no significant effect of Perceived Usefulness on Attitude
	Ha	There is a significant effect of Perceived Usefulness on Attitude
H12	Ho	There is no significant effect of Perceived Ease of Use on Attitude
	Ha	There is a significant effect of Perceived Ease of Use on Attitude
H13	Ho	There is no significant effect of Attitude on Actual Use
	Ha	There is a significant effect of Attitude on Actual Use

RESULTS

This section presents the results of this study consisting of path coefficients, descriptive statistics, validity, reliability, and hypothesis testing. The path coefficient is depicted in Figure 2 below. The path coefficients provide the basis for the relationships hypothesized in the proposed model. Each score of factor loading is more than 0.5. It signifies that each item accepted with the positive path coefficients. There are six main constructs that may affect the actual use of ICT for English language learning namely, equipment, motivation, ICT skills, perceived usefulness, perceived ease of use, and attitude.

Table 2 shows the descriptive statistics of this study. Descriptive statistics in terms of mean (M), standard deviation (SD), kurtosis, and skewness are reported. The mean score for each item ranges from 2.723 to 3.743, which can be defined as satisfactory which the measurement of the Likert scale ranges from 1 (strongly disagree) to 4 (strongly agree). Overall, respondents tended to have positive attitude on English language learning using technology.

Table 3 shows the convergent validity. The Outer loading and average variance extracted (AVE) were the two procedures to establish convergent validity. Convergent validity was assessed by item outer loading onto the underlying construct. The outer loadings were all greater than the threshold of 0.50 (Hair et al., 2010), demonstrating acceptable convergent validity at the item level. On the other hand, at the construct level, AVE is commonly employed indicators of convergent validity. As shown in Table 3, the AVE-values are acceptable (greater than the threshold of 0.50). The score of outer loading of each item >.50 and the count of average variance extracted (AVE) > .50. It means that the entire items are valid.

Figure 2

Path Coefficients

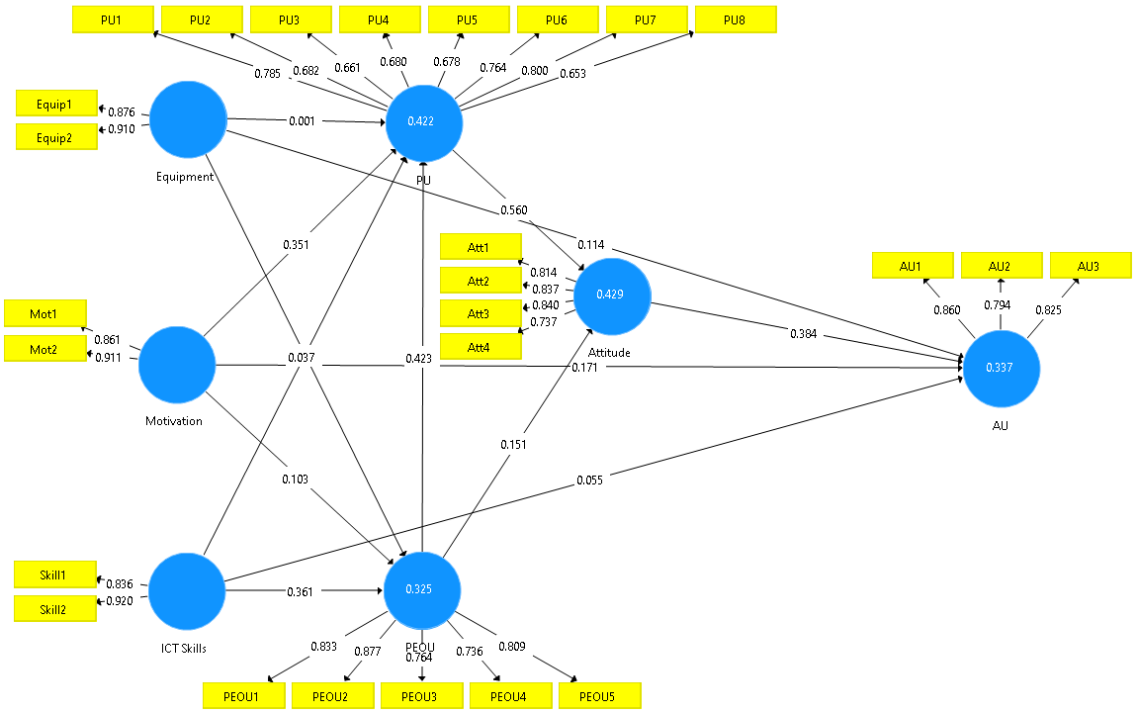

Table 2

Descriptive Statistics

Constructs	Items	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Equipment	Equip1	3.743	4	2	4	0.445	-0.171	-1.228
	Equip2	3.574	4	2	4	0.508	-1.43	-0.454
Motivation	Mot1	3.558	4	2	4	0.503	-1.714	-0.312
	Mot2	3.426	3	2	4	0.514	-1.48	0.081
ICT Skills	Skill1	3.683	4	2	4	0.472	-0.966	-0.886
	Skill2	3.502	4	2	4	0.532	-1.185	-0.337
Perceived Ease of Use	PEOU1	3.347	3	1	4	0.553	-0.027	-0.194
	PEOU2	3.323	3	1	4	0.527	0.084	-0.001
	PEOU3	3.168	3	1	4	0.552	0.546	-0.061
	PEOU4	3.475	3	1	4	0.544	-0.134	-0.459
	PEOU5	3.330	3	1	4	0.577	-0.049	-0.291
Perceived Usefulness	PU1	3.172	3	2	4	0.583	-0.267	-0.043
	PU2	3.419	3	2	4	0.568	-0.8	-0.33
	PU3	3.287	3	2	4	0.563	-0.532	-0.054
	PU4	3.089	3	1	4	0.681	0.035	-0.365

Constructs	Items	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
	PU5	3.119	3	1	4	0.664	0.274	-0.409
	PU6	3.172	3	1	4	0.572	0.319	-0.116
	PU7	3.251	3	2	4	0.588	-0.485	-0.126
	PU8	3.554	4	3	4	0.497	-1.965	-0.22
Attitude	Att1	3.574	4	2	4	0.520	-1.038	-0.583
	Att2	3.568	4	2	4	0.528	-0.911	-0.612
	Att3	3.426	3	1	4	0.563	-0.097	-0.429
	Att4	3.630	4	2	4	0.509	-0.62	-0.842
Actual Use	AU1	3.370	3	2	4	0.576	-0.721	-0.258
	AU2	2.723	3	1	4	0.696	-0.273	-0.035
	AU3	3.056	3	1	4	0.699	-0.012	-0.369

Table 3

Convergent Validity

Construct	Items	Outer Loading	Average Variance Extracted (AVE)
Equipment	Equip1	0.871	0.797
	Equip2	0.914	
Motivation	Mot1	0.867	0.786
	Mot2	0.906	
ICT Skills	Skill1	0.835	0.772
	Skill2	0.921	
Perceived Ease of Use	PEOU1	0.833	0.649
	PEOU2	0.877	
	PEOU3	0.764	
	PEOU4	0.736	
	PEOU5	0.809	
Perceived Usefulness	PU1	0.785	0.511
	PU2	0.682	
	PU3	0.661	
	PU4	0.680	
	PU5	0.678	
	PU6	0.764	
	PU7	0.800	
	PU8	0.653	
Attitude	Att1	0.814	0.653
	Att2	0.836	
	Att3	0.840	

Construct	Items	Outer Loading	Average Variance Extracted (AVE)
	Att4	0.737	
Actual Use	AU1	0.851	0.685
	AU2	0.797	
	AU3	0.834	

Table 4 shows the discriminant validity. It was done to test the discriminant validity by using the Fornell-Larcker criterion. The square root of any construct value in bold is much greater than the correlation coefficients in the same row or column, indicating good discriminant validity of the external factors and the internal constructs. The score of actual use is 0.828, attitude 0.808, equipment 0.893, ICT Skills 0.879, motivation 0.887, PEOU 0.805, and PU 0.715, each construct has a score > 0.7, which implies that each construct is valid.

Table 4

Discriminant validity

Discriminant Validity; Fornell-Larcker Criterion							
Constructs	**Actual Use**	**Attitude**	**Equipment**	**ICT Skills**	**Motivation**	**Perceived Ease of Use**	**Perceived Usefulness**
Actual Use	0.828						
Attitude	0.536	**0.808**					
Equipment	0.361	0.417	**0.893**				
ICT Skills	0.312	0.408	0.407	**0.879**			
Motivation	0.417	0.487	0.388	0.324	0.887		
Perceived Ease of Use	0.460	0.461	0.443	0.499	0.318	**0.805**	
Perceived Usefulness	0.567	0.643	0.339	0.362	0.498	0.553	**0.715**

Table 5 shows the reliability of the instrument. To test the reliability of the instrument, we used Cronbach's alpha, rho_A, composite reliability, and AVE. Cronbach's Alpha, rho_A, CR, and AVE were the four procedures to establish reliability. The results of data analysis indicate that the scores Cronbach's alpha are > 0.70, rho_A >.70, composite reliability >.70, and AVE >.50. It means that the entire constructs are reliable.

Table 5

Reliability

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Actual Use	0.773	0.791	0.867	0.685
Attitude	0.822	0.828	0.882	0.653
Equipment	0.747	0.766	0.887	0.797
ICT Skills	0.713	0.771	0.871	0.772
Motivation	0.730	0.743	0.880	0.786
Perceived Ease of Use	0.863	0.865	0.902	0.649
Perceived Usefulness	0.862	0.867	0.893	0.511

Table 6 represents the results of model fit. Standardized root mean square residual (SRMR) is used to evaluate the model fit. SRMR must be less than 0.08 for an excellent model fit. We confirm that the data fit the model well, as the SRMR is lower than 0.08 (Hu & Bentler, 1999).

Table 7 shows the hypotheses testing. Ten of the thirteen hypotheses proposed in this study are accepted, while three others are rejected. The researcher uses the t-statistic and P-Value to determine the result of hypothesis testing. If *t*-statistic > 1.96 and *P*-Value < .05, H_o was rejected and H_a is accepted. This indicated that there was a significant effect among variables.

Table 6
Model Fit

	Saturated Model	Estimated Model
SRMR	0.065	0.078
d_ULS	1.464	2.144
d_G	0.614	0.648
$\chi 2$	1112.462	1144.486
NFI	0.719	0.710

Table 7
Hypotheses Testing

Hypothesis	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic (|O/STDEV|)	P Values	Decision
H1	Equipment -> Actual Use	0.114	0.113	0.048	2.378	0.009	Accepted
H2	Equipment -> Perceived Usefulness	0.001	-0.001	0.050	0.024	0.491	Rejected
H3	Equipment -> Perceived Ease of Use	0.255	0.257	0.060	4.238	0.000	Accepted
H4	Motivation -> Perceived Usefulness	0.351	0.353	0.052	6.797	0.000	Accepted
H5	Motivation -> Actual Use	0.171	0.175	0.056	3.071	0.001	Accepted
H6	Motivation -> Perceived Ease of Use	0.103	0.108	0.058	1.779	0.038	Accepted
H7	ICT Skills -> Perceived Usefulness	0.037	0.034	0.057	0.643	0.260	Rejected
H8	ICT Skills -> Perceived Ease of Use	0.361	0.360	0.066	5.443	0.000	Accepted
H9	ICT Skills -> Actual Use	0.055	0.057	0.048	1.145	0.126	Rejected
H10	Perceived Ease of Use -> Perceived Usefulness	0.423	0.427	0.058	7.241	0.000	Accepted
H11	Perceived Usefulness -> Attitude	0.560	0.558	0.055	10.234	0.000	Accepted
H12	Perceived Ease of Use -> Attitude	0.151	0.151	0.067	2.244	0.013	Accepted
H13	Attitude -> Actual Use	0.384	0.384	0.063	6.131	0.000	Accepted

The findings in this study revealed that: **H1** *Equipment – Actual Use* with *t*-statistic = 2.378 and *P*-value = .009. **H2** *Equipment – Perceived Usefulness* with *t*-statistic = .024 and *P*-value = .4991. **H3** *Equipment – Perceived Ease of Use* with *t*-statistic = 4.238 and *P*-value = .000. **H4** *Motivation – Perceived Usefulness* with *t*-statistic = 6.797 and *P*-value = .000. **H5** *Motivation – Actual Use* with *t*-statistic = 3.071 and *P*-value = .001. **H6** *Motivation – Perceived Ease of Use* with *t*-statistic = 1.779 and *P*-value = .038. **H7** *ICT Skills – Perceived Usefulness* with *t*-statistic = 0.643 and *P*-value = .260. **H8** *ICT Skills – Perceived Ease of Use* with *t*-statistic = 5.443 and *P*-value = .000. **H9** *ICT Skills – Actual Use* with *t*-statistic = 1.145 and *P*-value = .126. **H10** *Perceived Ease of Use – Perceived Usefulness* with *t*-statistic = 7.241 and *P*-value = .000. **H11** *Perceived Usefulness – Attitude* with *t*-statistic = 10.234 and *P*-value = .000. **H12** *Perceived Ease of Use – Attitude* with *t*-statistic = 2.244 and *P*-value = .013. **H13** *Attitude – Actual Use* with *t*-statistic = 6.131 and *P*-value = .000.

DISCUSSION

From the findings, we can conclude that H1, H3, H4, H5, H6, H8, H10, H11, H12, H13 had t-statistic > 1.96 and P-Value < .05. So that Ho was rejected, and Ha is accepted. This indicated that there was a significant effect among variables. On the other hand, H2, H7 and H9 had t-statistic 1.96 and P-Value > .05, so that Ho was accepted, and Ha is rejected, it means that there was no significant effect among variables.

This study employed the TAM model as the core construct and that was expanded by three external constructs. The TAM model consists of PEOU, PU, Attitude, and Actual Use of ICT, while the external constructs consist of Equipment, Motivation and ICT Skills (e.g., general skill to operate ICT devices, and specific skill to utilize ICT device for English learning) for English language learning. The determinants of the actual use of ICT for learning English can be identified by testing the hypothesis.

The results of hypothesis testing show that the strongest determinant on the use of ICT for English language learning is attitude. However, the strongest determinant on the attitude is PEOU. These findings are consistent with (Alfadda & Mahdi, 2021; Sabti & Chaichan, 2014) which stated that attitude had been the main determinant of TAM model. The TAM model has three main variables that can be used for measuring the user's behaviors in the actual use of technology namely, PEoU, PU, and attitude (Hu & AlSaqqaf, 2021; Ketmuni, 2021).

Other determinants on the actual use of ICT for English language learning are equipment, motivation, and ICT skills. Based on the findings, equipment had significant effect on actual use of ICT with P <.05 as well as motivation with P <.05, while ICT skills had no significant effect on actual use of ICT with P >.05. In contrast, both perceived usefulness (PU) and perceived ease of use (PEoU) indicated have significant effect on affecting user attitude. PU with P <.001 had the strongest effect on user attitude, whereas PEOU with P =.013 means that the significancy is lower than PU.

The results of this study illustrate that attitude towards ICT use influences students actual use of ICT for English language learning. Consistent with Koç et al., (2021) & Zhou et al., (2022), the current study has confirmed that there is a positive and significant correlation between students' attitude and their actual use of ICT. Additionally, it reveals that PU and PEoU are positive and significant predictors for students' attitude towards ICT use. This result is in line with Shanthi et al., (2021) & Al-Gahtani (2016) in terms of the appropriateness of TAM to examine students' acceptance of ICT use for English language learning.

Nowadays, the ICT use is closely linked to human activity. ICT provides an access for information and enhances the quality of human life. ICT enables learners to access resources and support them in language education, especially in EFL context (Alfadda & Mahdi, 2021; Lai, 2013; Reinders & White, 2016). The use of ICT can improve students' English language skills (Jiang et al., 2021; Mallya et al., 2019). In addition to that, the students perceived that English learning can be more enjoyable if the teacher integrates ICT into the teaching and learning process (Al Arif, 2019; Kessler, 2018) so that students' positive attitudes on the use of ICT is enhanced (Ketmuni, 2021; Sabti & Chaichan, 2014; Tri & Nguyen, 2014).

CONCLUSION

To summarize, not only the student attitudes but also the motivation factor has positive effect on the use of ICT in learning English, even if there is an interesting phenomenon that neither the equipment factor nor students' ICT skills have a significant effect on the use of ICT for learning English. ICT integration has a significant influence on learning English, especially among EFL school and university students. In today's digital era, the existence of ICT is needed to improve English language skills for those whose first language is not English. They use ICT tools in learning English and they show a positive attitude towards the use of ICT for their learning activities.

The results of this study are beneficial for students and teachers both in schools and universities. For students, they need to equip themselves with ICT literacy, ICT skills, motivation, and positive attitudes towards the use of ICT in English learning activities. As for teachers, they should assist students and encourage them to have positive attitudes and motivation to learn English using ICT. Teachers should also equip themselves with ICT skills so that they can provide learning experiences according to the needs of students in today's digital age. Although this study yielded meaningful findings for learners-related determinants of ICT use for English language learning, it has potential a limitation in terms of sample number. Further research studies are recommended to replicate the current study using larger sample of respondents who have more experiences in using ICT for learning English so the results will lead to a better generalization.

DECLARATION OF COMPETING INTEREST

None declared. ■

AUTHOR CONTRIBUTIONS

Urip Sulistiyo: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

Tubagus Zam Zam Al Arif: collected the data, contributed data or analysis tools, performed the analysis.

Reli Handayani: contributed data or analysis tools.

M. Faruq Ubaidillah: performed the analysis, proofread the manuscript.

Mujiyono Wiryotinoyo: contributed data or analysis tools.

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https://doi.org/10.17323/jle.2022.14586

The Construction of Knowledge Claims in Three Disciplines: An Exploration of Hedging and Boosting Strategies in Research Articles Written in English by Arab and Anglophone Writers

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ABSTRACT

Background. Academic writers utilize a variety of rhetorical methods to construct their knowledge claims through hedges and boosters. These two strategies may also be affected by disciplinary, cultural, or generic contexts.

Purpose. This mixed-methods contrastive research study explored how disciplinary and cultural contexts may affect the way Arab and Anglophone writers construct and modulate knowledge claims through hedges and boosters in the results and discussion sections of 90 English research articles in three disciplines: Journalism, Law, and Political Science.

Methods. Instances of hedges and boosters and their pragmatic functions in context were identified, employing Liu and Tseng's (2021) framework. This framework provides a detailed functional interpretation of the use and variation of these devices along four continuums: authorial voice, reasoning, consensus-building, and information evaluation.

Results. The results showed interesting contrasts and similarities between both groups regarding the approaches they used to define their levels of commitment and detachment in their knowledge claims. The quantitative findings revealed significant differences in hedges but non-significant differences in boosters used by both groups. The qualitative analysis revealed that hedging and boosting functions in Arab and Anglophone writers' RAs differed along the four continuums. Anglophone writers often used hedges in their writing to show humility, negotiate knowledge claims, and accommodate vagueness. These acts enabled them to sketch the realities emerging from their research. By contrast, the English-speaking Arab writers used fewer hedging strategies and demonstrated assertiveness, and assumed shared knowledge to enhance the realities constructed in their knowledge claims.

Implications. These findings can benefit ESP/EAP teachers, especially those teaching writing for publication purposes to raise postgraduate students' awareness of epistemic modality markers. A custom-made ESP/EAP course tailored to the needs of learners based on Liu and Tseng's (2021) hedging-boosting framework can be devised to develop communicative and academic strategies in English.

KEYWORDS:

Anglophone Academic Writers (AAWs), Arab Academic English Writers (AAEWs), research articles (RAs), metadiscourse, hedges and boosters, discourse analysis

Citation: AlGhamdi, G. A., & Suleiman Alyousef, H. (2022). The construction of knowledge claims in three disciplines: An exploration of hedging and boosting strategies in research articles written in English by Arab and Anglophone writers. *Journal of Language and Education, 8*(2), 31-47. https://doi.org/10.17323/jle.2022.12363

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Received: May 02, 2021
Accepted: April 18, 2022
Published: June 30, 2022

INTRODUCTION

Constructing knowledge claims is crucial in academic writing since authors have to distinguish fact from opinion and evaluate their assertions in adequate and persuasive ways. Expressions of doubt and certainty are essential communication skills in academic writing. These expressions have been classified in various ways in the literature. Stubbs (1986), for example, classified such practices as "modality markers" to explore evaluative aspects in texts, whereas Hyland (1998) classified expressions of doubt and certainty as hedges and boosters. Hunston and Thompson (2000) broadly used the term "evaluation" to refer to those statements that express a writer's beliefs, judgments, or attitudes. Silver (2003)

referred to linguistic features that emphasise confidence in propositions through epistemic certainty as a 'writer's stance.' Regardless of the terminology used to explore discourse, analysing the degree of commitment or detachment in conveying meanings can be applied to knowledge claims constructions and stance representation in academic writing.

Hedges and boosters are two of the most important communicative strategies of academic discourse because they strengthen or weaken knowledge claims. They help writers express an authorial stance about the truth value of a proposition. Hedges and boosters are deployed in research articles (RAs) to express a writer's relationship with members of the discourse community. The academic RA is a crucial genre for knowledge construction and communication influenced and shaped by complex communicative interactions in academic discourse communities (Hyland, 2009; Swales, 1990). Manipulation of hedges and boosters in RAs is important in academic writing because these metadiscursive expressions are used to construct knowledge claims by anticipating readers' reactions to these claims (Hyland, 2017).

Hyland (2005) has pointed out differences in how first language (L1) and second language (L2) writers organise their ideas and engage readers in their compositions. He argued that each culture seems to have its values, norms, language(s), and communication methods. Thus, text organisation varies across different cultures. A considerable number of studies of the effects of culture on the use of hedges and boosters in English RAs written by L1 and L2 writers have been conducted over the past three decades (e.g., Al-Mudhaffari, Hussin, & HoAbdullah, 2020; Farrokhi & Emami, 2008; Koutsantoni, 2005; Mirzapour & Mahand, 2012; Thuy, 2018; Samaie et al., 2014; Sanjaya et al., 2015; Vassileva, 2001). These cross-cultural studies have indicated that writers' use of hedges and boosters may be affected by their cultural background, the literacy practices they are associated with, and conventions of genre and discipline. For example, Koutsantoni (2005) has examined three sets of engineering RAs and conference papers written in Greek by L1writers, English by Greek writers, and English by L1 writers. The results revealed that Greek writers (L1 and L2) employed a high-boosting style compared to the English L1 writers who avoided making too authoritative knowledge claims. However, Koutsantoni did not explore the use of uncertainty devices. The use of such devices might have made the Greek writing appear less authoritative and confident, despite the frequent use of boosters.

Along similar lines, Vassileva (2001) has investigated how academic discourse in English and Bulgarian discourse exhibits commitment (through boosters) and detachment (through hedges). She studied three sets of linguistics RAs written in Bulgarian, in English by Bulgarians, and in English by L1 writers. The analysis revealed a highly authoritative style with more boosting devices than hedges in the Bulgarian English texts, and less assertive discourse in negotiating knowledge claims in the English L1 texts. Also, Bulgarian English texts started with a highly committed style and closed with an intensely hesitant tone. As such, they seemed to utilise more boosters in their introductions and discussions, yet offering more tentative claims of knowledge in the conclusion sections. Bulgarian English writers simply did the opposite of what English L1 writers did. It was rather the assertive nature of Bulgarian expert writers' knowledge presentations in general that highlighted a cultural characteristic of Bulgarian writers. According to Vassileva (2001), Bulgarians who lack sufficient knowledge in L2 academic writing may be unaware of the role of hedging in L2 academic writing. This makes them unlikely to conform to the norms and expectations of the discourse community.

A recent study by Al-Mudhaffari et al. (2020) has investigated hedges and boosters used by Yemeni L2 writers in Applied Linguistics RAs.The study found a lower rate of hedges and boosters, suggesting that this discrepancy may be ascribed to cultural differences and the unfamiliarity with the norms of academic writing or the essential characteristics of appropriate argument. Balancing the expression of commitments and detachment can be highly problematic for L2 writers.

Most of these studies, however, focused on the quantitative aspects of hedges and boosters. Little focus and attention were given to the contextual and functional features of hedges and boosters. Moreover, although hedges and boosters are shown to be moderately or highly negatively correlated features (Hu & Cao, 2011), some researchers have studied hedging features alone (e.g., Atai & Sadr, 2008; Crompton, 1997; Falahati, 2004; Hyland, 1996; Kranich, 2011; Lewin, 2005; McLaren-Hankin, 2008; Peterlin, 2010; Šeškauskienė, 2008; Varttala, 1999, 2001). The concept of boosters has also been separately examined in very few studies (e.g., Bondi, 2008; Heiniluoma, 2008; Koutsantoni, 2005; Vázquez Orta & Giner, 2009). While some studies on hedges and boosters were associated with issues of modest and vague claims (Crompton, 1997), politeness and cautiousness (Varttala, 1999), and/or (un)certainty (Akbas, 2014), both features contribute to highlighting the level of commitment/detachment.

Academic writers vary in their use of argumentative and rhetorical practices to express and position their views, and are influenced by the generic, disciplinary, and cultural contexts in which they write (Bondi, 2008; Fløttum, 2012; Hyland, 2009; Silver, 2003). Cultural rhetorical variations of hedging and boosting preference exist as these two linguistic features are culture-related (Bloor & Bloor, 1991). Hinkel (2003) argues that Anglophone Academic Writers (hereafter, AAWs) consider hedging an overtly persuasive strategy and, as such, its use may be worth comparing with other cultural-rhetorical contexts, where it may or may not be perceived to have such a rhetorical value. For example, amplification in classical Arabic may be preferred to hedging for persuasion to take place. According to Hinkel (2005), exaggeration and assertion are characteristics of

Arabic rhetoric. Although Hinkel (2005) compared the use of hedges and intensifiers in L2 academic essays written by university students from six cultural backgrounds, including Arabic, with those written by AAWs, there seem to be few other studies investigating and comparing the use of hedging and boosting strategies in RAs authored by Arab Academic English Writers (hereafter, AAEWs) with those written by AAWs. The claim that Arab writers may intend to persuade their audiences through emphatic expressions rather than hedging (Connor et al., 1996) must also be explored by investigating hedging and boosting strategies in RAs written by AAEWs and AAWs.The use of native/non-native dichotomies in the present study has been avoided since these concepts are a 'myth,' i.e., it is debatable whether all native English-speaking writers are more proficient than non-native English-speaking writers living in non- Anglophone countries. Thus, while the acronym AAEW refers to Arab Academic English Writers working in Arab universities or organisations, AAW refers to academic writers working in Anglophone countries (i.e., the United States, United Kingdom, Canada, Australia, and New Zealand) although English is not necessarily their first language.

The present study aimed to investigate and compare the distributions and functions of hedges and boosters in the results and discussion sections of English RAs authored by AAEWs and AAWs. Thus, the study attempted to answer the following two research questions: (1) How do disciplinary paradigmatic variations affect the use of hedging and boosting strategies employed in the results and discussion sections of Law, Journalism, and Political Science RAs authored by AAEWs and AAWs? (2) What do these strategies reveal about their argumentative and negotiating practices in knowledge claim construction in academic writing?

This research study is part of a wider research project of interactional metadiscourse features of stance and engagement markers in the results and discussion sections of RAs written by AAEWs and AAWs.

THEORETICAL FRAMEWORK

Hedges and Boosters

Hedges enable writers to suppress complete commitment to a proposition, subjectify the claim and present it as an opinion rather than a credited fact. In this sense, claims are constructed based on probable reasoning rather than factual knowledge. They also enable writers to make claims and create a discursive space so that readers can debate their interpretations. Linguistic expressions for hedges include expressions such as "seem," "suggest," "might," "perhaps," and "to a certain extent." Boosters, in contrast, enable writers to express certainty in their claims, involvement with a presented proposition, and solidarity with their readers. Unlike hedges, they enable writers to declare their ideas with assurance and narrow the diversity of opinions. Boosters are expressed linguistically through various expressions such as "clearly," "prove," "show," "in fact," and "it is clear that." Both hedges and boosters allow writers to construct claims since both features balance objective information and create space for subjective evaluation and interpersonal negotiation (Hyland, 2005).

The present study was framed by Liu and Tseng's (2021) framework for the organisation of hedges and boosters, which is based on Hyland's (2005) list of interactional metadiscourse markers. Liu and Tseng (2021) proposed an analytical framework to account for some hedges and boosters not included in Hyland's (2005) list (e.g., "in a sense" and "some" for hedges; "exactly" and "none" for boosters). This framework provides a detailed functional interpretation of the uses and paradigmatic variations of these devices along four continuums: authorial voice, reasoning, consensus-building, and information evaluation. Liu and Tseng's (2021) study explored whether hedges and boosters differed in RAs adopting either narrative inquiry (NI) or grounded theory (GT) approaches to qualitative research. The NI approach involves deducing a hypothesis or a theory based on a participant's narrative, while the GT approach involves collecting and analysing data to construct a hypothesis or a theory. The findings revealed that narrative-based qualitative RAs employ boosters to enhance realities through the use of assertive stance (e.g., "should"), salience markers (or highlighted expressions, such as "highly"), and high truth value markers to assume shared knowledge (e.g., "it has been clear that …"). By contrast, grounded theorists use hedges to sketch realities by negotiating knowledge claims (e.g., "perhaps"), indicating humility (e.g., "would"), and accommodating vagueness (e.g., "in some cases"). Liu and Tseng (2021) argue that researchers' thinking and arguments could be influenced by their approach to realities (or research paradigm).

Although Liu and Tseng's (2021) framework was developed in relation to qualitative RAs following NI or GT, it was suitable for our research purposes because it offers a detailed functional interpretation of hedging–boosting interactions and knowledge claim construction, as little attention was previously placed on the differences and paradigmatic variations of the functions of hedges and boosters in terms of Hyland's metadiscourse theory. Liu and Tseng (2021, p. 13) argue that their framework offers a detailed "holistic account of hedging and boosting features." This framework also accounts for hedging–boosting instances not documented by previous studies. In the current study, the lexico-grammatical features of hedges and boosters were categorised and then analysed, employing Liu and Tseng's (2021) framework for the organisation of hedges and boosters along four continuums (Table 1): authorial voice, reasoning, consensus-building, and information evaluation. There are two ends to each continuum representing the different conceptions of reality. One end of each continuum indicates certainty and the other end is moving towards uncertainty and attenuation.

Table 1

Definitions and examples of the organisation of hedges and boosters along four continuums

		Definition	Example
Authorial voice	**Humility**	Writers show a sense of humility through reducing the force of suggestion and the contribution of their research.	Scholars *might* consider Silicon Valley an opportunity to explore discourse about an institution … (J.-AAW2)
	Assertiveness	Writers showcase their strong persona by enhancing the force of suggestions and contributions.	Scholars *should be* primarily concerned with estimating the existence and sign of effects, rather than their magnitude… (P.S.-AAW4)
Reasoning	**Assumptions**	Writers' reasoning is based on deductive conclusions from research findings using low truth value markers.	One *possible* explanation for this *could be* that respondents *migh***t** not have given much value to a statement by a "high-ranking government official" (P.S.-AAEW1)
	Facts	Writers' reasoning is derived from research findings using high truth value markers to indicate facts.	These findings … *demonstrate* a widespread connection between the United States' global standing and the relative status of the political parties … (J.-AAW11)
Consensus-building	**Knowledge negotiated**	Writers avoid misinterpreting the findings of prior research.	Scholars have *suggested* that commercial upheaval in the media sector *may* explain the declining standards of political reporting (Jones, 2009; Bennett, 2012; Ricketson, 2016). (J.-AAW7)
		Writers discuss findings against prior research.	Like Hollander (2006), the results *suggest* that substantive policy coverage was often supplanted by narratives … (J.-AAW7)
	Knowledge shared	Writers assume certain knowledge as shared among audiences.	the Arab Spring presents a *clear* example of the interaction and conflict … (P.S.-AAEW7)
Information evaluation	**Vagueness**	Writers tend to use vague language to avoid making definite claims.	… the theory presented here raises *certain* questions about the prevailing general… (L.-AAEW11)
	Salience	Writers explicitly assess the reliability of their claims.	… the increased costs have *undoubtedly* kept some previously registered individuals from voting … (P.S.-AAW2)

The first continuum describes how writers' identities are reflected in their contributions to their research community. The second one pertains to the way writers approach truth conditions within their reasoning. The third relates to how writers build consensus with potential readers. The fourth one pertains to writers' positions towards admission of a knowledge claim. The four continuums were adapted and modified based on our data coding and data observation. In this way, the opposing yet moderately or highly negatively correlated aspects of hedges and boosters may be highlighted.

METHODS

Research Design

This contrastive corpus-based study aimed to pragmatically explore the distribution tendency of hedges and boosters in English RAs written by AAEWs and AAWs related to their disciplinary contexts (Law, Journalism, and Political Science) and cultural contexts (AAEWs and AAWs). A mixed-methods research design was employed.

Data Collection

We constructed a corpus of 90 RAs based on the selected disciplines and cultural groups. The corpus building procedures were divided into a series of stages for the selection of (1) academic disciplines, (2) academic journals from target disciplines, and (3) academic RAs from target journals.

The first stage for the selection of data, purposeful sampling, was used to choose the disciplines for the study. It involves "selecting units (e.g., people, groups, settings, artefacts) based on a specific purpose" (Tashakkori & Teddlie, 2003). The selection of Law, Journalism, and Political Science disciplines was motivated by two factors. First, metadiscourse studies have made comparisons between soft and

hard fields (e.g., Hyland, 1998, 2005). The comparison in our study explores further dimensions of cross-disciplinary rhetorical features within the selected soft disciplines. Second, the selection was motivated by EAP/ESP syllabi and courses in which an awareness of the range of genres, and the ways genres span disciplines is required. Such insights into the relationships between language and its contexts of use are essential for ESP/EAP instruction. Second, the selection was motivated by the fact that metadiscourse studies of soft sciences are surprisingly under-researched although the argumentation, critiques, and viewpoints in soft disciplines are, especially in these three disciplines, shaped by writers' own experiences, passions, interests, and viewpoints. All the disciplines in the corpus shared a commitment to reporting empirical research that results from observations and measurements. They involved direct and indirect observations or experiences including surveys, case studies, ethnography, or observation. As an example, Journalism writers evaluated and interpreted a variety of events, situations, and people from specific contexts, Law writers investigated the potential impact of small claims courts, policies and regulations, and Political Science writers examined and interpreted political theories and governmental practices at the national and international levels. In all disciplines, the aim was to examine changing conditions, perceptions, and findings related to the phenomena under study. Thus, they combine inductive (qualitative) exploratory work with deductive (quantitative) data in order to examine the nuances and mechanisms that underlie the themes in more detail.

A two-step sampling procedure was employed in the second stage of selecting academic journals: (a) quota sampling and (b) purposive sampling. Our first step was to establish quotas for each stratum or subgroup (Gravetter & Forzano, 2018) and, in this case, some journals in each discipline. Thirty journals were selected from each of the three disciplines. Secondly, purposive sampling was implemented by selecting journals that are listed in Clarivate Analytics' Journal Citation Reports (JCR) to ensure the representativeness, quality, and relative journal prestige. JCR facilitates an efficient evaluation of research influence and journal impact in the chosen fields. A list of the selected journals is presented in Table 2.

A probability sampling method was implemented in the third stage of selecting RAs, involving a combination of both random and stratified sampling. By 'random' we mean that the articles were selected randomly from different volumes and issues. These samples are usually used when researchers want their samples to represent the entire population (Teddlie & Yu, 2007). Accordingly, all RAs written between 2010 and 2020 were taken out of their selected journals and added to the sampling pool. Because our focus was on the results and discussion sections, the other sections were excluded. Based on Gotti's (2012) study and using the Web of Science Core Collection, we selected 90 RAs written by AAEWs and AAWs. The status of the two group writers was determined by viewing their affiliations and presence on traditional and social media. The total number of words in the results and discussion sections was 163,443 (Table 3).

Table 2

A list of selected journals from each discipline

Disciplines	Writers	Journals	Impact factor
Journalism	AAWs	Journalism Practice	2.537 (2020)
		Journalism Studies	3.741 (2020)
		International Journal of Communication	1.802 (2020)
		Digital Journalism	7.986 (2020)
	AAEWs	Journalism	4.436 (2020)
		Journalism Practice	2.537 (2020)
		Journalism Studies	3.741 (2020)
Law	AAWs	Journal of Empirical Legal Studies	1.610 (2020)
		Journal of Law and Society	1.029 (2020)
		International Journal of Law and Psychiatry	1.851 (2020)
	AAEWs	Computer Law & Security Review	2.980 (2020)
		European Journal of Law and Economics	1.108 (2020)
Political Science	AAWs	British Journal of Political Science	5.174 (2020)
		American Journal of Political Science	6.081 (2020)
	AAEWs	Political Research Quarterly	2.556 (2020)
		Mediterranean Politics	2.588 (2020)

Table 3
Summary of key features of the data

Corpus	Disciplines	No. of Articles	No. of Words	Publication Date
AAWs	Journalism	15	28,999	
	Law	15	24,602	
	Political Science	15	28,259	2010-2020
AAEWs	Journalism	15	24,724	
	Law	15	25,077	
	Political Science	15	31,782	
Total		90	163,443	

Data Analysis

In this contrastive corpus-based study, we followed four main phases; indexing and categorization, functional analysis, second coder analysis, and statistical analysis. First, instances of hedges and boosters were identified and categorised. In QSR NVivo, a text search query was run using Hyland's list of target items to check contexts and looked for hedge-booster items in the 90 results and discussion sections. Clause-by-clause annotations were also made to provide a full picture of the target features. Second, a functional approach specific to hedging–boosting interactions across disciplines and cultures was implemented using Liu and Tseng's (2021) framework (Table 1). A functional coding scheme in addition to previous existing classifications of hedges or boosters was adopted. Qualitatively, differences and variations in the pragmatic functions of hedges and boosters were identified and coded. Third, two samples of the results and discussions sections written by an AAEW and an AAW were selected from each of the three disciplines for the coding schemes of hedging and boosting functions. Each coder independently coded the six articles imported to QSR NVivo, using both Hyland's list and clause-by-clause annotations. Hedges and boosters were identified and their pragmatic functions in context were explained. The inter-coder agreement was 79.2% for hedges, and 83.6% for boosters. Coding differences were minimized by discussion and negotiation through consensual coding (Kuckartz, 2014). Following the inter-coding scheme, the remaining data were coded and closely examined to determine hedges and boosters. Coding memos describing how existing categories might relate to certain codes during the coding phase were made to reflect on the coding scheme. It was an iterative, self-reflective process that checks the consistency of functional categorization (Miles et al., 2018). In the second week, the same coding scheme was used and all 90 results and discussion sections were coded. The intra-coder reliability between the two rounds was 83%. Wallace and Ross (2016) suggest a 70% level of agreement as a reasonable minimum. Finally, the frequencies of the coded hedges-boosters found in the six sub-corpora were normalized per 10,000 in each sub-corpus. Quantitatively, A two-way ANOVA test was run to compare disciplinary and cultural effects on the normalized frequencies (per 10,000 words) of hedges and boosters found in the six sub-corpora. Multiple comparisons Bonferroni test was run to examine the difference in hedging strategies between the writers. The Bonferroni test is an adjustment post hoc test used with ANOVA. It was run when the statistical result of hedges was significant to prevent it from appearing as a false significant result. Since the ANOVA result of boosters was non-significant, the Bonferroni test was not needed.

RESULTS AND DISCUSSION

To address the first research question, we compared the overall configurations of hedging-boosting strategies in the results and discussion sections of AAEWs and AAWs. (Appendices A-B). To address the second question, we conducted a qualitative analysis of hedging and boosting strategies to present the writers' argumentative and negotiating practices in knowledge claims construction along each continuum.

Quantitative Results

Table 4 presents descriptive statistics for hedging and boosting strategies employed in the results and discussion sections of RAs written by AAEWs and AAWs in the fields of Law, Journalism, and Political Science. The results for the use of hedging strategies revealed that the AAWs had higher mean scores in the three fields (M=9.12-9.39) than the AAEWs. The AAEWs scored the highest in Journalism (6.46) compared to the other two disciplines, Political Science and Law.

The results of the descriptive statistics for boosting strategies indicated that the AAEWs had slightly higher mean scores in the fields of Law and Journalism compared to the AAWs who had higher mean scores in Political Science. Specifically, the AAEWs boosting strategies were the highest in Political Science (5.38) compared to the other two disciplines. The AAWs' boosting strategies were also the highest in Political Science (6.22), followed by Law (5.06), and then Journalism (4.38).

Table 4

Descriptive statistics for the use of hedging and boosting strategies by the AAWs and the AAEWs in the fields of law, journalism, and political science

	Journalism				Law				Political Science			
	AAWs		AAEWs		AAWs		AAEWs		AAWs		AAEWs	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Hedges	9.39[1]	5.58	6.46	5.41	9.37	4.58	4.78	1.77	9.12	4.63	5.72	3.54
Boosters	4.38	3.03	4.92	2.85	5.06	2.85	5.10	2.23	6.22	2.38	5.38	2.73

Note. [1]Words per 10,000 token words.

The two way ANOVA result for hedging strategies showed a statistically significant difference between the AAEWs and the AAWs ($F(1, 84) = 54.36$, $p=0.018 < 0.05$, $\eta^2 = 0.965$). However, there were no significant disciplinary differences in hedging strategies across the three disciplines ($F(2, 84) = 1.014$, $p=0.496 > 0.05$, $\eta^2 = .504$). There was also no interaction effect between disciplinary variation and the writers' cultural background on the use of hedging strategies, ($F(2, 84) = .0759$, $p=0.759 > 0.05$, $\eta^2 = .007$). The two way ANOVA results for boosting strategies showed no statistically significant differences in boosting strategies between the two groups ($F(1, 84) = .045$, $p=0.851 > 0.05$, $\eta^2 = .022$). Similarly, no significant disciplinary differences in boosting strategies were found across the three disciplines ($F(2, 84) = 2.773$, $p=0.265 > 0.05$, $\eta^2 = .735$). The disciplinary/cultural interaction was also non-significant ($F(2, 84) = = .501$, $p=0.608 > 0.05$, $\eta^2 = .012$).

The findings of the Bonferroni test showed that the mean difference in hedging strategies between both groups was 3.641 in favour of the AAWs who had a higher mean score (9.298) compared to the AAEWs (5.657). Since the ANOVA result for boosters was insignificant, the Bonferroni test was not needed. For effect size, measures of association (Eta Squared η^2) were performed to investigate the impact of culture on hedges, and a large effect ($\eta^2 = 0.965 > 0.80$) was recorded according to Cohen (2013) who defined effects as small at 0.2, medium at 0.5, and large at 0.8 or more.

Effect size is provided for the statistically significant results (in this case, hedges) to support the significant *p*-value. In other words, there is a great likelihood that this finding is robust; more likely that the same findings can be generalised (even if we expand the data). The results for boosters were insignificant. Reporting effect size is not necessary in their case.

Table 5 presents the statistical results for the functional uses of hedging and boosting strategies employed by AAEWs and AAWs in the three fields along the four continuums: Humility vs. assertiveness, assumptions vs. facts, knowledge negotiated vs. knowledge shared, and vagueness vs. salience.

Table 5

The frequency of hedging and boosting strategies employed by the AAEWs and the AAWs along Liu and Tseng's (2021) four continuums

		Journalism				Law				Political Science			
		AAWs		AAEWs		AAWs		AAEWs		AAWs		AAEWs	
		Data	M	Data	M	Data	M	Data	M	Data	M	Data	M
Authorial voice	Humility	99	34.13	44	17.79	46	18.69	22	8.77	70	24.77	33	10.38
	Assertiveness	30	10.34	20	8.08	19	7.72	38	15.15	53	18.75	32	10.06
Reasoning	Assumptions	163	56.2	49	19.81	113	45.93	52	20.73	68	24.06	91	28.63
	Facts	64	22.06	66	26.69	50	20.32	54	21.53	93	32.9	72	22.65
Consesus-building	Knowledge negotiated	72	24.82	33	13.34	13	5.28	27	10.76	28	9.9	12	3.77
	Knowledge shared	29	10	22	8.89	21	8.53	25	9.96	15	5.3	26	8.18
Information evaluation	Vagueness	54	18.62	71	28.71	99	40.24	48	19.14	100	35.38	88	27.68
	Salience	16	5.51	45	18.2	48	19.51	37	14.75	66	23.35	63	19.82

Qualitative Results

Figure 1 presents distribution tendencies of hedges and boosters along Liu and Tseng's (2021) four continuums (authorial voice, reasoning, consensus-building, and information evaluation).

Scholars' Authorial Identity: Humility or Assertiveness

Findings indicated that in their results and discussion sections, AAEWs and AAWs tended to construct different authorial identities through either mitigating or enhancing the significance of their findings. Hedges and boosters emphasise the presence of authors or reduce their voices (Hyland, 1998). The use of modality markers moves towards the humility end for both AAEWs and AAWs across all the disciplines except for AAEWs in Law who tended to favour a sense of assertiveness (Figure 1).

One shared pragmatic function of hedges found in the data was reducing the force of recommendation/suggestion in scholars' communication to experts or researchers in their shared field. The writers adopted a less forceful unassertive stance and made their recommendations less persuasive (Example 1).

1. Analysing Future research *could* also consider whether other forms of communication such as ethnic radio and social media are more likely to mobilize Latinos. (P.S.- AAW9)

Humility-indicating functions of hedges also include presenting a writer's overall contributions to the researched field. Writers would mitigate the significance of their findings with hedges. Some of the most commonly used hedges are modal verbs (e.g., "might, may, etc.") Hedges were used to reduce research contributions and present them less boastfully (Example 2), and/or present their knowledge claims with an appropriate degree of confidence while humbling themselves before the entire disciplinary community (Example 3).

2. Analysing the 2019 federal election *may* provide further insights into the relationship between political campaigning, commercial upheaval, and news quality. (J.- AAW 7)

3. However, our study also shows that the need to maintain high morale is also prominent, a matter that *may be* unique to war and crisis situations. (J.- AAEW13)

The writers used boosters such as deontic modals (e.g., "must"), intensifier verbs (e.g., "confirm"), and emphatic expressions (e.g., "indeed") to build a strong voice and convey their assertive stance. These boosters were used to support their contributions to the research community and/or to promote their suggestions.Some writers presented their research implications by convincing readers that their suggestions should be considered. In this way, readers have no chance to negotiate and are forced to accept what the writer suggested (Examples 4-5).

4. Industries are heavily regulated in terms of maintaining data privacy, and they *must* adhere to specific regulations such as the Health Insurance Portability and Accountability Act (HIPAA) … (L.- AAEW5)

5. Finding an interactive approach to develop, implement and evaluate development programmes *should be* the focus of international donors … (P.S.- AAEW6)

The writers developed a strong voice through enhancing their contributions and emphasising their research significance by describing them as a recent breakthrough (Example 6) or firmly declaring them to be true (Example 7). In this way, the writers created a sense of conviction that contributed to a less tentative discourse with no reservation or hesitation.

6. Our in-depth interviews *offer* evidence that music therapists are comfortable using copyrighted music in private therapeutic sessions. (J.- AAW15)

7. Our field experiment is the first to *actually* increase the number of women elected to meaningful political offices." (P.S.- AAW 7).

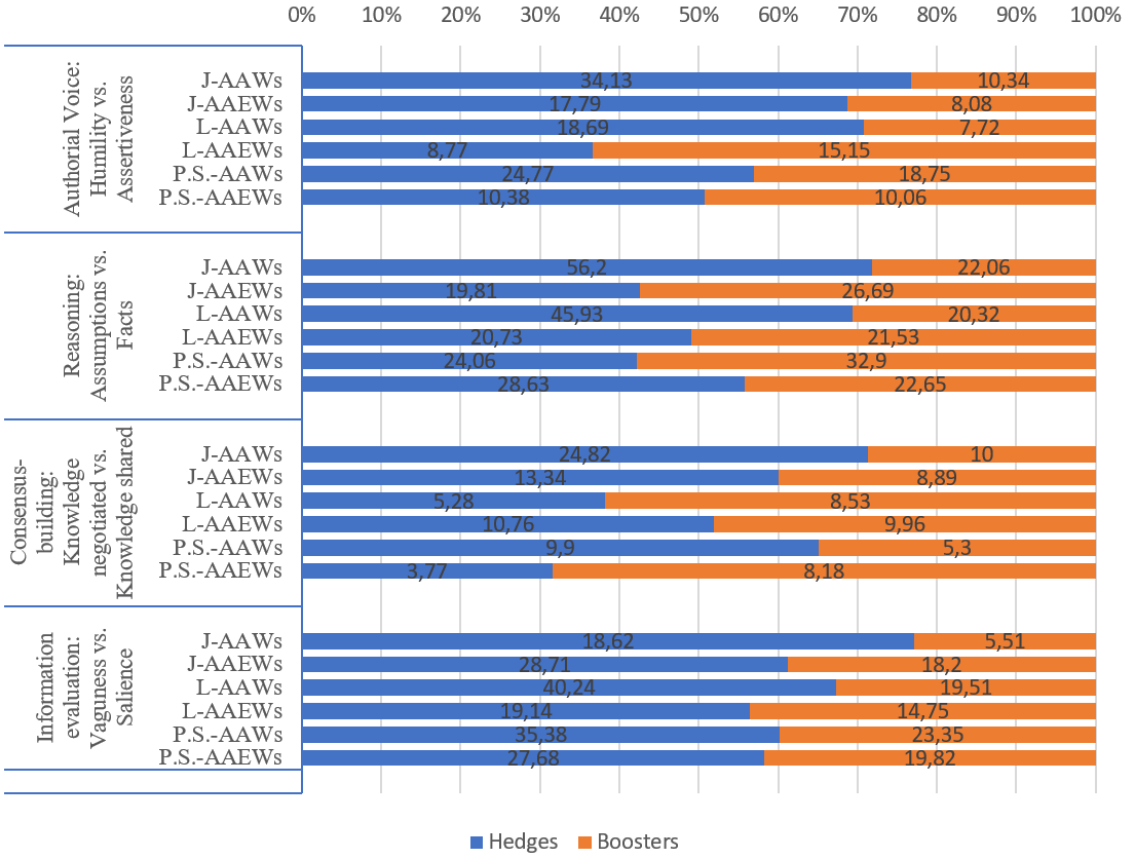
The findings revealed the functional similarities and differences between AAEWs and AAWs in their authorial voice. The AAEWs tended to present their knowledge claims definitively and authoritatively by using boosters while the AAWs favoured more deference markers than the language of strong authorial presence. In line with the findings of Farrokhi and Emami (2008) and Vassileva (2001), the AAEWs seemed to associate the significance of their research with high truth values, while the AAWs seemed to be humbler, showing a tentative style in presenting their knowledge claims. Such differences clearly evince their differing approaches to realities (Atai & Sadr, 2008). Writers' experiences shape their argumentation and critiques and standpoints in the world. Culture strongly influenced AAEWs' articles, as they tended to persuade their audience through emphatic expressions rather than hedging (Akbas & Hardman, 2018; Connor et al., 1996; Farrokhi & Emami, 2008; Mirzapour & Mahand, 2012; Yagız & Demir, 2014).

Reasoning: Assumptions or Facts

The AAEWs and the AAWs constructed knowledge claims based on the inferences they drew from their findings. They either relied on or went beyond data to offer more general interpretations. It appears that some reasoning results were presented as assumptions and some as facts, showing two opposite authorial stances in reasoning claims. Both AAEWs and AAWs used a combination of assumption-loaded hedges and fact-based boosters in the three disciplines. The finding revealed a divergent tendency towards assump-

Figure 1

The distribution tendencies of hedging and boosting strategies along Liu & Tseng's (2021) four continuums in the results and discussion sections of Journalism (J), Law (L), and Political Science (P.S.) RAs written in English by AAEWs and AAWs



tion-based reasoning by both groups (Figure 1). The AAWs relied more on assumptions in the fields of Journalism and Law than did the AAEWs who preferred a factual approach to reasoning. The opposite can be observed in Political Science where the AAEWs relied more on assumptions than facts compared to their counterparts.

The textual analysis showed that hedges could communicate palpable circumspection in authorial stance and reveal assumption-based deduction. As a result, these hedges reflect the writer's deductive reasoning instead of facts-loaded knowledge claims (Hyland, 1998), thus distinguishing assumption from reality. When reporting or interpreting their research findings, writers make inferences and draw conclusions using speculative language to imply the content reported is somewhat true, yet they hesitate to act on it. The use of hedges in this situation is associated with a low truth value and indicates the writers' attempts to avoid commitment to their assumptions (Liu & Tseng, 2021). Hedging was mostly achieved using epistemic modal verbs (Examples 8) and some epistemic expressions (Example 9).

8. One factor that *may* explain this trend is the increasing illiteracy rates that plague war-torn countries. (J.-AAEW10)

9. One *possible* explanation of the remarkably weak influence of ideological disagreement on institutional support … (L.- AAW1)

Boosters played an essential role in establishing the factual basis for reasoning in both the AAEWs and the AAWs' RAs through their use of epistemic verbs (e.g., "show," "demonstrate," "reveal"). This indicates that reasoning is derived from data rather than a writer's judgment when constructing a valid and credible knowledge claim. Boosting reasoning is realised in three ways. In one situation, the writers contextualised their research findings by emphasising the direct relation between reasoning and information sources (Example 10). By placing data in a defined context, the writers acknowledged the contextual specificity of data, thereby ensuring readers that the results are relevant, at least in their research context.

10. Answers to the five personal piety and social aspects of Islam *reveal* the strength of Lebanese Shi'i attachment to the basic requirements of their religion. (P.S.-AAEW2)

In another situation, however, the writers did not feel the necessity to contextualise their findings (i.e., "analysis/findings/results reveal") (Example 11).

11. The findings *reveal* that greater death penalty support among forensic psychologists was associated with increased disengagement of moral agency. (L.- AAEW2)

In the final situation, the writers tended to close off alternatives to their knowledge claims by stating their personal involvement. This pattern was more obvious in RAs written by political scientists, who tended to self-promote more than legal and journalism writers (Example 12).

12. We *show* that women have consistently lower levels of political knowledge when compared to men. (P.S.- AAW10)

Along the continuum of reasoning, both groups preferred to use hedges to modify their assumption-loaded reasoning methods (Figure 1). However, the analysis of specific hedging and boosting strategies revealed that the AAEWs tended to contextualize their findings more than the AAWs. This finding reflects the way both groups related the reality constructed in their knowledge claims to the broader real world, i.e., how generalisable their claims are. In Journalism and Law, the AAEWs paid more attention to their collected data and emphasised the direct relation between reasoning and information sources. In this way, they limited their claims and stressed their focus on the particular/specific to achieve reliability (Hinkle et al., 2012). Similarly, Al-Mudhaffari et al. (2020) found that Yemeni L2 writers tended to present their arguments as established facts, making assertive and unqualified knowledge claims. The AAWs in the same fields tended to be more speculative in their reasoning and put considerable emphasis on the generalisability of their research findings. In this way, they probably constructed their reasoning on the grounds of the whole research and avoided using context-constrained specifics to construct the scope for interpretation, thus indicating that their findings are applicable in other comparable situations.

Consensus-Building: Knowledge Negotiated or Shared

The AAEWs and the AAWs built consensus with their readers and other researchers in the field through citations of previous research. The AAWs of Journalism and Political Science RAs tended to hedge more to negotiate knowledge with their readers compared to the AAEWs who preferred boosting to share knowledge (Figure 1). The AAWs conveyed partial agreement with the source's knowledge claims by emphasising their detachment from the sources (Atai & Sadr, 2008; Hyland, 2005), while the AAEWs tended to treat knowledge claims rooted in the literature as accepted factual information (Akbas & Hardman, 2018). By contrast, the AAWs of Law favoured knowledge sharing over knowledge negotiating as opposed to the AAEWs in the same field.

The writers tended to avoid confrontations, criticism, or challenges by using modal verbs or epistemic verbs when attempting to interpret past research. They hedged to suggest that their interpretation and understanding of previous research could possibly be inadequate (Example 13).

13. For high-quality facilitating conditions, firms *may* perceive external and internal pressure to genuinely comply with government regulations (Scholz and Pinney, 1995; Girard and Sobczak, 2012). (L.- AAEW 6)

The writers textually constructed knowledge negotiation when they compared their findings with prior research. Hedging devices associated with low truth values (e.g., "suggest") are commonly used by writers to create space for their findings and present either a similarity (Example 14) or discrepancy between their findings and those of previous studies (Example 15).

14. Both our data and those of Wahl-Jorgensen et al. *suggest* that the BBC has moved from a fairly even-handed approach during Labour years … (J.- AAW4)

15. Participants would have more crystalized opinions less likely influenced by party cues (Tesler 2015). However, our results *suggest* that ease of issue is not strongly related to the party split treatment effect. (P.S.- AAW8)

The AAEWs and the AAWs shared knowledge through boosters in two ways. In one situation, they used boosters to argue that their knowledge claims have been widely accepted by others interested in the topic. Their arguments were not based on their personal views but rather on well-accepted knowledge within specialist communities (Koutsantoni, 2005). The shared information was regarded as highly acceptable (Example 16), or evident and apparent (Example 17). In this way, they positioned their readers as intelligent co-players who are likely to agree with them (Hyland, 1998).

16. Although Instagram is *widely* known for users posting their own personal photographs, in reaction to the Charlie Hebdo media event. (J.- AAEW3)

17. One could fix the problem by detaining a sufficiently large, random sample of lower-risk white juveniles. *Clearly*, this would be a policy nonstarter. (L.- AAW3)

In another situation, the writers treated knowledge claims rooted in the literature as accepted factual information. In this way, they showed a level of certainty and assurance concerning the other authors' work in the field (Example 18).

18. Studies have *found* that highly sexualized work environments negatively affect women's self-esteem, expose them to additional discrimination, and encourage harassing and non-harassing sexual behaviour, especially because men often misinterpret friendly and warm behaviour as sexual interest (Gutek et al. 1990; Harnish et al. 1990; Philaretou and Young 2007; Williams et al. 1999). (J.- AAEW4)

Both groups differed along the consensus-building continuum.The AAWs in Journalism and Political Science negotiated knowledge with their readers as opposed to AAEWs in these fields, who preferred sharing knowledge in the same fields.The opposite can be observed in the case of the AAWs of Law RAs who favoured knowledge sharing over knowledge negotiating as opposed to the AAEWs in the same field. Such differences are related to writers' approaches to reality and content reporting. The results here seem to be similar to the findings of Akbas and Hardman (2018) where the AAEWs of Journalism and Political Science RAs presented reported content as if it were accredited knowledge, thus making their knowledge claims inevitably part of reality co-constructed in research. By contrast, the AAWs in the same disciplines tended to employ speculative language to hold their knowledge claims as reflections of reality. Thus, hedging largely mitigates reviews of prior research, speculates about the importance of the study, and tentatively announces the findings (Hyland, 1996). When interpreting and comparing their research findings with knowledge claims in previous research, the AAWs of Journalism and Political Science tended to be cautious and detached. They were thus able to convey a partial agreement.

Information Evaluation: Vagueness or Salience

The fourth dimension concerns the writers' evaluations of information, i.e., which information aspects are emphasised or minimised? Hedges and boosters could serve a pragmatic function similar to evaluation when used in constructing knowledge claims. A knowledge claim, therefore, can be vague and its specification can be minimised through hedging. In contrast, a knowledge claim can be salient and its significance can be emphasised through boosters.

The AAWs and the AAEWs showed a clear preference towards hedges of vagueness in the three disciplines with the AAWs slightly taking the lead (Figure 1). Following this, we conducted a textual analysis to explore how the specific hedging-boosting strategies are employed in information evaluation. One shared hedging function in our data was minimising specification. Hedges of this type are expressed through vagueness markers, which minimise the degree of precision (Hyland, 1996, 1998). They were primarily epistemic adverbs (e.g., "almost") and epistemic expressions (e.g., "certain," "somewhat"). The writers tended to use fuzzy language to avoid making definite knowledge claims and modify the extent of a phenomenon that cannot be identified. When stating research findings in the participants' stories, the writers tended to be quantitatively vague regarding the number of people sharing the same experiences or attitudes (Example 19) or their "difficulties to quantify or describe "the variability of natural phenomena" (Hyland, 1996, p. 437) (Example 20). This indicates a lack of interest in the quantitative significance of their findings.

19. *Some* would criticize the forecasts as lacking "statistical parity" or lacking "demographic parity." (L.- AAW3)
20. The illusio is what urges *certain* newcomers of Arab journalists to break the doxa of the field. (J.- AAEW12)

On the other hand, the writers used boosters to emphasise their evaluation of certain parts of their propositions and convey a sense of salience. In this way, boosters are employed to explicitly assess the credibility and reliability of their knowledge claims. They were expressed through evaluative or intensifying adverbs (e.g., "in particular"), intensifying or evaluative adjectives (e.g., "essential"), and emphatic expressions (e.g., "it is noteworthy"). The pragmatic function of boosters in these situations is to specify and intensify the identified phenomenon (Example 21), amplify the topic discussed (Example 22), or prove research validity (Example 23).

21. *In particular*, this article has argued that contradictory policy outcomes resulting from the lack of coordination between different reform initiatives is manifested in persisting public sector entitlements. (P.S.- AAEW15)
22. Three of the participants pointed to fact-based reporting as an *essential* element of balanced reporting. (J.- AAW8)
23. It is *noteworthy*, in this context, to mention that *AJM* features several of the afore-mentioned World Association of Newspapers and News Publishers. (J.- AAEW10)

The textual analysis indicates no differences between the AAEWs and the AAWs in the three disciplines along the continuum of information evaluation. Both groups showed a clear preference in terms of their strategies to make vague knowledge claims as they tended to use the language of low specification in describing participants and phenomena. In these disciplines, this practice may be viewed as a norm that emphasises meaning over figures. How the world is constructed through words and phenomena is what matters to these writers (Liu & Tseng, 2021). Thus, specification contributed little to the interpretation of their research. However, both groups employed boosters which express "certainty or obligation or desirability or any of a number of other sets of values" (Hunston & Thompson, 2000, p. 5) to evaluate their propositions positively, to enhance the reportability of their findings, and emphasise the significance of knowledge claims.

Table 6 summarises the AAWs' use of key pragmatic functions of hedges and boosters in the three disciplines.

CONCLUSION

Constructing knowledge claims is crucial when writing a publishable RA. This study aimed to explore how disciplinary and cultural contexts may affect the way the AAEWs and the AAWs constructed knowledge claims in the results and discussion sections of English RAs from the fields of Law, Journalism, and Political Science. The results showed significant differences in

Table 6

An overview of the AAWs' use of key pragmatic functions of hedges and boosters in Journalism, Political Science, and Law RAs

		Functions	Journalism	Law	Political Science
Authorial voice	**Humility**	- Reducing the force of suggestion/recommendation. - Reducing research contributions.	"Analysing the 2019 federal election *may* provide further insights into the relationship between political campaigning, commercial upheaval, and news quality" (J.-7).	"Pure" measure of moral disengagement *could* be developed as a standardized way of measuring moral disengagement across contexts…." (L.-2).	"a finding that *may be* worth revisiting in the era of Trump's presidency." (P.S.-12).
	Assertiveness	- Promoting writers' suggestions. - Enhancing writers' contributions.	"A model that reconnects communities and *strengthens* performance" (J.-9).	"Future research *should* examine how Americans make their judgments about the Court's politicization …" (L.-1).	"Our field experiment is the first to *actually* increase the number …" (P.S.-7).
Reasoning	**Assumptions**	-Reflecting writers' deductive reasoning.	"It *could* also be due to a new need to meet the audience, requiring changes to how the news has previously been distributed" (J.-9).	"One *possible* explanation of the remarkably weak influence of ideological disagreement on institutional support." (L.-1).	"Subjects are *likely* to have strong priors concerning the state of the world …" (P.S.-6).
	Facts	-Reasoning is derived from data.	Our innovative findings *confirm* that overbroad copyright undermines artistic contributions … (J.-15)	"The findings *reveal* that a greater death penalty support among forensic psychologists …" (L.-2).	"The initial VAR results *show* little evidence that changes in public support predict media coverage" (P.S.-1).
Consensus-building	**Knowledge negotiated**	-Avoiding misinterpretation of prior research. -Negotiating a space for their findings, and presenting either a similarity or discrepancy between their findings and the findings of previous studies.	"Both our data and those of Wahl-Jorgensen et al. *suggest* that the BBC has moved from a fairly even-handed approach during Labour years …." (J.- 4).	"Existing research *suggests* that gender becomes less relevant when voters have other information about candidates (Hayes, 2011)" (P.S.-7).	"Participants would have more crystalized opinions less likely influenced by party cues (Tesler, 2015). However, our results *suggest* that ease of issue is not strongly related to the party split treatment effect" (P.S.-8).
	Knowledge shared	-Assuming certain knowledge as shared among audiences. -Treating knowledge claims rooted in the literature as accepted factual information.	"Explaining the dearth in detailed policy analysis *clearly* requires further causal exploration that is beyond the scope of this article" (J.-7).	"As Morison and Leith *found*, barristers avoided spending too much time on certain unprofitable activities (such as legal research)" (L.-13).	"Fourth, while the income-party relationship appears unrelated to state-level income, race is an *obvious* lurking variable" (P.S.-6).
Information evaluation	**Vagueness**	-Using quantitatively vague language when stating research findings. -Presenting knowledge claims as "left open to readers' judgment'.	"It may *seem* obvious that partisans are willing to put their party's interest over the country" (J.-11).	"*Some* would criticize the forecasts as lacking "statistical parity" or lacking "demographic parity" (L.-3).	"The precise effect of an increased descriptive representation of women is *somewhat* unexpected" (P.S.-10).
	Salience	-Explicitly assessing the credibility and reliability of their knowledge claims.	"The most *noteworthy* characteristic of Egan's live tweets is how little they differ from…" (J.-14).	"Nonetheless, mis-fitting items *in particular* needed to be addressed" (L.-8).	"Furthermore, age is an *essentia***l** explanatory factor in terrorism" (P.S.-4).

hedges but non-significant differences in boosters used by both groups. The findings also revealed that culture might largely influence the AAEWs' articles, as they tended to persuade their audience through emphatic expressions rather than hedging. The AAWs often used more hedges to show humility, negotiate knowledge claims, and accommodate vagueness. This indicated their familiarity with the norms of academic writing or the essential characteristics of appropriate arguments. The study provides important insights for English-speaking writers living in non-Anglophonic countries and offers convenient tools for analysing, understanding, and modifying knowledge claims in academic writing.

Several significant pedagogical implications for the teaching of English for Specific/ Academic Purposes (ESP/EAP) can be drawn from this study, especially for advanced academic writers learning English as a foreign language. Academic writing requires not only synthesis and analysis skills, but also the interpretation and application of several rhetorical features to successfully socialize into the target discourse community. The findings can improve and enrich academic writing courses that tend to focus mostly on the text's structural features. The exploration of hedging/boosting features would assist in revealing how writers can manipulate these devices to make their texts more effective and persuasive. The results could aid ESP/EAP teachers, especially those teaching writing for publication purposes, in raising postgraduate students' awareness of epistemic modality markers in relation to academic writing (Table 6). Mere familiarity with words serving as hedges or boosters may not lead to their appropriate use. The ESP/EAP instructor can help students learn how to use hedges and boosters pragmatically by looking at excerpts from discussion sections and checking if the tendencies illustrated in Table 6 are also present. Researchers' reliability can be improved if students know the significance and mechanism for knowledge claims construction and follow the writing features compatible with their discourse community.

This cross-cultural study is limited to the investigation of hedges-boosters in the results and discussion sections of 90 English RAs from the fields of Law, Journalism, and Political Science Future studies could also investigate hedges and boosters and their pragmatic functions in RAs from other disciplines. Other science disciplines can be compared to the findings of the present study. Future research can compare the use of these markers and their pragmatic functions in RAs written by AAWs and non-AAWs other than Arabs. Finally, more corpus-based studies are needed to reveal how more specefice contextual factors might interact and shape hedging/boosting features in RAs, such as individual differences of RA writers, the role of academic gatekeepers (e.g., journal editors, reviewers) and reporting style manuals (e.g., Publication manual of the American Psychological Association).

DECLARATION OF COMPETING INTEREST

None declared. ■

AUTHOR CONTRIBUTIONS

Ghada Ali Alghamdi: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

Hesham Suleiman Alyousef: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

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APPENDIX A

The frequency of hedging strategies by AAWs and AAEWs in the fields of Law, Journalism, and Political Science

A	Hedges											
Case Number	Journalism				Law				Political Science			
	AAWs		AAEWs		AAWs		AAEWs		AAWs		AAEWs	
	To-kens	per 10,000 words	To-kens	per 10,000 words	To-kens	per 10,000 words	To-kens	per 10,000 words	To-kens	per 10,000 words	To-kens	per 10,000 words
1	35	12.06	15	6.06	33	13.41	8	3.19	53	18.75	38	11.95
2	57	19.65	6	2.42	21	8.53	12	4.78	51	18.04	18	5.66
3	15	5.17	19	7.68	33	13.41	15	5.98	19	6.72	4	1.25
4	27	9.31	4	1.61	11	4.47	13	5.18	33	11.67	30	9.43
5	40	13.79	17	6.87	29	11.78	9	3.58	19	6.72	37	11.64
6	33	11.37	9	3.64	44	17.88	13	5.18	26	9.2	25	7.86
7	50	17.24	12	4.85	26	10.56	14	5.58	13	4.6	16	5.03
8	10	3.44	30	12.13	20	8.12	14	5.58	26	9.2	16	5.03
9	35	12.06	9	3.64	25	10.16	4	1.59	38	13.44	19	5.97
10	40	13.79	3	1.21	14	5.69	5	1.99	9	3.18	5	1.57
11	25	8.62	27	10.92	17	6.91	13	5.18	20	7.07	8	2.51
12	23	7.93	7	2.83	19	7.72	22	8.77	21	7.43	1	0.31
13	7	2.41	18	7.28	40	16.25	16	6.38	18	6.36	19	5.97
14	4	1.37	55	22.24	8	3.25	11	4.38	28	9.9	13	4.09
15	8	2.75	9	3.64	6	2.43	11	4.38	13	4.6	24	7.55

APPENDIX B

The frequency of boosting strategies by AAWs and AAEWs in the fields of Law, Journalism, and Political Science

B	Boosters											
Case Number	Journalism				Law				Political Science			
	AAWs		AAEWs		AAWs		AAEWs		AAWs		AAEWs	
	Tokens	per 10,000 words	Tokens	per 10,000 words	Tokens	per 10,000 words	Tokens	per 10,000 words	Tokens	per 10,000 words	Tokens	per 10,000 words
1	9	3.1	11	4.44	23	9.34	2	0.79	17	6.01	33	10.38
2	17	5.86	4	1.61	16	6.5	5	1.99	19	6.72	25	7.86
3	11	3.79	16	6.47	15	6.09	6	2.39	5	1.76	29	9.12
4	29	10	2	0.8	7	2.84	15	5.98	35	12.38	21	6.6
5	27	9.31	4	1.61	7	2.84	18	7.17	16	5.66	18	5.66
6	23	7.93	13	5.25	19	7.72	13	5.18	13	4.6	27	8.49
7	12	4.13	21	8.49	7	2.84	15	5.98	20	7.07	16	5.03
8	16	5.51	19	7.68	8	3.25	13	5.18	21	7.43	22	6.92
9	12	4.13	14	5.66	7	2.84	15	5.98	20	7.07	9	2.83
10	8	2.75	14	5.66	9	3.65	10	3.98	22	7.78	9	2.83
11	15	5.17	24	9.7	14	5.69	16	6.38	16	5.66	5	1.57
12	9	3.1	11	4.44	16	6.5	19	7.57	21	7.43	9	2.83
13	0	0	7	2.83	28	11.38	17	6.77	10	3.53	8	2.51
14	0	0	20	8.08	8	3.25	7	2.79	17	6.01	13	4.09
15	3	1.03	3	1.21	3	1.21	21	8.37	12	4.24	13	4.09

https://doi.org/10.17323/jle.2022.12985

Semantic Prosody of Research Verbs: A Corpus-Informed Study

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ABSTRACT

Background. Synonymous words behave differently, and language users should be aware of the fact that though near-synonyms share similar denotational meanings, they require different collocates. Further, with specific collocates, they provoke a special affective meaning called semantic prosody. To give an example of this problematic area, researchers use a lot of reporting verbs that merely describe an opinion such as argue, claim, believe, etc. or state facts such as find, confirm, cite, etc. Such verbs cannot be used interchangeably as some novice researchers usually do when they discuss their findings or compare their results with others'.

Purpose. This study aimed at examining the semantic prosody of 24 research verbs commonly used by researchers. For this purpose, collocational behavior of nearly synonymous verbs was examined. Compared to previous studies, this study considered only adverbs co-occurring with such research verbs.

Methods. The researcher used the Directory Open Access Journals (DOAJ), which is of 2.6 billion words and 659,132 texts, and focused on predicational adverbs that end in –ly. For the purpose of the study, adverbs with positive semantic prosody are those proving a stronger attitude towards the proposition, improving the quality, quantity, manner of a piece of information or its the relation to the topic or those suggesting a higher level of certainty.

Results. Investigating 24 research verbs related to hypothesizing, reporting, and summarizing, the researcher found that such verbs have different sets of collocates and thus distinct semantic prosodies. Results showed that 12 of the research verbs were positive (i.e., quantify, argue, claim, suggest, state, mention, indicate, outline, summarize, encapsulate, recapitulate, and reveal), whereas 12 verbs (i.e., hypothesize, review, conclude, presume, posit, assume, theorize, speculate, note, report, find, and postulate) were neutral.

Implications. The study has its own implications for writing instructors and researchers. Novice researchers should not use some research verbs interchangeably as they require different collocates of adverbs. Further, future research should address the relationship between word's etymology and semantic prosody as the present study showed that verbs derived from Latin (e.g., conclude, hypothesize, postulate, etc.) are neutral compared to those that are originally French.

KEYWORDS:

collocation, corpus linguistics, research verbs, semantic prosody, synonymy

Citation: Al-Otaibi, G. M. (2022). Semantic prosody of research verbs: A corpus-informed study. *Journal of Language and Education, 8*(2), 48-65. https://doi.org/10.17323/jle.2022.12985

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Received: September 10, 2021
Accepted: June 21, 2022
Published: June 30, 2022

INTRODUCTION

Synonymous words behave differently, and language users should be aware of the fact that though near-synonyms share similar denotational meaning (Xiao & McEnery, 2006), they require different collocates. Further, with specific collocates, they provoke a special affective meaning called *semantic prosody* (Stubbs, 2002). Research in this area has been popularized by corpus linguists who emphasize the precedence of use and frequency over meaning of individual words. With frequent use of collocates with node words, the latter will eventually adopt such collocates as their closest friends. Thus, only corpora, not pedagogists relying on intuition, can inform us about what is acceptable in terms of use (Xiao & McEnery, 2006); that is, which words should be used with which.

Corpus linguists found that some words are used with specific collocates by native speakers to give negative or positive meanings. Hence, language learners should be aware of such differences be-

sides dictionary definitions. As noted by Scarcella (1984), objectivity and balanced argumentation mark native speakers' writing as opposed to nonnative learners of the language who tend to generalize and show subjectivity in their writing. Therefore, enough attention should be drawn to the use of words (mainly verbs) especially in scientific writing or academic prose as they tell a lot about writers' attitude. Jaroongkhongdach (2015) noted that reporting verbs (e.g., report, investigate, note, argue) are problematic for novice researchers and graduate students. Such researchers tend to use them in a factive manner to show their supportive attitude of others' conclusions. However, Jaroongkhongdach (2015) added that expert researchers viewed such verbs as factive or non-factive where in the latter no signal of approval or disapproval is given. In general, such verbs cannot be used interchangeably as each may require a different set of collocates and convey negative, positive, or neutral prosody (Bloch, 2010).

Semantic prosody has been investigated by Sinclair (1991), Louw (1993, 2000), Stubbs (1995, 1996, 2001a, 2001b), Bublitz (1996), Partington (1998), Hunston (2002), Schmitt and Carter (2004), Ünaldi (2013), Begagić (2013), and Xiao and McEnery (2006). Nevertheless, a few research papers (e.g., Hunston, 1995; Bloch, 2010; Ilchenko & Kramar, 2022) have examined semantic prosody of research verbs. However, such studies have focused on exploring co-texts or concordances of research verbs (e.g., Hunston, 1995; Bloch, 2010; Ilchenko & Kramar, 2022), co-occurring subjects and objects (Hunston, 1995), lexico-grammatical structures, or grammatical context (Hunston, 1995; Ilchenko & Kramar, 2022). None has investigated semantic prosody of research verbs in relation to co-occurring predicational adverbs though adverbs modify verbs and may denote writers' attitude towards a certain claim. Examining which adverbs collocate with which research verbs might help novice researchers in using the accurate adverb with the right research verb to communicate a specific attitude.

Research Objective

This study aimed at examining the semantic prosody of 24 research verbs commonly used by researchers. For this purpose, collocational behavior of nearly synonymous verbs was examined.In addition, focus was on conducting a corpus analysis of research verbs and their co-occurring adverbs. More specifically, lemmas (basic forms) of research verbs and their variants (the past form) in academic prose were investigated using three different corpora.

LITERATURE REVIEW

Collocation

Firth (1957) proposed the term *collocation* to refer to habitual co-occurrence of words. Thus, *food* collocates with *fast* but not *quick* though *fast* and *quick* express the same meaning. The same goes for *coffee* that collocates with *black* but not *brown*. A collocation is of two parts: the node word and the collocate. The node word is the one whose collocability (tendency to come with certain words) is being examined (Stubbs, 1996).In the previous examples, *food* and *coffee* are node words, whereas the rest are collocates.

Semantic Prosody and Near-Synonymy

Stubbs (2002) observes that "there are always semantic relations between node and collocates, and among the collocates themselves" (p. 225). The type of collocational meaning that results from the interaction between a node and one of its typical collocates is called *semantic prosody* (Xiao & McEnery, 2006). Xiao and McEnery (2006) emphasized that the semantic prosody of a certain word is acquired through its typical collocates (i.e., nouns including subjects and objects) which can be one or more words and not only one adjacent word. The typical use of words determined by their collocates establishes to a greater extent their meaning. Researchers exploit such typicality to implicate some meaning. This exploitation is only possible if the associated semantic prosody is strong (Hunston, 1995).

Xiao and McEnery (2006) noted that a word may acquire a positive or negative meaning because of its typical collocates. Semantic prosody serves to express speakers' or writers' attitude (Louw, 2000). Louw (1993) argued that semantic prosodies associated with the majority of node words are negative. Additionally, Xiao and McEnery (2006) argued that with atypical collocates the word will continue to give its typical prosody. For example, though *cause* in *cause happiness* is used with happiness, it is still negative. It gives the impression that such happiness is impossible or undesirable since corpus investigation shows that *cause* is frequently used with *death*, *problem*, *damage*, *pain*, etc. (Xiao & McEnery, 2006).

Semantic prosody and collocational behavior are used to distinguish between words that are traditionally considered to be near synonyms (Xiao & McEnery, 2006). Near synonyms are words with similar denotational meaning (Partington, 1998). However, as reported by Tognini-Bonelli (2001), synonyms are not "collocationally interchangeable" (Xiao & McEnery, 2006, p. 108). Therefore, *powerful* cannot be used in place of *strong* to describe *tea* (Tognini-Bonelli, 2001). According to Stubbs (1996), semantic prosodies can be positive (pleasant meaning), neutral, or negative (unpleasant meaning) corresponding to Partington's (2004) favourable, neutral, and unfavorable prosodies.

Research Verbs

Citing others' work is one way that helps authors promote their work (Hewings et al., 2010). Reporting verbs are important elements in any research (Jaroongkhongdach, 2015). They function to "to give credit to other researchers and to use their work in the cumulative construction of knowledge"

(Charles, 2006, p. 320). In addition, they are utilized to report authors' claims or as indicators of their attitudes towards others' words (Hyland, 1999; Thompson & Ye, 1991). However, using reporting verbs effectively is problematic for novice researchers especially non-native English students such as Iranians (Yeganeh & Boghayeri, 2015), Malaysians (Manan & Noor, 2014), and Thais (Jogthong, 2001; Jirapanakorn, 2012). Further, Bloch (2010) and Pecorari (2008) reported that not using reporting verbs properly may result in readers' misinterpretation of writers' arguments. Hyland (2008) explained that such writers feel compelled to take "definite and self-assured positions" (p. 70). Additionally, Thompson and Ye (1991) and Bloch (2010) stated that non-native English students use fewer reporting verbs and of less variety compared to expert researchers.As noted by Pickard (1993), they use mainly *say* to introduce quotations. This denotes, as argued by Hyland (2002), students' inability to present sound discussions and convincing arguments. Other novice writers tend to cite others' work for the sake of citing them. On the other hand, expert researchers cite to synthesize relevant work, justify their claims, and give support to their argument (Mansourizadeh & Ahmad, 2011). To cite effectively, authors should use reporting verbs properly (Yeganeh & Boghayeri, 2015).

Types of Research Verbs

Previous research called verbs used in research as reporting verbs (Jaroongkhongdach, 2012; Hyland, 1999; Hyland, 2000a). However, arguments by (Thompson & Ye, 1991; Ziman, 1968) suggested that they should not be treated in a similar fashion because sometimes they refer to facts or simply opinions. Thompson and Ye (1991) differentiated between verbs that express the position of the writer (i.e., introducing 'averrals' or propositions given by the writer) or those that denote that of the author whose claims are being reported (i.e., attributions) or those accompanying the writer's interpretation of the issue. Hunston (2000) reported that young researchers should understand the difference between such verbs as this aids in establishing the importance of any claim to the research goal. Some citations or claims are consistent with the author's and some are inconsistent, flawed, or irrelevant (Ziman, 1968). Thus, authors should decide on the credibility of every claim and their attitude towards each (Hunston, 2000). Attitudes are either favorable or unfavorable (Bloch, 2010). Further, Hunston (1995) reported that attributions imply some evaluation by the attributor (i.e., the text's writer) because of the different interpretations an attribution can give. As for reporting verbs, they can be also factive or non-factive. Factive reporting verbs represent others' claims as facts, and non-factive ones give no clue of any attitude towards others' argument (Jaroongkhongdach, 2015).

Hyland (2000a) proposed a categorization of reporting verbs according to the type of activity they indicate. Such activities can be embodied by *research acts* (i.e., actions carried out in the research, e.g., discover), *discourse acts* (i.e., verbs verbally expressing cognitive or research activities, e.g., discuss), or *cognition acts* (i.e., verbs denoting mental processes, e.g., assume). More importantly, authentic texts of available corpora can inform researchers of which verb is used for which claim and for what stance (Bloch, 2010). As noted by Hyland (2000a), verbs referring to discourse acts are more common than others and especially in soft fields of knowledge that require speculation and interpretation and personal input. Hence, verbs of discourse acts such as *suggest* and *argue* followed by research verbs (e.g., find) are more common than others.

Thompson and Ye (1991), on the other hand, divided verbs according to the process they perform. The first group of verbs are known as *textual* verbs and they are used for verbal expressions (e.g., state, write). The second category includes *mental* verbs, and they are of mental processes (e.g., think, believe). The third group, however, are known as *research* verbs, and they refer to research activities (e.g., find, demonstrate). Hyland's (2002) *discourse* and *cognition* verbs correspond to Thompson and Ye's *textual* and *mental* verb categories. Thompson and Ye (1991) also stated that there is a relationship between reporting verbs and evaluation or the position of the reporting writer towards the claims of a specific author.Thus, verbs can be factive (e.g., establish), counter-factive (e.g., overlook), or non-factive (e.g., find).Similarly, Thompson (1994) differentiated between verbs where the writer believes strongly in what the author states (e.g., acknowledge, admit, point out, etc.) and those that show some disagreement with the author (e.g., claim, purport, misinform).

By the same token, Francis et al. (1996) distinguished between *argue* verbs (i.e., concerned with writing and different forms of communication, e.g., argue, suggest, assert, point out), *think* verbs (i.e., describing the process of thinking, believing; knowing, understanding, hoping, fearing, e.g., think, assume, feel), *show* verbs (i.e., used to indicate a fact or a situation, e.g., show, demonstrate, reveal), and *find* verbs (i.e., concerned with coming to know, e.g., find, observe, discover, establish). According to Hyland (2002), ARGUE verbs are used more commonly in social science by native speakers, whereas FIND/SHOW verbs prevail in natural science. Compared to previous research, this paper sheds light on three groups of frequent research verbs related to *hypothesizing*, *reporting*, and *summarizing* results. This classification roughly corresponds to some of the categorizing schemes mentioned above.

Previous Studies on Research Verbs and Semantic Prosody

Some studies (e.g., Sinclair, 1991; Louw, 1993, 2000; Stubbs, 1995, 1996, 2001a, 2001b;Bublitz, 1996; Partington, 1998; Hunston, 2002, Schmitt and Carter, 2004; Ünaldi, 2013; Begagić, 2013;and Xiao & McEnery, 2006) have examined semantic prosody and considered mainly verbs such as *make*

sense, *provide*, *cause*, *happen*, *set in*, *occur*, *come about*, *take place*, etc. Previous research indicated that the majority of verbs explored in the literature were negative (e.g., Ünaldi, 2013; Partington, 2004; Sinclair; 1991; Stubbs, 2001) and that semantic prosody of words is closely linked to genre (Begagić, 2013). As for research verbs, a few research papers (e.g., Hunston, 1995; Bloch, 2010; Ilchenko & Kramar, 2022) have explored semantic prosody of such verbs.

Hunston (1995), for example, used the Bank of English to explore four verbs of attribution (i.e., verbs attributing statements to the writer of the text or to another author, e.g., *acknowledge*, *insist*, *claim*, and *argue*). As noted by Hunston (1995), attribution is used for hedging in research, introducing information that reflects that of the author's, highlighting a gap in research, transferring the responsibility of a claim, etc. The researcher considered word's co-text (i.e., the words surrounding a particular word) and found that *acknowledge* is used mainly in reluctant acceptance of an opponent's point of view. On the other hand, *insist* is typically used to contradict a previous statement. However, *claim* indicated neither acceptance nor rejection of a statement. As for *argue*, it is mainly associated with conflicts between the author and the writer. More importantly, with the first mention, *argue* was positively evaluated, but upon the second mention, the verb was negatively evaluated. Even if it is sometimes associated with positivity, the verb may carry some negativity. Hunston (1995) emphasized that her observation was not collocational and that she did not employ any statistical measure.

In another research, Bloch (2010) identified 27 research verbs (i.e., argue, assume, believe, claim, conclude, consider, demonstrate, describe, discuss, examine, explain, find, indicate, imply, mention, note, point out, predict, propose, prove, report, reveal, show, state, suggest, think) used commonly in research. The researcher used a corpus of research articles derived from *Science*, a group of journals that publish articles in different types of sciences. Search was not limited to the lemma (e.g., THINK) but covers wordforms such as *thinks* and *thought*.

Bloch (2010) has identified six categories of reporting verbs based on Swales' (1990) distinction. Two categories were relevant to the present study. For example, the fourth category examined in Bloch's (2010) was concerned with how writers use special verbs to denote their rhetorical attitude towards a claim. According to Hyland (2000b), an expression of attitude may include hedging, bolstering, or toning up or toning down a claim. The assessment of the writer's attitude towards the truth of a claim is what Radden and Dirven (2007) called *epistemic modality*. The verbs *conclude*, *describe*, *examine*, *note*, *point out*, *report*, and *reveal* are always positive. Others are typically positive such as *consider*, *demonstrate*, *discuss*, *find*, *indicate*, *imply*, *predict*, *prove*, *show*, and *suggest*. As for *mention*, it can be equally positive or negative. It is used more commonly in learner corpora than in *Science* (Bloch, 2010). Regarding *explain*, *state*, and *claim*, 25-30% of their meaning is negative. *State* in specific is used to present a claim that will be criticized in subsequent sentences. This finding was in line with Latour's (1987) argument who claimed that the purpose of referring to previous research is to enhance the validity of a claim through citing literature that is consistent with the writer's claim. If there is some negativity, negativity stems out from negating the verb itself not from the verb (Bloch, 2010) itself. As for *argue*, 40% of its instances were positive.

Another similar category is about the strength of writer's attitude towards a claim or what Hyland (1998) termed *hedging*. Non-native speakers tend to state stronger claims compared to native ones (Hyland & Milton, 1997). Maintaining a moderate position seems to be very difficult for such writers (Bloch, 2010).Bloch (2010) found that 61% of the verbs were strong, whereas only 2% were weak, and 37% were considered moderate. The verbs *demonstrate*, *discuss*, *examine*, *report*, *reveal*, *show* were always strong. As for *conclude*, *consider*, *describe*, *explain*, *find*, *indicate*, *note*, *point out*, *predict*, and *state*, they were often strong. However, *argue*, *claim*, *imply*, *propose*, *suggest* were mainly weak. According to Hyland (2002a), *suggest* was used to reduce the writer's responsibility towards the certainty of a claim. However, this lowered level of responsibility can be still boosted by using a number of rhetorical devices. Since *suggest* and *indicate* are considered to be moderate, a positive expression of the claim can be made stronger through the use of adverbs (e.g., *strongly* for *suggest*).

In a recent study, Ilchenko and Kramar (2022) examined three reporting verbs (i.e., argue, claim, believe) in 40 journals of linguistics. They focused on their rhetorical and discursive functions. They found that *argue* and *claim* were more associated with Others, whereas *believe* was used more frequently with Self and was very common in concluding sections, research limitations, and suggestions for future research. Compared to *argue*, *claim* was followed by refutations or simply reservations. Thus, *argue* and *claim* cannot be used interchangeably in contexts.

As shown above, previous research on semantic prosody of research verbs focused on a small number of research verbs (e.g., Hunston, 1995; Ilchenko & Kramar, 2022), used a smaller corpus (Ilchenko & Kramar, 2022), explored co-texts or concordances of research verbs (e.g., Hunston, 1995; Bloch, 2010; Ilchenko & Kramar, 2022), considered co-occurring subjects and objects (Hunston, 1995), or examined grammatical context (Hunston, 1995; Ilchenko & Kramar, 2022). Hence, what distinguishes the present study from previous ones is that the researcher made use of a bigger corpus, investigated 24 research verbs, and utilized the T-score and the MI to reach a conclusion about research verbs' collocational behavior. More importantly, the emphasis of the current study was on collocating predicational adverbs that could be used to express one's attitude towards a claim.

METHODOS

Background

This paper explored the semantic prosodies of nearly synonymous verbs that are used typically to *hypothesize*, *report*, and *summarize* results. Such verbs are employed frequently in scientific writing. To examine verbs' collocates, researchers such as Greenbaum (1974) and Hoey (1991) argued that the term collocation should strictly describe statistically significant co-occurrence of words. Hence, Firth (1957) believed that our investigation of collocation should be quantitative. Therefore, many linguists have adopted the statistical approach to the study of collocation using different corpora (Halliday, 1966; Greenbaum, 1974; Sinclair, 1991; Hoey, 1991; Stubbs, 1995; Partington, 1998; McEnery & Wilson, 2001; Hunston, 2002). Thus, statistically significant co-occurrence of the collocational components (the *node* and the *collocate*) justifies collocates' inclusion as typical ones.

Data Collection Tools

In this study, the researcher used two different English corpora to decide on frequent research verbs: Sketch Engine for Language Learning (SkELL) and Corpus of Contemporary American English (COCA). SkELL consisted of one million words, whereas COCA consists of 250 million words collected between 1990 and 2015. SkELL is a recent project derived from Sketch Engine (an online corpus tool) and designed for language learners. Where COCA describes the American Variety, SkELL is mainly of British English. Data cannot be driven from one variety as the researcher is trying to extract generalizable data that can describe English in general. Further, the use of more than one corpus was necessary to verify the results and report only statistically significant findings that each corpus depicts. SkELL can provide concordances (i.e., alphabetical lists of key words used in a specific text) and information on typical collocates and synonyms (Thesaurus[1]; Baisa & Suchomel, 2014[2]). COCA can yield frequency information and help with identifying typical collocates, contexts of words, and concordances.

Since semantic prosody can affect texts and not merely phrases, investigation of relevant texts or genres is important. The researcher focused on verbs used frequently in scientific writing. Research verbs are typically used in academic journal articles. Choosing academic corpora such as the British Academic Written English Corpus (BAWE) did not yield significant results in terms of typical collocates. Hence the third corpus utilized was the Directory Open Access Journals (DOAJ) which is available in Sketch Engine, a corpus tool that includes about 500 different corpora. DOAJ consists of journal articles in various areas of knowledge such as medicine, science, technology, humanities, and social science. At the time of data collection, it includes 2.6 billion words and 659.132 documents.

To decide on the collocability of associated words, the researcher considered besides frequency, mutual information (MI), and t-score. Following Xiao and McEnery's (2006) suggestion, the minimum co-occurrence frequency of a collocate to a specific node word was set at three (for comparable corpora of one million words) and 20 for COCA. Mollin (2014), however, noted that for bigger corpora a word is considered a typical collocate if it occurs 50 times or more. Further, COCA and Sketch Engine support MI, a test that measures collocational strength (between a node word and a collocate) depending upon the occurrence of a collocate with a given word in various contexts (Xiao & McEnery, 2006).The researcher accepted a minimum MI score of 3 for a collocate to be considered so for a given node word. Besides MI, t-score, a measure of certainty or confidence, was useful to emphasize that there is an association. The t-score (significance threshold=2.57), as opposed to MI, is a more reliable measure since it accounts for frequencies of collocates. Thus, frequent collocates score very high on t-score. It is important to note that some combinations (e.g., proper names, technical terms, etc.) score high on MI but not on t-score. Thus, both measures were essential for the purpose of the study (Bartsch, 2004).In COCA and Sketch Engine, the span of a co-occurrence pattern was set four to the left and four to the right of the node word, a common setting to look for collocates. As for SkELL, the word-sketch feature (see figure 1) is very helpful in identifying typical collocates for a word based on their frequency and MI score (Baisa & Suchomel, 2014).

The Sampling Procedure of Research Verbs

Frequency and text category are important criteria for choosing potential research verbs. *Hypothesizing*, *reporting*, and *summarizing* verbs that are used very frequently in scientific writing were the focus of the present study. The researcher examined a number of research articles to collect a sufficient number of verbs. An online thesaurus (Thesaurus.com, 2017) and Oxford Online Dictionary[3] were used to identify the synonyms of each group of research verbs. Results were verified using SkELL.

It is important to note that exploring semantic prosody was not limited to lemmas of research verbs (the unmarked form, HYPOTHESIZE), but it included one more form which is the past (hypothesized). The basic form of research verbs and the past (denoting the present perfect tense and the

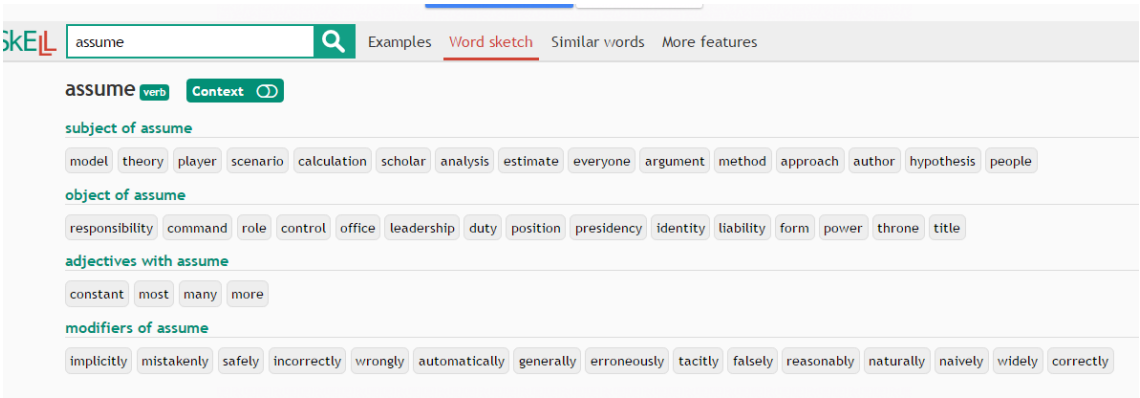
[1] Thesaurus. Com. (2017). Retrieved from http://www.thesaurus.com/

[2] Baisa, V., & Suchomel, V. (2014). SkELL: Web interface for English language learning. Retrieved from https://www.sketchengine.co.uk/wp-content/uploads/2015/05/SkELL-Web-Interface-for-English-Language-Learning.pdf

[3] Oxford Online Dictinary. (2017). Retrieved from https://en.oxforddictionaries.com/

Figure 1

The word sketch of the verb assume as suggested by SkELL



past) are two frequent forms used in research. For example, the past and the present perfect are used for reviewing relevant literature, describing the selected procedure (involving past events), and reporting results. The present tense, however, is used commonly to present conclusions and discuss implications[4]. The Word Sketch Feature in Sketch Engine was used to search for research verbs. The basic form of the verb (i.e., the lemma, e.g., REVIEW) yielded results related to the past form (i.e., reviewed) and the present one (i.e., reviews, review, reviewing). Further, variation in spelling was considered. Thus, *hypothesize* and *hypothesise*, *theorize* and *theorise*, and *summarize* and *summarise* were included in research since researchers are allowed to use either form.

Data Collection

Xiao and McEnery (2006) noted that prosodic meaning is closely determined by word forms, contexts, and genres. Thus, this study examined research verbs with reference to scientific writing and two forms of verbs (the basic form and the past). Since the investigated items were verbs, attention was drawn to co-occurring *modifiers of verbs* (adverbs). Adverbs are used to answer questions starting with How/ When/Where/How much, and To what extent. Hence, objects (i.e., nouns) occurring with such verbs were not considered though each object may contribute a different meaning with each verb. More importantly, the evaluative meaning obtained from the collocating adverb is only partial since mainly adverbs, not subjects or objects, were examined in this study.

As mentioned above, the focus of the study was on predicational adverbs that end in –ly. Predicational adverbs (i.e., associated with gradable predicates) are divided into *manner* or *event* adverbials (i.e., how the event takes place) including *locative* or *temporal* adverbs, *subject-oriented* adverbs (i.e., identify properties of the noun in the subject position, e.g., accidentally, deliberately, etc.) which includes *mental-attitude* (e.g., reluctantly, willingly, etc.) and*agent-oriented* adverbs (e.g., wisely, rudely, etc.), and *speaker-oriented* adverbials which includes evaluative adverbs (e.g., expressing the attitude of the speaker towards the proposition, e.g., surprisingly, unfortunately, etc.), *speech act* adverbs (i.e., expressing an involved speech act, e.g., frankly, briefly, etc.), and *epistemic* adverbs (i.e., involving gradable modal adverbs, e.g., certainly, clearly, etc.; Ernst, 2002). Table 1 below is illustrative.

Such adverbs are used to present *writer-oriented* interaction with readers or what Hyland termed *stance*. Stance includes writer's attitudes towards a piece of information or how certain they are about its accuracy. As noted by Hyland (1999), stance can be represented by hedges (e.g., probably, generally), boosters (e.g., definitely), attitude markers (e.g., certainly), and self-mentions. Hedges are softening words that are used to illustrate writer's awareness of the cooperative principle maxims. Boosters, on the other hand, are used to express certainty in what writers say. However, attitude markers illustrate one's affective attitude to the stated proposition. Affect includes surprise, agreement, importance, frustration, etc. Hyland (1999) reported that in research papers hedges are more common than other categories and such interactional markers or reporting structures are more frequent in 'soft' fields of knowledge such as philology, applied linguistics, sociology, etc. than in science papers because such fields are considered to be interpretative.

Hyland (2002) stated that reporting verbs should be used with care as they imply one's evaluation of the source author's claim. They can either approve reported authors' conclusions through factive verbs such as *show*, *solve*, etc. or use counter-factive verbs (e.g., fail, ignore) to show disapproval. Experienced researchers, however, prefer to use verbs with

[4] *APA manual (publication manual of the American Psychological Association)*. (2017). American Psychological Association.

Table 1
Types of Predicational Adverbs with Examples

Types	Sub-Types	Definitions with Examples
manner		denoting how the action is performed, e.g., loudly
event	locative	denoting where the event takes place, e.g., externally
	temporal	suggesting when an event takes place, e.g., recently, etc.
Subject-oriented	mental-attitude	denoting «a state of mind experienced by the referent of the subject of the verb, e.g., reluctantly, calmly, willingly, anxiously, eagerly, frantically, absent-mindedly, gladly, sadly» (Ernst, 2002, p. 63)
	agent-oriented	showing that «an event is such as to judge its agent as an adjunct [i.e., adverbials, adjectivals, and relative clauses modifying a noun] with respect to the event, e.g., cleverly, stupidly, wisely, etc. (Ernst, 2002, p. 54)
Speaker-oriented	evaluative	expressing the attitude of the speaker towards the proposition, e.g., surprisingly, unfortunately, etc.
	speech act	expressing an involved speech act, e.g., frankly, briefly, etc.
	epistemic	involving gradable modal adverbs, e.g., certainly, clearly, etc.

no attitudinal hint (e.g., find, identify). For the purpose of the study, verbs with a positive semantic prosody are those proving a stronger attitude towards the proposition, improving the quality, quantity, manner of a piece of information or its relation to the topic or suggesting a higher level of certainty (Bloch, 2010). This was initially determined by the frequency of verbs' collocates of adverbs and then by checking concordances for accompanying subjects.

RESULTS

In the present study, the researcher examined the semantic prosody of research verbs used frequently in research papers. Though previous research (Jaroongkhongdach, 2012; Bloch, 2010; Thompson & Ye, 1991; Hyland, 2002) treated all research verbs as reporting verbs, for the purpose of the study, research verbs can be defined as those used to hypothesize, report, and summarize results.

Results of the Sampling Procedure of Research Verbs

As mentioned above, the researcher divided research verbs into three categories (see Table 1) corresponding to the three main sections (where they are commonly found) in a typical research paper and as they are used by research writers. This division was meant to avoid any overlap in categories. Hence, *hypothesizing* verbs are used in the introductory part of research papers, whereas *summarizing* ones are found mainly in the concluding part. *Reporting* verbs, on the other hand, occur more frequently in the review of literature section and the discussion where researchers report results of others or compare theirs to others' findings. Thus, such verbs cannot be used interchangeably. They correspond roughly to Faber and Mairal's (1999) verbs of COGNITION (e.g., hypothesize, speculate, assume), SPEECH (e.g., note, mention, argue), and PERCEPTION (e.g., find), Thompson and Ye's (1991) mental (e.g., assume, speculate), textual (e.g., argue, claim), and research verbs (e.g., find, reveal, indicate), and Francis et al.'s (1996) ARGUE (e.g., argue, suggest), THINK (e.g., assume, posit), SHOW (e.g., reveal, indicate), and FIND verbs (e.g., find).

As stated above, the researcher used an online thesaurus (Thesaurus.com, 2017), Oxford Online Dictionary, and SkELL to collect hypothesizing, reporting, and summarizing verbs after checking a few research articles.For example, for the *hypothesizing* group, *theorize, speculate, presume, presuppose, suppose, posit, postulate, deduce, ascertain, deduce, pinpoint, quantify, ponder, consider*, etc. were established as typical synonyms. To minimize the number of verbs investigated, COCA with respect to typical text categories was checked.Table 4, 5, and 6 in the Appendix show the frequency score of each verb in five text categories (academic writing, spoken, fiction, magazine, and newspaper) along with its normalized frequency score (occurrence per million [opm]) because the size of each sub-corpus is not equal (i.e., academic writing [81 million words], spoken [85 million words], fiction [81 million words], magazine [86 million words], and newspaper [81 million words]) at the time of data collection.

Only frequent verbs in academic prose compared to other text categories were chosen. Hence, hypothesizing verbs were minimized to eight verbs: *posit*, *assume*, *hypothesize*, *theorize*, *speculate*, *postulate*, *presume* and *quantify*. They all contribute the meaning suggested by the dictionary "to assume by hypothesis" (Oxford Online Dictionary, 2017). As illustrated by Table 4 in the Appendix, some verbs were more

common in the past such as *hypothesize, theorize, posit, presume,* and *postulate*.

The same procedure (see Table 5) was used to limit the number of reporting verbs, and hence the explored ones are 10: *note*, *argue*, *claim*, *report*, *suggest*, *state*, *indicate*, *reveal*, *find*, and *mention*. Some verbs were more common in other text types such as *report*, *state*, *find*, and *mention* which were more frequent in *spoken English*, *newspaper*, *magazine* and *fiction*, respectively. However, all potential verbs carry the meaning of "giving an account of something observed" (Oxford Online Dictionary, 2017).

As for summarizing verbs, Dictionary.com (2017)[5] stated that a summarizing verb expresses something in a concise manner. Along with corpus investigation, dictionaries and thesauri suggested six verbs: *outline*, *summarize, encapsulate, recapitulate, conclude*, and *review*. Table 6 in the Appendix is illustrative. Thus, the total number of investigated verbs is 24. Table 2 below lists the research verbs that were explored in the study.

Frequency of Research Verbs

Using the DOAJ as a corpus of journal articles, the researcher found that *reporting* verbs were more frequent than *hypothesizing* and *summarizing* ones (see Table 3 below). Moreover, of reporting verbs, *report* (i.e., of 1.894.821 occurrences), *suggest* (i.e., occurring 1.887.652 times, *indicate* (i.e., used 2.114.053 times), and *find* (i.e., of 2.998.375 hits) were the most frequently used by researchers. As for *hypothesizing* verbs, *assume* (i.e., of 654.082 hits), *quantify* (i.e., occurring 268.657 times), and *hypothesize* (i.e., of 127.631 occurrences) were more frequent than the rest. Regarding the summarizing group, the verbs *summarize* (i.e., used 228.208 times [203.439 times as summarize and 24.769 times as summarise]) and *outline* (i.e., of 83.316 hits) occurred more than any other summarizing verb.

Collocating Adverbs of Research Verbs

Hypothesizing Verbs

As for corpus analysis of hypothesizing verbs in relation to their accompanying adverbs, results showed that they were in general neutral. *Hypothesize* (freq=116.881) was mainly associated with *previously* (freq=725, MI=8.57, t-score=26.8), *initially* (freq=296, MI=9.72, t-score=17.18), *originally* (freq=191, MI=10.15, t-score=13.8), *recently* (freq=153, MI=7.5, t-score=12.3), and *specifically* (freq=53, MI=6.6, t-score=7.2). The same applied to *hypothesise* (freq=10.750) that was associated with *previously.* The verbs *posit* and *theorize* occurring 4.680 times (or theorise of 10,032 occurrences) were not associated with typical adverbs.

Regarding *speculate*, *postulate*, and *presum*e, they suggest neither positive nor negative prosody. *Speculate* habitually occurred with *reasonably* (freq=66, MI=10.20, t-score=8.11) and *previously* (freq=174, MI=7.23, t-score=13.10), but *presum*e with *generally* (freq=92, MI=8.60, t-score=9.5).Moreover, *postulate* collocated frequently with *originally* (freq=89, MI=10.3, t-score=9.4), *initially* (freq*=79, MI=9.12, t-score=8.8), previously* (freq=350, MI=8.8, t-score=18.6*), and recently* (freq=148, MI=8.8, t-score=12.3).

As for *assume*, it typically occurred with more than 40 adverbs and mainly with *implicitly* (freq=2230, MI=12.6, t-score=47.2), *generally* (freq=2963, MI=8.7, t-score=47.21), *safely* (freq=482, MI=10.7, t-score=21.9), *reasonably* (freq=597, MI=9.8, t-score=24.4),*simply* (freq=877, MI=8.4, t-score=29.5), *commonly* (freq=1101, MI=8.04, t-score=33.05), *initially* (freq=639, MI=8.01, t-score=25.18), and *typically.Quantify* is the only verb in the hypothesizing group that suggested a positive meaning (see Figure 2 below). It was habitually used with *accurately* (freq=1604, MI=11.08, t-score=40.03), *objectively* (freq=335, MI=11.8, t-score=18.2), *reliably* (freq=407, MI=10.8, t-score=20.16), *precisely* (freq=550, MI=10.16, t-score=23.4), *rigorously* (freq=89, MI=9.8, t-score=10.5), etc.In addition, *quantify* was used commonly with domain adverbs such as *spectrophotometrically*, *densitometrically*, *colorimetrically*.

As for accompanying subjects, *assume*, *quantify*, *presume*, and *posit* occurred more commonly with inanimate subjects (e.g., theory, calculation, approach, method, hypothesis) as opposed to *hypothesize*, *speculate*, *postulate*, and *theorize* which were used more frequently with *investigator*, *researcher*, *author*, *theorist*, *scholar*, *colleague*, *subjects*, *economist*, *feminist*, etc. This suggests that the latter set of verbs are typical attribution verbs. Examples of concordance lines are the following: (1) Considering that the large-scale PEV data is not presently available, the **paper** reasonably *assumes* a residential community with one ten-thousandth of Texas

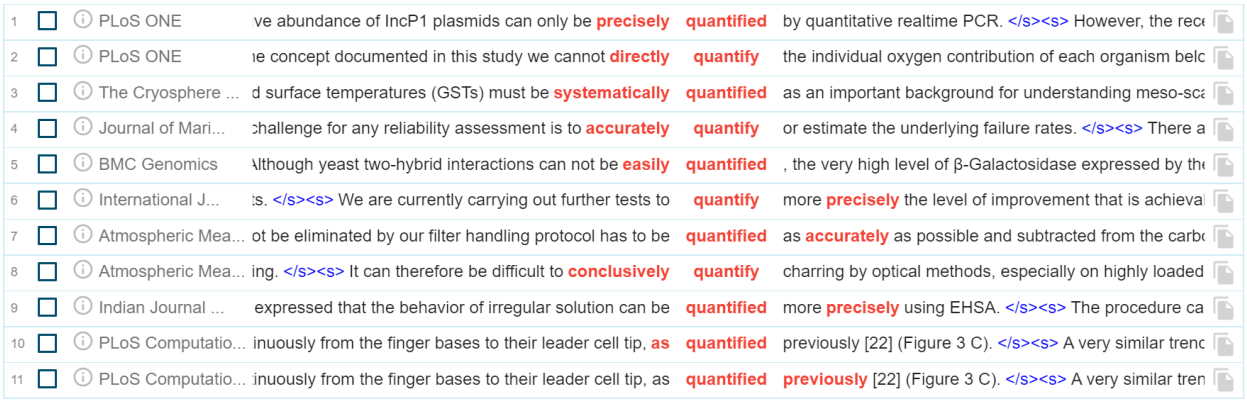
Table 2

Hypothesizing, Reporting and Summarizing Verbs Used in Research Papers

Typical Sections	Category	Examples
Introduction	Hypothesizing	posit, assume, hypothesize, theorize, speculate, postulate, presume, quantify
Review of literature	Reporting	note, argue, claim, report, suggest, state, indicate, reveal, find, mention
Discussion		
Conclusion	Summarizing	outline, summarize, encapsulate, recapitulate, conclude, review

Figure 2

Concordance lines of the verb quantify.



1	PLoS ONE	ve abundance of IncP1 plasmids can only be **precisely**	**quantified**	by quantitative realtime PCR. </s><s> However, the rec
2	PLoS ONE	ıe concept documented in this study we cannot **directly**	**quantify**	the individual oxygen contribution of each organism belc
3	The Cryosphere ...	d surface temperatures (GSTs) must be **systematically**	**quantified**	as an important background for understanding meso-sc
4	Journal of Mari...	challenge for any reliability assessment is to **accurately**	**quantify**	or estimate the underlying failure rates. </s><s> There a
5	BMC Genomics	Although yeast two-hybrid interactions can not be **easily**	**quantified**	, the very high level of β-Galactosidase expressed by th
6	International J...	:s. </s><s> We are currently carrying out further tests to	**quantify**	more **precisely** the level of improvement that is achieva
7	Atmospheric Mea...	ot be eliminated by our filter handling protocol has to be	**quantified**	as **accurately** as possible and subtracted from the carb
8	Atmospheric Mea...	ing. </s><s> It can therefore be difficult to **conclusively**	**quantify**	charring by optical methods, especially on highly loaded
9	Indian Journal ...	expressed that the behavior of irregular solution can be	**quantified**	more **precisely** using EHSA. </s><s> The procedure ca
10	PLoS Computatio...	inuously from the finger bases to their leader cell tip, **as**	**quantified**	previously [22] (Figure 3 C). </s><s> A very similar trenc
11	PLoS Computatio...	inuously from the finger bases to their leader cell tip, as	**quantified**	**previously** [22] (Figure 3 C). </s><s> A very similar tren

population, and all houses in this community are equipped with the smart meters (Mathematical Problems in Engineering); (2) This **doctrine** simply *posits* that a contract cannot confer enforceable rights or impose obligations on persons who were not parties to it and have not furnished considerations (Australian Journal of Business and Management Research); (3) Relating biome productivity to the mean annual temperature, this **model** implicitly *presumes* a certain correlation between the climatic conditions of the growing season and those of the whole year (Carbon Balance and Management); (4) There are several theoretical **perspectives** that explicitly *posit* that human perceptual processes are supported by active prediction (PLoS ONE).

Table 3

Frequency of Hypothesizing, Reporting, and Summarizing Verbs Used in Research Papers

Research Verb	Frequency
Hypothesizing Verbs	
assume	654.082
quantify	268.657
hypothesize (-ise)	127.631
speculate	56.243
postulate	39.057
presume	19.841
theorize (-ise)	14.712
posit	10.911
Reporting Verbs	
find	2.998.375
indicate	2.114.053
report	1.894.821
suggest	1.887.652
reveal	777.019
note	564.024
mention	337.777
state	193.562
argue	148.594
claim	67.732
Summarizing Verbs	
conclude	314.762
summarize (-ise)	228.208
review	209.035
outline	83.316
encapsulate	27.667
recapitulate	12.329

Reporting Verbs

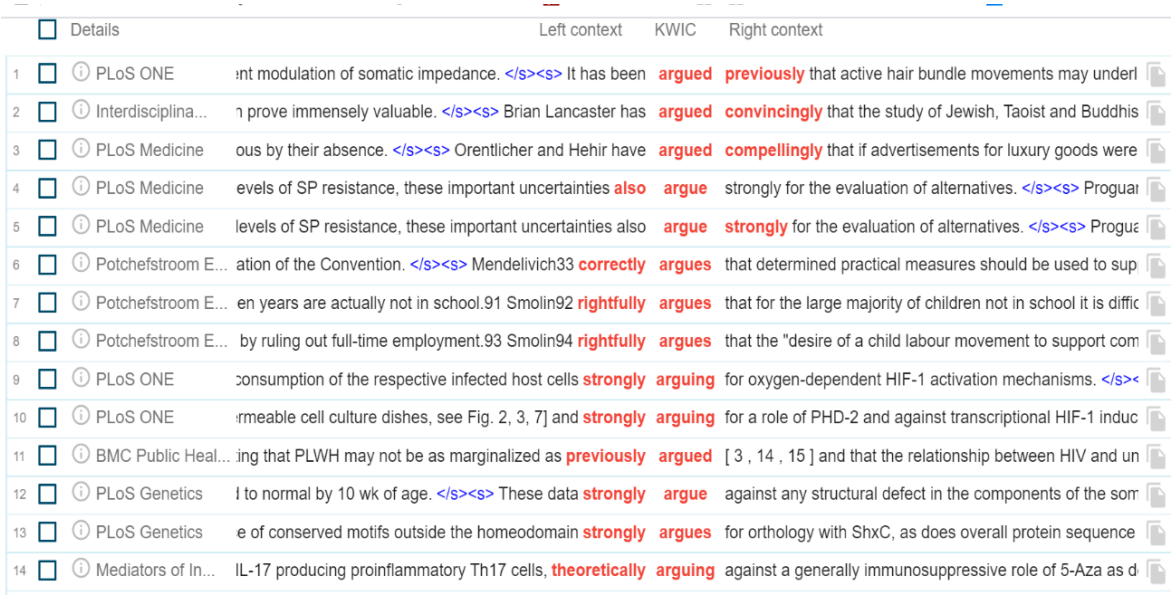
Regarding reporting verbs, *note* was associated with more than 30 predicational adverbs including *previously* (freq=6354, MI=8.08, t-score=79.4), *explicitly* (freq=303, MI=7.1, t-score=17.2), *finally* (freq=237, MI=6.12, t-score=15.17), *specifically* (freq=334, MI=5.6, t-score=17.9), *recently* (freq=391, MI=5.2, t-score=19.2), etc. On the other hand, *argue* was mainly associated with positive predicational adverbs (see Figure 3 below) such as *convincingly* (freq=389, MI=14.2, t-score=19.7), *persuasively* (freq=144, MI=16.2, t-score=11.9), *rightly* (freq=84, MI=12.3, t-score=9.1), *strongly* (freq=1360, MI=9.7, t-score=36.8),-*forcefully* (freq=64, MI=13.4, t-score=7.9), *plausibly* (freq=57, MI=11.9, t-score=7.5), etc.

Similarly, *claim* was positive because it occurred frequently with *rightfully* (freq=31, MI=14.1, t-score=5.5), *confidently* (freq=39, MI=11.6, t-score=6.2), *legitimately* (freq=28, MI=13.1, t-score=5.2), *justly* (freq=22, MI=13.9, t-score=4.6), *rightly* (freq=27, MI=11.6, t-score=5.1), etc. *Report* habitually occurred with more than 40 predicational adverbs such as *previously* (freq=99546 , MI=10.13, t-score=315.2), *recently* (freq=21183, MI=9.11, t-score=145.28), *commonly* (freq=5530, MI=7.6, t-score=73.9), *widely* (freq=3031, MI=6.60, t-score=54.4), *consistently* (freq=2135, MI=7.6, t-score=45.9), *originally* (freq=1092, MI=7.1, t-score=32.8), etc., and hence it was coded neutral.

Suggest, which is also a frequent research verb, was positive occurring more frequently with *strongly* (freq=24351, MI=10.6, t-score=155.94), *previously* (freq=6338, MI=7.4, t-score=79.14), *clearly* (freq=2813, MI=7.5, t-score=52.7), etc. By the same token, *state* was of favorable pros-

Figure 3

Concordance lines of the verb argue.



	Details	Left context	KWIC	Right context
1	PLoS ONE	ənt modulation of somatic impedance. </s><s> It has been	**argued**	**previously** that active hair bundle movements may underl
2	Interdisciplina...	ɲ prove immensely valuable. </s><s> Brian Lancaster has	**argued**	**convincingly** that the study of Jewish, Taoist and Buddhis
3	PLoS Medicine	ous by their absence. </s><s> Orentlicher and Hehir have	**argued**	**compellingly** that if advertisements for luxury goods were
4	PLoS Medicine	evels of SP resistance, these important uncertainties **also**	**argue**	strongly for the evaluation of alternatives. </s><s> Proguai
5	PLoS Medicine	levels of SP resistance, these important uncertainties also	**argue**	**strongly** for the evaluation of alternatives. </s><s> Progua
6	Potchefstroom E...	ation of the Convention. </s><s> Mendelivich33 **correctly**	**argues**	that determined practical measures should be used to sup
7	Potchefstroom E...	en years are actually not in school.91 Smolin92 **rightfully**	**argues**	that for the large majority of children not in school it is diffic
8	Potchefstroom E...	by ruling out full-time employment.93 Smolin94 **rightfully**	**argues**	that the "desire of a child labour movement to support com
9	PLoS ONE	consumption of the respective infected host cells **strongly**	**arguing**	for oxygen-dependent HIF-1 activation mechanisms. </s><
10	PLoS ONE	ɾmeable cell culture dishes, see Fig. 2, 3, 7] and **strongly**	**arguing**	for a role of PHD-2 and against transcriptional HIF-1 induc
11	BMC Public Heal...	ing that PLWH may not be as marginalized as **previously**	**argued**	[3 , 14 , 15] and that the relationship between HIV and un
12	PLoS Genetics	l to normal by 10 wk of age. </s><s> These data **strongly**	**argue**	against any structural defect in the components of the som
13	PLoS Genetics	e of conserved motifs outside the homeodomain **strongly**	**argues**	for orthology with ShxC, as does overall protein sequence
14	Mediators of In...	IL-17 producing proinflammatory Th17 cells, **theoretically**	**arguing**	against a generally immunosuppressive role of 5-Aza as d

ody (see Figure 5 below) since it occurred habitually with *explicitly* (freq=2772, MI=11.2, t-score=52.6), *clearly* (freq=3163, MI=9.2, t-score=56.1), *previously* (freq=4256, MI=8.4, t-score=65.04), *specifically* (freq=536, MI=7.2, t-score=22.9), *simply* (freq=568, MI=7.9, t-score=23.7), *precisely* (freq=212, MI=7.6, t-score=14.4), *correctly* (freq=164, MI=6.8, t-score=12.6), etc.

Similarly, *indicate* was of positive associative meaning since it commonly occurred with *clearly* (freq=17253, MI=9.8, t-score=131.2), *strongly* (freq=4047, MI=7.7, t-score=63.3), *possibly* (freq=1790, MI=7.5, t-score=42.08), *previously* (freq=1775, MI=5.2, t-score=41.04), etc.Further, *reveal* was also of positive meaning (see Figure 6 below) used habitually with *clearly* (freq=2874, MI=8.5, t-score=53.4), *consistently* (freq=350, MI=7.3, t-score=18.5), *recently* (freq=646, MI=6.3, t-score=25.10), *potentially* (freq=273, MI=5.6, t-score=16.20), *previously* (freq=537, MI=4.8, t-score=22.3), *significantly* (freq=840, MI=4.6, t-score=27.8), etc.

Nevertheless, *find* (freq=2.998.375) was used frequently with more than 40 predicational adverbs including *commonly* (freq=9979, MI=8.5, t-score=99.6), *previously* (freq=8824, MI=6.6, t-score=92.9), *recently* (freq=4484, MI=6.8, t-score=66.3), *exclusively* (freq=2825, MI=8.3, t-score=52.9), *typically* (freq=3600, MI=7.1, t-score=59.5), *mainly* (freq=4630, MI=6.4, t-score=67.2), *consistently* (freq=2517, MI=7.9, t- score=49.9), etc. Also, *mention* collocated more with *previously* (freq=22684, MI=9.4, t-score=150.4), *briefly* (freq=1215, MI=9.2, t-score=34.7), *explicitly* (freq=1287, MI=8.8, t-score=35.7), *specifically* (freq=956, MI=6.7, t-score=30.6), *commonly* (freq=363, MI=5.2, t-score=18.5), etc., and apparently *mention* was of positive meaning. The above-advanced analysis showed that seven of the ten reporting verbs were positive (argue, clam, suggest, state, indicate, reveal and mention), whereas the rest were neutral (note, report, find).

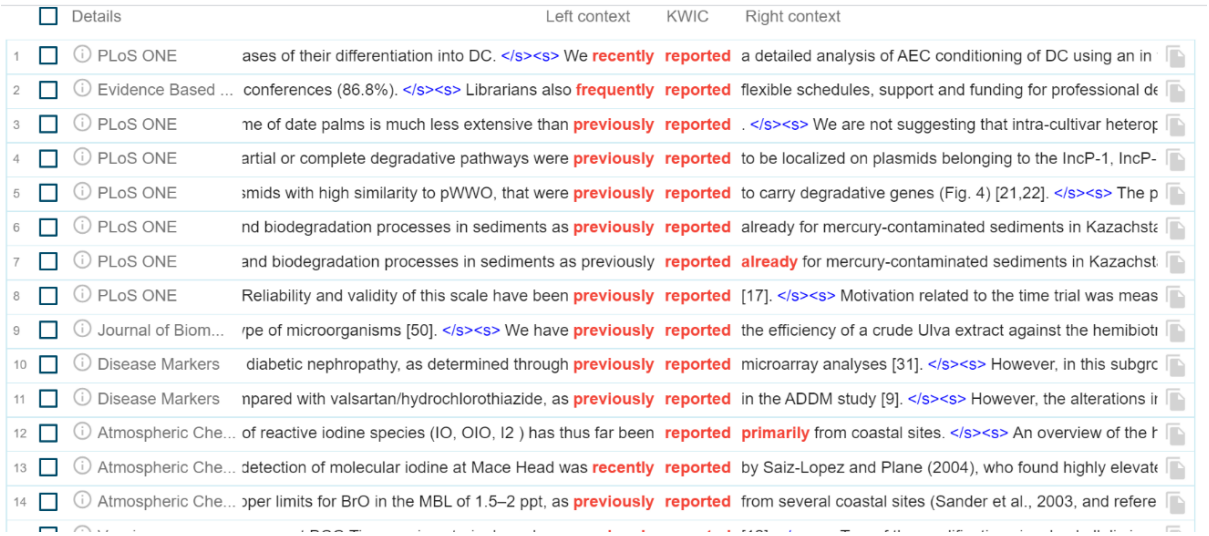
In general, reporting verbs such as *claim*, *argue*, *find*, *mention*, *report*, and *note* were used more frequently with animate subjects such as *author*, *scholar*, *researcher*, *respondent*, *informant*, *customer*, *interviewee*, *participant*, *patient*, *woman*, *investigator* as opposed to *indicate*, *suggest*, *reveal*, and *state* which were utilized more commonly with *result*, *line*, *bar*, *datum*, *finding*, *study*, *analysis*, *evidence*, etc. The following are examples of concordance lines with reporting verbs and their common subjects and adverbs: (1) These **results** clearly *indicate* significant variability between regions, with sites in the Middle East and India (triangles and hexagram) having much lower lidar ratios and higher refractive indices than sites in the Sahel (squares), which in turn have lower lidar ratios and higher refractive indices than the sole site in the Sahara desert (Atmospheric Chemistry and Physics Discussions); (2) All these **experiments** had *clearly* revealed that the A-M system is uninvolved mechanically in tension generation. (International Journal of Molecular Sciences); (3) The **paper** *briefly* reviews main types of Virtual Learning Environments and analyses the use of VLEs in Lithuania (Informatics in Education).

Summarizing Verbs

As for summarizing verbs, starting with *conclude* (occurring 314.762 times), it collocated with *safely* (freq=286, MI=11.4, t-score=16.9), *finally* (freq=435, MI=9.2, t-score=20.8), *easily* (freq=427, MI=7.7, t-score=17.9), *recently* (freq=323, MI=7.2, t-score=17.8), *generally* (freq=231, MI=6.5, t-score=15.03), etc. However, *outline* was positive collocating with *briefly* (freq=1156, MI=12.13, t-score=33.9), *clearly* (freq=514, MI=8.2, t-score=22.5), *previously* (freq=977, MI=7.9,

Figure 4

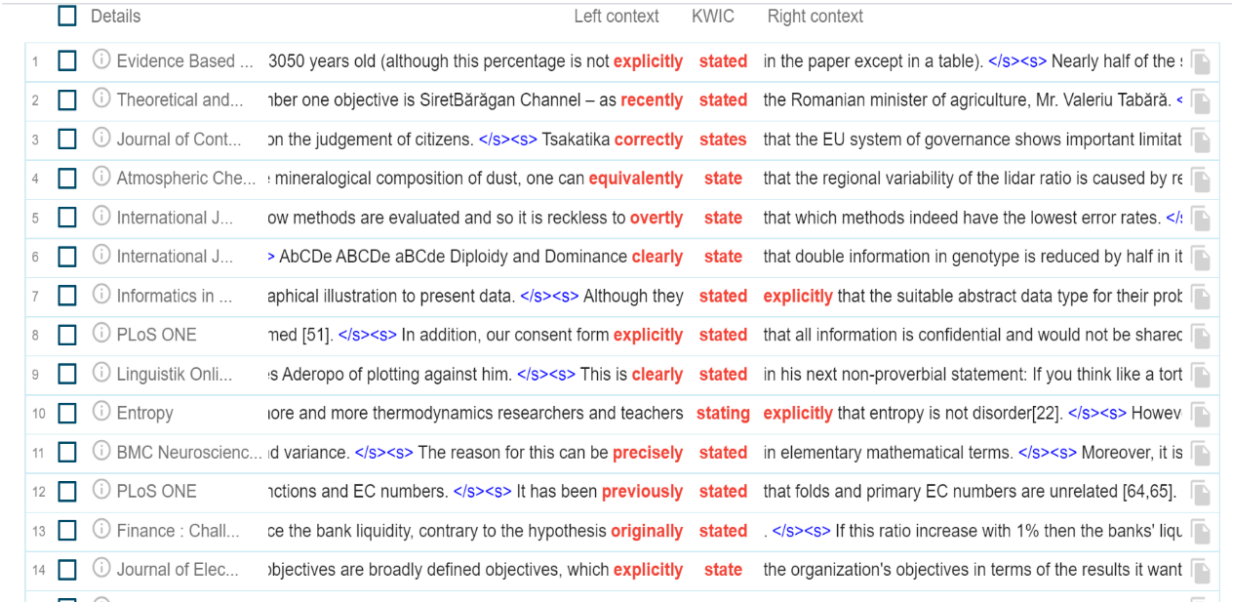
Concordance lines of the verb report.



	Details	Left context	KWIC	Right context
1	PLoS ONE	ases of their differentiation into DC. </s><s> We recently	reported	a detailed analysis of AEC conditioning of DC using an in
2	Evidence Based ...	conferences (86.8%). </s><s> Librarians also frequently	reported	flexible schedules, support and funding for professional de
3	PLoS ONE	ne of date palms is much less extensive than previously	reported	. </s><s> We are not suggesting that intra-cultivar heterop
4	PLoS ONE	artial or complete degradative pathways were previously	reported	to be localized on plasmids belonging to the IncP-1, IncP-
5	PLoS ONE	mids with high similarity to pWWO, that were previously	reported	to carry degradative genes (Fig. 4) [21,22]. </s><s> The p
6	PLoS ONE	nd biodegradation processes in sediments as previously	reported	already for mercury-contaminated sediments in Kazachsta
7	PLoS ONE	and biodegradation processes in sediments as previously	reported	already for mercury-contaminated sediments in Kazachst
8	PLoS ONE	Reliability and validity of this scale have been previously	reported	[17]. </s><s> Motivation related to the time trial was meas
9	Journal of Biom...	rpe of microorganisms [50]. </s><s> We have previously	reported	the efficiency of a crude Ulva extract against the hemibioti
10	Disease Markers	diabetic nephropathy, as determined through previously	reported	microarray analyses [31]. </s><s> However, in this subgrc
11	Disease Markers	npared with valsartan/hydrochlorothiazide, as previously	reported	in the ADDM study [9]. </s><s> However, the alterations ir
12	Atmospheric Che...	of reactive iodine species (IO, OIO, I2) has thus far been	reported	primarily from coastal sites. </s><s> An overview of the h
13	Atmospheric Che...	detection of molecular iodine at Mace Head was recently	reported	by Saiz-Lopez and Plane (2004), who found highly elevate
14	Atmospheric Che...	oper limits for BrO in the MBL of 1.5–2 ppt, as previously	reported	from several coastal sites (Sander et al., 2003, and refere

Figure 5

Concordance lines of the verb state.



	Details	Left context	KWIC	Right context
1	Evidence Based ...	3050 years old (although this percentage is not explicitly	stated	in the paper except in a table). </s><s> Nearly half of the s
2	Theoretical and...	nber one objective is SiretBărăgan Channel – as recently	stated	the Romanian minister of agriculture, Mr. Valeriu Tabără. <
3	Journal of Cont...	on the judgement of citizens. </s><s> Tsakatika correctly	states	that the EU system of governance shows important limitat
4	Atmospheric Che...	mineralogical composition of dust, one can equivalently	state	that the regional variability of the lidar ratio is caused by re
5	International J...	ow methods are evaluated and so it is reckless to overtly	state	that which methods indeed have the lowest error rates. </s
6	International J...	> AbCDe ABCDe aBCde Diploidy and Dominance clearly	state	that double information in genotype is reduced by half in it
7	Informatics in ...	aphical illustration to present data. </s><s> Although they	stated	explicitly that the suitable abstract data type for their prot
8	PLoS ONE	ned [51]. </s><s> In addition, our consent form explicitly	stated	that all information is confidential and would not be sharec
9	Linguistik Onli...	s Aderopo of plotting against him. </s><s> This is clearly	stated	in his next non-proverbial statement: If you think like a tort
10	Entropy	ore and more thermodynamics researchers and teachers	stating	explicitly that entropy is not disorder[22]. </s><s> Howev
11	BMC Neuroscienc...	d variance. </s><s> The reason for this can be precisely	stated	in elementary mathematical terms. </s><s> Moreover, it is
12	PLoS ONE	nctions and EC numbers. </s><s> It has been previously	stated	that folds and primary EC numbers are unrelated [64,65].
13	Finance : Chall...	ce the bank liquidity, contrary to the hypothesis originally	stated	. </s><s> If this ratio increase with 1% then the banks' liqu
14	Journal of Elec...	objectives are broadly defined objectives, which explicitly	state	the organization's objectives in terms of the results it want

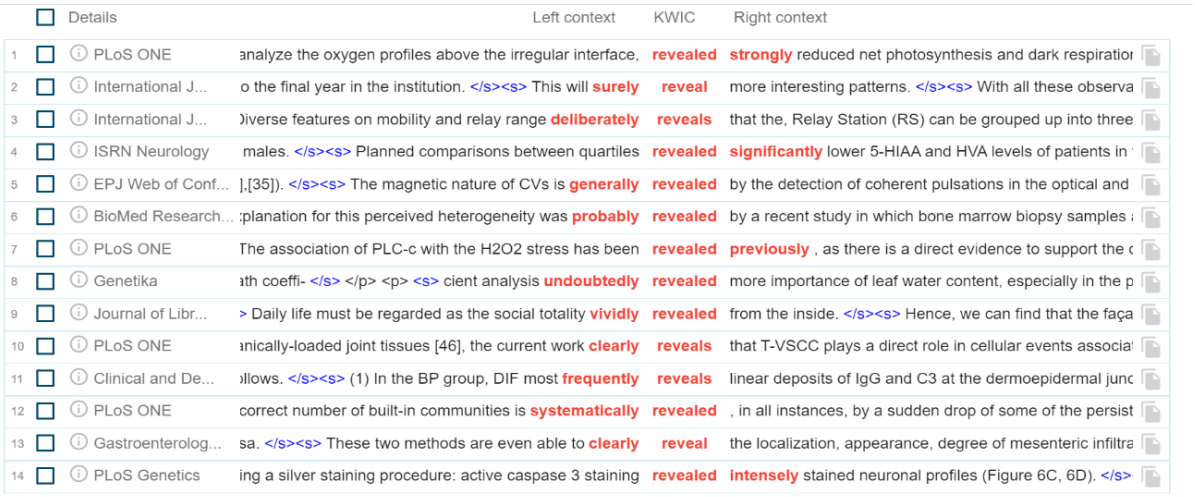
t-score=31.12), etc. Likewise, *summarize* was used habitually with *briefly* (freq=2773, MI=12.8, t-score=52.6), *succinctly* (freq=88, MI=12.8, t-score=9.3), *concisely* (freq=71, MI=13.19, t-score=8.4), *shortly* (freq=128, MI=9.6, t-score=11.2), etc., and thus it was positive.

As for *review* (used 209.035 times), it occurred frequently with more than 30 adverbs including *briefly* (freq=3759, MI=11.9, t-score=61.2), *retrospectively* (freq=2160, MI=13.01, t-score=46.4), *critically* (freq=1953, MI=11.4, t-score=44.1), etc. On the other hand, *recapitulate* was of positive meaning since it is used with *faithfully* (freq=282, MI=16.2, t-score=16.7), *accurately* (freq=175, MI=10.9, t-score=13.2),-*fully* (freq=295, MI=10.3, t-score=17.16), *briefly* (freq=63, MI=10.5, t-score=7.9), etc. Similarly, *encapsulate* was of pleasant meaning used mostly with *efficiently* (freq=94, MI=10.3, t-score=9.6), *successfully* (freq=138, MI=10.1, t-score=11.7), *completely* (freq=111, MI=9.30, t-score=10.5), *fully* (freq=91, MI=8.9, t-score=9.5), etc. The above detailed account of summarizing verbs showed that summarizing verbs were essentially positive (outline, summarize, encapsulate, and recapitulate). However, *conclude* and *review* were neutral.

Regarding co-occurring subjects, all summarizing verbs occurred more frequently with inanimate subjects (e.g., table, diagram, chart, article, literature, paper, section, chapter,

Figure 6

Concordance lines of the verb reveal.



	Details	Left context	KWIC	Right context
1	PLoS ONE	analyze the oxygen profiles above the irregular interface,	revealed	**strongly** reduced net photosynthesis and dark respiratior
2	International J...	o the final year in the institution. </s><s> This will **surely**	reveal	more interesting patterns. </s><s> With all these observa
3	International J...	)iverse features on mobility and relay range **deliberately**	reveals	that the, Relay Station (RS) can be grouped up into three
4	ISRN Neurology	males. </s><s> Planned comparisons between quartiles	revealed	**significantly** lower 5-HIAA and HVA levels of patients in
5	EPJ Web of Conf...	],[35]). </s><s> The magnetic nature of CVs is **generally**	revealed	by the detection of coherent pulsations in the optical and
6	BioMed Research...	;planation for this perceived heterogeneity was **probably**	revealed	by a recent study in which bone marrow biopsy samples i
7	PLoS ONE	The association of PLC-c with the H2O2 stress has been	revealed	**previously** , as there is a direct evidence to support the c
8	Genetika	ıth coeffi- </s> <s> cient analysis **undoubtedly**	revealed	more importance of leaf water content, especially in the p
9	Journal of Libr...	> Daily life must be regarded as the social totality **vividly**	revealed	from the inside. </s><s> Hence, we can find that the faça
10	PLoS ONE	ınically-loaded joint tissues [46], the current work **clearly**	reveals	that T-VSCC plays a direct role in cellular events associa
11	Clinical and De...	)llows. </s><s> (1) In the BP group, DIF most **frequently**	reveals	linear deposits of IgG and C3 at the dermoepidermal junc
12	PLoS ONE	correct number of built-in communities is **systematically**	revealed	, in all instances, by a sudden drop of some of the persist
13	Gastroenterolog...	sa. </s><s> These two methods are even able to **clearly**	reveal	the localization, appearance, degree of mesenteric infiltra
14	PLoS Genetics	ing a silver staining procedure: active caspase 3 staining	revealed	**intensely** stained neuronal profiles (Figure 6C, 6D). </s>

enhancer) except for *conclude* that was employed equally with *author*, *investigator*, *researcher*, *colleague*, *expert*, etc. as well as with *summary*, *survey*, *literature*, etc. This finding suggests that summarizing verbs were not commonly used for attribution or evaluation. The following lines are illustrative: (1) This **paper** briefly *reviewed* the botanical, traditional, phytochemical, pharmacological and conservation related aspects of this plant (Journal of Costal Life Medicine); (2) As a result, it is difficult for current **models** to accurately *recapitulate* all of the pathological features associated with IMR (PLoS ONE)

DISCUSSION

This study surveyed the collocational and prosodic behaviors of 24 research verbs (hypothesizing, reporting, and summarizing verbs) besides their frequency information. Results showed that *reporting* verbs were more frequent than others and that *find*, *suggest*, *report*, *indicate* were more commonly used in scientific writing. This finding has been emphasized earlier by Hyland (2000a) who noted that verbs referring to discourse acts (e.g., suggest) and those known as research verbs (e.g., find) are more common than others. More importantly, results revealed that 12 of the research verbs are positive (quantify, argue, claim, suggest, state, indicate, outline, summarize, encapsulate, recapitulate, mention, and reveal), 12 (review, conclude, find, report, note, posit, assume, presume, hypothesize, theorize, speculate and postulate) are neutral. As opposed to Louw's (1993) argument, semantic prosody is not essentially negative since the researcher found that none of the explored node verbs are negative. This conclusion also reflected Hyland's (2002) who noted that when writers adopt a position towards authors' claims, the position is either neutral or positive. Hyland (1998) explained that if a specific writer wishes to express a negative evaluation of author's viewpoint, this is accomplished not through reporting verbs as this is considered a face-threatening act in academic writing and may result in paper's rejection by publishers.

As emphasized by previous studies, words that are considered near-synonyms do not sometimes convey the same semantic prosody as they frequently occur with different collocates. Such differences in semantic preferences illustrate the fact that such words should not be used substitutably by researchers. As reported by Louw (2000), research verbs tell a lot about writers' attitudes. For example, *argue* was mainly positive and proves a stronger point discussed, whereas *note* is of neutral meaning suggesting that the writer's argument needs some further investigation. In addition, *hypothesize* and *assume* are near synonyms (can be used interchangeably) since they express the same affective meaning, but not *summarize* and *conclude*. Thus, the new differentiating criterion for near synonyms is semantic prosody. Another dimension of prosody (besides formality) should be considered to distinguish between words.

Such findings confirmed Bloch's (2010) who noted that the verbs *reveal*, *indicate*, *suggest*, *mention* were used to show that the writer's attitude is positive towards a claim. Further, as *mention* was used frequently by learners more than researchers (Bloch, 2010), the present paper found its frequency in fiction. In terms of the strength in attitude expressed by writers, the study reflected results of Bloch (2010). Thus, *reveal* was strong since it collocates with *clearly* and *significantly*. Similarly, *indicate* was associated with strong claims because it was used commonly with *clearly* and *strongly*. Additionally, *state* was of favorable meaning because it was associated with *clearly*, *specifically*, *explicitly*, etc. As for *argue*, *claim*, and *suggest*, Bloch (2010) explained that such verbs are generally weaker than others. Further, Hunston (1995) reported that *argue* and *claim* in specific are mainly associated with conflicts and disagreements. Hence, *argue*, *claim*, and *suggest* need to be associated with hedges of adverbs that suggest strength in attitude. The same finding

has been emphasized by Ilchenko and Kramar (2022) who noted that *argue* was frequently used with hedges. Thus, results showed that argue was commonly found with *convincingly*, *strongly*, *persuasively*, *plausibly*, etc. and *claim* with *confidently*, *justly*, *rightfully*, etc.As for *suggest*, the researcher found that its typical collocate is *strongly* (freq=24,351). As reported by Hyland (2002a), *suggest* was used to reduce the writer's responsibility towards the certainty of a claim. However, this lowered level of responsibility can be still boosted by using a number of rhetorical devices. For Hyland (2002a), *suggest* and *indicate* were considered to be moderate. A positive expression of the claim can be made stronger through the use of adverbs (e.g., *strongly* for *suggest*).

Compared to *show*, *prove*, and *demonstrate*, which were used to show agreement with a previous statement, *indicate* and *suggest* are hedges that allow for some evaluative space (Thompson & Ye, 1991) where the writer becomes obliged to present a contrasting view. The two verbs have almost the same collocates of adverbs (i.e., clearly, strongly, possibly, previously, collectively, consistently, indirectly, actually). As reported by Hyland (2002), *suggest* is commonly found in philosophy, sociology, applied linguistics, marketing, and similar fields of interpretation and speculation.

Hyland (2002) argued that *find* is a non-factive verb. Hence, the researcher found no preferred collocates that signaled a specific attitude. Thus, according to Hyland (2002), *find* is typically used by researchers in physics, applied linguistics, and marketing.Therefore, typical collocates were *frequently*, *commonly*, *previously*, *recently*, *typically*, etc. Such non-factive verbs are commonly found in science and engineering as they indicate impartiality that characterizes hard knowledge fields where writers acknowledge previous research without corrupting it with their personal stand (Hyland, 2002).

As a cognitive verb, *speculate* is a verb that embodies a tentative view towards a reported claim. Thus, findings illustrated that *speculate* collocates with *tentatively*, *cautiously*, and *initially*. In addition, the researcher found that *postulate* and *hypothesize* are discourse verbs that indicate a tentative attitude. Thus, they were of neutral prosody collocating with *initially*, *tentatively*, and *originally*. Though suggest belongs to the same category, it shows more of positive semantic prosody since it collocates with *strongly* and *clearly*.

Findings also showed that *report* is neutral, and this confirmed Hyland's (2002) statement that *report* is a discourse verb used frequently by researchers to pass information without interpretation besides *state* and *summarize*. Hyland (2002) mentioned that *report* is used more frequently in biology and mechanical engineering. As for *note*, *argue*, and *claim*, they are positive except for *note*. Hyland (2002) called such verbs assurance discourse verbs used by researchers to bolster their argument. Hence, results indicated that *claim* collocates with *rightfully*, *rightly*, *legitimately*, *falsely*, *confidently* and *argue* with *convincingly*, *persuasively*, *rightly*, *strongly*, *forcefully*, and *plausibly*. More importantly, as found by Hyland (2002), *argue* and *claim* are more commonly used in philosophy and *argue* in specific is frequent in sociology, applied linguistics, and marketing. Nevertheless, *note* is more frequent in sociology. Hyland (2002) argued that writers' evaluative stance is more evident in soft domains of knowledge which is supported by using adverbs (e.g., correctly, rightly) with such reporting verbs. In this way, writers firmly align themselves with a specific position. Writers are ought to present existing literature in a convincing manner for their readers. Thus, research verbs commonly used in soft domains of knowledge are positive (e.g., argue, claim, reveal, indicate, suggest) and occur more frequently with *rightly*, *strongly*, etc.

Moreover, this corpus investigation showed that *previously* is a common collocate for almost every research verb (state, suggest, indicate, reveal, find, mention, conclude, outline, summarize, and review). *Previously* is a temporal discourse marker that can function globally (i.e., connecting the writer's argument to others') and locally (i.e., linking the writer's argument to what has been mentioned earlier in the same article; Sarda et al., 2014). Because of its dual function, it is the most typical adverb for many research verbs.

Implications

Pedagogically, language teachers including L2 writing instructors should draw students' attention to the fact that verbs may tell a lot about one's attitude, and hence *find* and *report* are neutral in general, whereas *argue* and *claim* are of favorable prosody. Thus, they cannot be taught as synonyms in class. Moreover, *mention* is positive in academic writing, and further research should explore its prosody in fiction as it is more frequent in the latter genre. Additionally, researchers will benefit a lot from the present study since it informs them about which verbs are emotionally loaded with positivity (e.g., argue, claim), and hence they should be avoided at all costs in hard science in which one should show an impartial attitude typical of scientific writing as opposed to soft science.

Limitations

The present corpus investigation was limited to the old version of COCA which was of 250 million words collected between 1990 and 2015.Hence, the new genres (webpages, blogs, TV series) added in 2020 were not considered.Additionally, co-texts for each verb were not examined because Sketch Engine allows only 150 to 185 words of context for each verb. Additionally, some sentences were removed from context which makes it difficult for the researcher to decide whether the attributor was refuting or supporting an earlier argument.

More importantly, as noted above, the researcher focused on predicational adverbs that end in -ly and can be used to express one's attitude towards a claim. Selecting predicational adverbs implied that quantificational adverbs such as *always* and *frequently* were not examined besides domain adverbs

such as *medically*, *mathematically*, *physically*, etc. Additionally, focus adverbs (e.g., only), adverbials introducing new participants to discourse (e.g., For George, with a hammer, etc.) and *almost* were not considered in the present study.

CONCLUSION

The present study examined the semantic prosody of 24 synonymous research verbs (related to hypothesizing, reporting, and summarizing results) which are established in the dictionary as near synonyms since they share the same denotational meaning. However, the researcher found that such verbs have different sets of collocating adverbs, as suggested by the DOAJ, and thus distinct semantic prosodies. Indeed, research verbs convey either neutral or positive prosodies, but they have never become associated with negative meanings. Hence, results showed that 12 of the research verbs were positive (i.e., quantify, argue, claim, suggest, state, mention, indicate, outline, summarize, encapsulate, recapitulate and reveal), whereas 12 verbs (i.e., hypothesize, review, conclude, presume, posit, assume, theorize, speculate, note, report, find, and postulate) were neutral. This is mainly attributed to the fact that expert writers follow the norm in scientific writing and only boost their argument in fields that require interpretation and justification. However, the obtained results cannot be generalized to all research verbs used in all disciplines since the researcher did not examine verbs in terms of surrounding words and grammatical structure. Nonetheless, this study is of significant implications for researchers, language instructors, and learners.

More specifically, future research should address the semantic prosody of research verbs as they are found in their extensive co-texts and used in scientific writing. Context may reveal some disagreement or refutations in which one can attribute such negativity to the research verb in question. Thus, more attention should be paid to verbs of attribution (e.g., argue, claim, etc.) since the researcher found that there are verbs that are commonly employed to introduce different types of propositions such as *summarize*, *outline*, *mention*, *review*, etc., but they are utilized more frequently with inanimate subjects.

Additionally, future research should address the semantic prosody of research verbs using learner corpora. Previous research emphasized that students of non-native speakers should be aware of how verbs are used conventionally by expert researchers to communicate their argument more effectively. Moreover, further research can explore which collocates are used in which disciplines as some studies emphasized that expert researchers in soft fields of knowledge used reporting verbs differently from those of hard knowledge domains.

Furthermore, future research should investigate the relationship between word's history and semantic prosody. The present study showed that verbs derived from Latin (e.g., conclude, posit, note, assume, hypothesize, postulate) are basically neutral compared to those taken from French (e.g., argue, claim, state, mention, reveal). Based on this, any further research should relate such areas to extensions of meaning and diachronic and synchronic studies of meaning.

DECLARATION OF COMPETING INTEREST

None declared. ■

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APPENDIX

Table 4

The Sampling Procedure for Hypothesizing Verbs

Verb / TextCategory	Academic Writing	Spoken	Fiction	Magazine	Newspaper
Size	**81 million Words (opm)**	**85 million Words (opm)**	**81 million Words (opm)**	**86 million Words (opm)**	**81 million Words (opm)**
hypothesize	371	18	16	54	8
hypothesized	2.594	19	27	88	17
hypothesizing	51	4	9	19	3
hypothesizes	72	0	8	55	3
Total	3,088 (38,1)	41 (0,5)	50 (0,6)	216 (2,5)	31 (0,3)
posit	418	38	21	80	23
posited	644	16	38	88	41
positing	183	6	12	25	8
posits	594	13	17	121	38
Total	1,839 (22,7)	73 (0,9)	88 (1,08)	314 (3,6)	110 (1,3)
ponder	373 (4,6)	142 (1,7)	352 (4,3)	493 (5,7)	471 (5,8)
consider	17.526	7990	4.730	14.508	10.943
considered	23,904	9,012	7,833	10,034	11,875
Total	41,430 (511,4)	17,002 (209,9)	12,563 (155,09)	24,542 (285,3)	22,818 (28,2)
assume	6123	4550	2509	3.799	2330
assumed	6,038	1,197	3,551	2,716	1,721
assuming	2,469	1,513	1,304	1,635	1,189
assumes	2,095	298	304	837	511
Total	16,725 (206,4)	7,558 (93,3)	7,668 (94,6)	8,987 (104,5)	5,751 (71)
conceptualize	472 (5,8)	21 (0,2)	14 (0,17)	46 (0,53)	13 (0,16)
ascertain	994 (12,2)	139 (1,6)	135 (1,6)	124 (1,4)	83 (1,02)
expect	7.013 (86,5)	12.719 (157,02)	7.241 (89,3)	10.788 (125,4)	11.035 (136,23)
ascertain	994 (12,2)	139 (1,6)	135 (1,6)	124 (1,4)	83 (1,02)
expect	7.013 (86,5)	12.719 (157,02)	7.241 (89,3)	10.788 (125,4)	11.035 (136,23)
elucidate	400	8	18	56	15
postulate	277	14	22	65	19
postulated	522	9	24	78	22
postulating	59	1	6	10	5
postulates	264	9	17	45	6
Total	1,122 (13,8)	31 (0,3)	69 (0,8)	198 (2,4)	52 (0,6)
think	26.677 (329,3)	413.902 (5,109,9)	111.874 (1,381,1)	67.017 (7779,2)	76.889 (949,2)
suppose	1.760 (21,7	3.652 (45,08)	8.871 (109,5)	1.882 (21,8)	938 (11,5)
theorize	220	41	35	136	65
theorized	366	47	64	187	85
theorizing	578	13	36	79	24
theorizes	62	13	4	123	49
Total	1,226 (15,1))	114 (1,4)	139 (1,7)	525 (6,4)	223 (2,7)
presume	426	540	433	264	158
presumed	1,310	337	487	488	405
presuming	98	72	58	58	46
presumes	259	67	37	93	56
Total	2,093 (25,8)	1,016 (12,5)	1,015 (12,5)	903 (11,1)	665 (8,2)
predicate	134 (1,6)	75 (0,9)	20 (0,2)	14 (0,1)	10 (0,1)
presuppose	173 (2,1)	10 (0,1)	5 (0,06)	30 (0,3)	10 (0,1)
speculate	823	851	302	600	496
speculated	520	157	308	413	401
speculating	105	320	184	150	127
speculates	147	34	22	335	119
Total	1595 (19,6)	1362 (16,8)	816 (10,07)	1498 (17,4)	1143 (14,1)

Verb / TextCategory	Academic Writing	Spoken	Fiction	Magazine	Newspaper
quantify	787	162	29	241	242
quantified	531	26	15	93	41
quantifying	288	7	5	46	25
quantifies	96	1	0	17	5
Total	1,702 (21,0)	196 (2,4)	49 (0,6)	397 (4,6)	276 (3,4)
conjecture	289 (3,5)	106 (1,3)	159 (1,9)	186 (2,1)	89 (1,09)
contemplate	510 (6,2)	273 (3,3)	474 (5,8)	515 (5,9)	340 (4,19)

Table 5

The Sampling Procedure for Reporting Verbs

Verb / Text Category	Academic Writing	Spoken	Fiction	Magazine	Newspaper
Size	**81 million Words (opm)**	**85 million Words (opm)**	**81 million Words (opm)**	**86 million Words (opm)**	**81 million Words (opm)**
note	148.888 (1,838,1)	6.604 (77,6)	8.550 (105,5)	9.518 (110,6)	7.888 (97,3)
argue	62.288 (768,9)	4.826 (56,7)	2.406 (29,703)	3.912 (45,4)	4.476 (55,2)
claim	84.616 (1,044)	5.563 (65,44)	3.457 (42,67)	7.312 (85,02)	6.660 (82,22)
report	204.224 (2,521,2)	208.024 (2,44)	46,712 (576,6)	122,960 (1,429,7)	193,568 (2,389,7)
suggest	148.000 (1,827)	5,158 (60,6)	2,364 (29,18)	7,405 (86,104)	4,827 (59,5)
state	704.144 (8,693,1)	493,504 (5,8)	102,608 (1,266,7)	394,160 (4,583,2)	959.064 (11,840,2)
find	222.480 (2,746,6)	420,104 (4,9)	407,224 (5,027,4)	442.952 (5,150,6)	297,864 (3,677,3)
indicate	106.464 (1,314)	2.010 (23,6)	1.046 (12,9)	3.319 (38,5)	2.054 (25,3)
reveal	40.895 (504,8)	1.976 (23,2)	3.779 (46,6)	4.373 (50,8)	2.045 (25,2)
mention	32.208 (397,6)	37,248 (438,2)	46.640 (5,758)	39,552 (459,9)	36,064 (445,2)

Table 6

The Sampling Procedure for Summarizing Verbs

Verb / Text Category	Academic Writing	Spoken	Fiction	Magazine	Newspaper
Size	**81 million Words (opm)**	**85 million Words (opm)**	**81 million Words (opm)**	**86 million Words (opm)**	**81 million Words (opm)**
sum up	1,288 (15,9)	1,323 (15,5)	469 (5,7)	959 (11,15)	686 (8,4)
outline	13,144 (162,2)	3,688 (43,3)	9,304 (114,8)	8,104 (94,23)	4,032 (49,7)
outlined	19,928 (246,02)	5,200 (61,17)	4,528 (55,90)	5,488 (63,81)	5,992 (73,9)
summarize	7,592 (93,7)	1,488 (17,5)	608 (7,50)	1,152 (13,3)	520 (6,4)
encapsulate	720 (8,8)	208 (2,4)	88 (1,08)	320 (3,7)	184 (2,2)
condense	824 (10,3)	264 (3,10)	416 (5,1)	1,056 (12,2)	232 (2,8)
recapitulate	440 (5,4)	56 (0,6)	56 (0.6)	96 (1,11)	56 (0,6)
conclude	25,904 (319,8)	7,192 (84,6)	3,080 (38,02)	8,624 (100,2)	7,352 (90,7)
review	193,112 (2,384,09)	37,656 (443,01)	20,456 (252,5)	49,216 (572,27)	67,168 (829,23)

https://doi.org/10.17323/jle.2022.13506

Foreign Language Enjoyment and Subjective Happiness in Spanish Adult Learners

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ABSTRACT

Background. Research interest in FLE and its associated factors has increased in recent years, especially regarding learner-internal factors. Happiness could potentially be one of the predictors of FLE.

Purpose. This study aimed to investigate the link between foreign language enjoyment (FLE) and a measure of subjective happiness (SH).

Methods. A total of 594 adult foreign language learners aged 16 to 72 participated in the study. Ten items extracted from the FLE scale and the SH scale translated and validated into Spanish were used to gather the data.

Results. With a significant 3.6% shared variance between FLE and SH, the study found that participants with higher scores on FLE have higher scores on SH. However, the percentage of shared variance found is considerably higher for different subgroups (e.g., 6.7% for the older adolescent group and 10% for mature and senior adults). The results suggest that the relationship between personality variables and FLE may differ depending on learner-internal factors such as age, gender, competence level and foreign language.

Implications. The study opens a new line of research into the interaction between FLE and happiness, and factors affecting it with a sample that, due to the wide range of participant ages and the number of participants beyond their twenties, is more representative of the adult foreign language learner population than is usually the case in studies of FLE.

KEYWORDS:

foreign language enjoyment, FLE, foreign language enjoyment scale, happiness, subjective happiness scale, adult learners

Citation: Barrios, E., & Acosta-Manzano,I. (2022). Foreign language enjoyment and subjective happiness in Spanish adult learners. *Journal of Language and Education, 8*(2), 66-79. https://doi.org/10.17323/jle.2022.13506

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Received: Dec 11, 2021
Accepted: Jun 15, 2022
Published: Jun 30, 2022

INTRODUCTION

Interest in the role of positive emotions in foreign language (FL) learning and the personal, social and contextual factors associated with them has experienced a considerable growth in the past eight years (e.g., Dewaele & MacIntyre, 2014; Gabryś-Barker & Gałajda, 2016; Dewaele et al., 2019; Li, 2019; MacIntyre et al., 2016, 2019; Oxford, 2016a, 2016b, 2016c). One of the constructs that is receiving more research attention in this area is that of foreign language enjoyment (FLE). The study of FLE was initiated by Dewaele and MacIntyre (2014) and it is grounded on Fredrickson's (e.g., 2001, 2003) influential broaden-and-build theory of positive emotions. According to this theory, positive emotions, such as joy, interest or love, expand learners' thought-action repertoires and increase their long-term physical, intellectual, social and psychological resources (Fredrickson, 2001).

According to Li (2019), three main trends in the research regarding FLE can currently be identified: its characterization and measurement, the link between FLE and a number of learner-internal, learner-external and teacher-centered variables (learners' personality traits, external contexts, and the teacher's role among others), the relationship between FLE, foreign language classroom anxiety (FLCA) and FL and achievement. Our study is a contribution to the second strand as it investigates the link between FLE and a central topic in positive psychology, happiness (MacIntyre, 2016), and, more precisely, subjective,

self-perceived happiness, which has so far remained unexplored.

Our desire to contribute to the research into the relationship between FLE and other non-language related, positive emotions, motivated this article. Drawing on the distinction in the psychological literature between hedonic enjoyment and eudaimonia as alternative conceptions of happiness (Ryan & Deci, 2001), it seems plausible that general happiness is associated to a tendency to enjoy life experiences, including learning a language, and/or to the realization of one's unique individual potentials, which could also encompass language learning. Alongside expanding the investigation to a wider population of FL learners, this strand of research allows us to establish the shared variance between FLE and other positive emotions and hence, the specificity of FLE as a construct.

More precisely, our investigation aimed to explore the link between FLE and SH. More specifically, the following research questions were addressed: (1) RQ1 What is the relationship between FLE and SH in adult FL learners? (2) RQ2 Does the relationship between them vary according to age, gender, FL, and self-reported level of competence in the FL?

LITERATURE REVIEW

Positive Psychology in Language Learning

Positive psychology (PosPsy) is the area of psychology that focuses on "the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions" (Gable & Haidt, 2005, p. 104) and on the aspects of human life that lead to happiness, fulfilment, and flourishing (Linley et al., 2006). The study of PosPsy has significantly expanded since Seligman and Csikszentmihalyi's (2000) seminal publication laid the foundations of this movement on three main pillars: "positive subjective experience, positive individual traits, and positive institutions" (p. 5). Fredrickson's broaden-and-build theory (2001, 2003, 2004) established the theoretical Background: positive emotions lessen the effects of negative emotions while promoting resilience, new experiences and efficient learning.

MacIntyre et al. (2019) hold that topics covered by research in the field of PosPsy, such as optimism, happiness and resilience, are of fundamental importance in language learning, which, as a long-term process, requires "perseverance, optimism and resilience, among other qualities" (p. 1). Positive emotions have been argued not only to strengthen learners' awareness of language input, which allows them to absorb it better, but also increase their resilience in challenging contexts while boosting social cohesion through the encouragement of exploration and play. Negative emotions, in contrast, have been claimed to have the opposite effect, as they restrict learners' access to such input (Dewaele et al., 2018; MacIntyre & Gregersen, 2012).

Antecedents of the Construct of Foreign Language Enjoyment

Prior to the advent of the construct of FLE in an article by Dewaele and MacIntyre (2014), several authors studied enjoyment in the field of general psychology and education (Csikszentmihalyi, 1990; Goetz et al., 2006; Hartley, 2006) and FL learning (Arnold, 2011; Gregersen et al., 2014; MacIntyre & Gregersen, 2012).

In the general education context, enjoyment and emotional well-being are considered to increase academic achievement and to be essential in the learning process (Goetz et al., 2006). Emotional well-being and enjoyment are closely related constructs. The 15th principle of psychology for teaching and learning of the American Psychological Association (2015) states that emotional well-being is key to the successful functioning of the lesson and influences academic performance. It is also important to the development of social skills, interpersonal relationships and mental health. According to Gregersen et al. (2014), enjoyment determines learners' engagement and success to a certain extent, by regulating their emotion management in frustrating and challenging situations. It helps them to build resources, relationships, and strength when facing difficulties.

The concept of enjoyment in FL learning was also examined prior to the introduction of the term FLE by Dewaele and MacIntyre in 2014. Hartley (2006) explained that learners sometimes experience emotional reward, or enjoyment, during their learning process, which encourages them to complete their tasks. The process of FL learning implicates two sources of enjoyment: development of interpersonal relationships and progress towards a goal (Csikszentmihalyi, 1990). Learners enjoy tasks in which they actively seek knowledge, feel autonomous, and use their own tools to make progress in the FL (MacIntyre & Gregersen, 2012).

Teachers, classroom environment, and peers are factors that can facilitate enjoyment (Arnold, 2011). In her study, students appreciated teachers who were positive, well-organized, humorous, respectful of students, and praised them for their achievements. Peers play another key role in facilitating enjoyment. Arnold (2011) explained that the smaller the group, the more likely it is to form close bonds, to have a positive relaxed atmosphere, and, consequently, to use the FL more frequently. Arnold (2011) also observed that real accomplishment is the best route to self-esteem and FLE.

Similarly, Csikszentmihalyi (1990) had previously revealed that learners find the feeling that their effort towards a goal is recognized highly enjoyable and categorized the sources of enjoyment into learner-internal or learner-external ones. Learner-internal sources examine students' ability to focus, to be involved without other worries, to control their actions, to forget about their concerns, and to have an altered perception of time. Learner-external sources are related to the

goals, completion, and feedback of the tasks. Among the learner-external sources, researchers have studied the consequences of teacher-centered variables (e.g., Arnold, 2011).

Foreign Language Enjoyment

Research on emotions in foreign and second language acquisition has traditionally focused on negative emotions and, more precisely, on language anxiety (e.g., Aida, 1994; Gkonou et al., 2017; Gregersen & Horwitz, 2002; Gregersen, 2003; Horwitz et al., 1986; MacIntyre & Gardner, 1989). In recent years, however, there has been a wave of studies into positive emotions in language learning, particularly FLE, which derives from the application of the tenets of PosPsy to the field (Dewaele et al., 2019; Dewaele & MacIntyre, 2014, 2016; Gregersen et al., 2014).

Dewaele and MacIntyre (2014) coined the term foreign language enjoyment (FLE). They characterized it as an emotion capable of triggering positive outcomes in the FL learning process and defined it "as a complex emotion, capturing interacting components of challenge and perceived ability that reflect the human drive for success in the face of a difficult task" (Dewaele & MacIntyre, 2016, p. 216). They suggested that if an enjoyable context is created, FL learning is facilitated and that "specific positive events can shape the development of enjoyment in the FL" (Dewaele & MacIntyre, 2014, p. 263). For example, FL learners enjoyed activities related to their interests and concerns that allowed them to express themselves.

Boudreau et al. (2018) identified an additional dimension in the construct of enjoyment when, drawing on Csikszentmihalyi (2008), they described the distinction between enjoyment and pleasure:

> *Enjoyment is the emotion that is felt when one not only meets their needs but also surpasses them to accomplish something unexpected or surprising (Csikszentmihalyi, 2008). If pleasure can occur simply by performing an activity or completing an action, enjoyment takes on additional dimensions such as an intellectual focus, heightened attention, and optimal challenge. (p. 153)*

For these authors, enjoyment is concerned with progression and challenging limits. From this perspective, a complex relationship between positive and negative emotions is created, where some degree of anxiety is not necessarily an obstacle to FLE.

In terms of measurement, Dewaele and MacIntyre (2014) developed a 21-item foreign language enjoyment scale (FLES) to assess students' FLE. The FLES laid the foundations for other measuring tools. In 2016, Dewaele and MacIntyre published their 14-item shortened version of the FLE, which comprised a social and a private dimension. FLE-social included learner-external factors such as teachers, peers, and classroom environment whereas FLE-private encompassed learner-internal variables derived from a sense of accomplishment. Dewaele and Dewaele (2017) further reduced the FLES into 10 items and 3 scopes: FLE-private, FLE-social and teacher-controlled versus peer-controlled positive emotions. Li et al. (2018) modified the 14-item FLE Scale (Dewaele & MacIntyre, 2016) and validated an 11-item FLE Scale. Their scale was divided into FLE-private, FLE-teacher, and FLE-atmosphere. More recently, Botes et al. (2021) validated a 9-item short form of the FLE scale with the three underlying factors of Teacher Appreciation, Personal Enjoyment, and Social Enjoyment.

A positive relationship between FLE and FL achievement has been confirmed (Dewaele & Alfawzan, 2018; Dewaele & MacIntyre, 2014; Dewaele et al., 2017; Li, 2019). FLE has been found to be a predictor of different types of academic achievement such as general second language (L2) performance (Dewaele & Alfawzan, 2018; Jin & Zhang, 2021) and L2 speech performance (Saito et al., 2018).

As Li (2019) discusses, one of the three main strands of the research into FLE is the link between FLE and a range of learner-internal, learner-external and teacher-centered variables. Research into the role of personality factors in second and FL learning has a long tradition. According to Dörnyei (2005), personality factors are "heavily implicated in the learning process in general and in SLA in particular" (p. 29) and considered to act as "powerful modifying variables" (p. 24) which "shape the way people respond to their learning environment" (p. 30). Due to the relative novelty of the concept, research into the relationship between FLE and personality traits or states is still in its infancy. However, the number of recent publications clearly indicates that it has already become a highly attractive research area. In a study with Chinese high school students, Li (2019) and Li and Xu (2019) found a significant relationship between emotional intelligence (EI) and FLE, indicating that students who were more emotionally intelligent tended to experience more enjoyment in their English classes. Li (2019) also found that EI affected the students' FLE positively and significantly. Similarly, Resnik and Dewaele (2020) also found that higher levels of trait EI were linked to higher levels of FLE. Dewaele and MacIntyre (2019) explored the link between FLE and teacher-related variables (such as attitude towards the teacher and his/her friendliness) and five personality traits shown to be relevant to multicultural success: cultural empathy, open-mindedness, social initiative, emotional stability, and flexibility (van der Zee et al., 2013). Cultural empathy was the strongest psychological predictor with a small contribution from social initiative. Personality traits predicted 10% of the variance in FLE, as opposed to over 30% in FLCA. Finally, FLE was found to mediate the relationship between grit and FL performance. Classroom environment (CE) was found to moderate the relationship between grit and FLE in a study conducted by Wei et al. (2019) with middle-school students aged 11-16 years in China. Findings

indicated that a positive CE combined with grit results in a significant increase in learners' FLE and FL performance whereas these measures did not increase significantly in a negative CE. This means that a comfortable CE may be essential for positive personality traits to trigger FLE as the impact of grit on FL performance and FLE was significantly higher in a positive environment.

Previous studies (Dewaele & Alfawzan, 2018; Dewaele & Dewaele, 2017; Dewaele et al., 2019; Dewaele & MacIntyre, 2014, 2019; Dewaele et al., 2016; Dewaele, Özdemir, et al., 2019; Dewaele et al., 2018; Jiang & Dewaele, 2019; Li et al., 2019) found that learners' variables such as age, gender, competence level and attitude towards the FL were correlated with FLE. It is worth noticing that, to the best of our knowledge, only one study has compared the levels of FLE of different FLs (Dewaele & Proietti Ergün, 2020). Several researchers found that FLE increases in older groups (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2019; Dewaele, Özdemir et al., 2019; Dewaele et al., 2018). Regarding gender, females were found to experience more FLE in most studies (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014; Dewaele et al., 2016; Dewaele et al., 2018). However, other studies found no significant difference between males and females (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2019; Dewaele, Özdemir et al., 2019). Based on previous research (Dewaele & Alfawzan, 2018; Dewaele & Dewaele, 2017; Dewaele et al., 2019; Dewaele & MacIntyre, 2014, 2019; Dewaele et al., 2018; Jiang & Dewaele, 2019; Li et al., 2019), it is reasonable to assume that higher levels of competence will bring about higher FLE. Nonetheless, Dewaele, Özdemir et al. (2019) found that the learners' competence level was not a significant predictor of FLE. Concerning FLE for different FLs, Dewaele and Proietti Ergün (2020) found no significant difference between English and Italian as FLs in Turkey for FLE. Additionally, some authors have stated the importance of the attitude towards the FL on the FLE students experience (Dewaele & MacIntyre, 2019; Dewaele et al., 2016; Dewaele, Özdemir et al., 2019; Dewaele et al., 2018; Jiang & Dewaele, 2019). To conclude, based on previous FLE research results, it seems plausible that our data also vary across age, gender, competence level and foreign language.

Happiness

Happiness, together with other positive emotions such as grit, resilience, or optimism, are among the topics reached by the expansion of research under the rubric of PosPsy (Lopez & Snyder, 2009). Additionally, happiness is regarded as one of the most important individual and collective goals in current societies and, although philosophers of all stripes have disagreed over the definition of happiness, they all concur that a good life is a happy one (Diener et al., 2003). Psychology also regards happiness as a rather elusive concept. As MacIntyre (2016) explains, when PosPsy addressed the concept of happiness, it was concluded that it was too complex to deal with, as it was multifaceted and variously defined.

In the area of FL/L2 learning, studies into happiness and related concepts such as joy, enjoyment or well-being are a direct consequence of the arrival of the PosPsy movement to the field. In the specialized literature, happiness is typically referred to as subjective well-being. This latter concept is defined as "people's emotional and cognitive evaluations of their lives [that] includes what lay people call happiness, peace, fulfilment, and life satisfaction" (Diener et al., 2003, p. 403). One of the scholars that has most deeply engaged in the notion of well-being in the area of FL/L2 is Rebecca Oxford, who developed a framework of dimensions contributing to language learners' well-being and progress, that includes, among other components, emotion, empathy motivation, perseverance, and optimism (Oxford, 2016a, 2016b, 2016c).

In recent years, qualitative studies have been published that take into account, one way or another, the notion of happiness or associated concepts. For example, Oxford (2014) and Oxford and Cuéllar (2014) adapted a theoretical framework of well-being drawn from PosPsy - Seligman's (2011) PERMA model- to the narrative research exploring language learning experiences. The conclusions from both studies highlight the potential value of the concept of well-being for enhancing language learning. In another qualitative study, Ibrahim (2016) found that happiness originated in the informants from the perception of growth and progress, of a transformational process in which their skills, and even their image and identity, were being developed. Matsumoto (2019) investigated third age FL learners' experiences from the perspective of the notion of well-being, and, more specifically, from the concept of savoring posited by Bryant and Veroff (2012). Well-being was characterized as people's deliberate attending to and appreciation of the positive feelings and experiences that make them feel good (p. 2).

Although not specifically focused on happiness or well-being, some other studies have yielded relevant findings to understand the relationship between happiness or well-being and language learning. Resnik and Schallmoser (2019) investigated an e-Tandem experience in which Austrian university students of English were paired with students of German at UK and US universities. Data from interviews revealed that providing mutual help and feedback, perceiving improvement in their language competence and developing friendships with first language users enhanced the participants' eudaimonic happiness. This dimension of happiness, related to notions of purpose, growth and fulfilment (Ryan & Deci, 2001), refers to "quality of life derived from the development of a person's best potentials and their application in the fulfilment of personally expressive, self-concordant goals" (Waterman et al., 2010, p. 41). Happiness was also one of the emotions that Piniel and Albert (2018) identified in a qualita-

tive study that asked Hungarian university students in an English Studies BA programme to write a paragraph describing their emotional experiences concerning foreign languages and one of the four classical language skills. Finally, the study conducted by Ibrahim (2016) also throws some light upon the understanding of happiness in FL learning from the theoretical perspective of the directed motivational current (DCM) developed by Dörnyei and colleagues (Dörnyei et al., 2014; Dörnyei et al., 2015). DCM applies to "relatively long-term, sustained and heightened motivational engagement" (Ibrahim, 2016, p. 258). The theory also posits that individuals develop a sense of eudaimonic happiness as they realize that they can maintain one's motivation and as they acquire new skills as a result of the motivational engagement associated with DCMs. Ibrahim's qualitative study found that happiness, typically associated with enjoyment, was one of the emotions most frequently mentioned when participants described DCM experiences. Happiness was commonly linked to feelings of achievement, both in terms of learning progress and of task-level progress.

Research in the field of FL/L2 learning so far, however, has not sufficiently explored either the relationship between different emotions studied by PosPsy or the relationship between positive emotions specific to language learning and those of a more general nature, as is the case in our study. Additionally, no study has so far explored how the relationship between positive emotions varies as a function of learner variables. For example, as research has found gender differences in self-reported and physiological reactions to emotional experiences (e.g., Šolcová & Lačev, 2017), it is possible that the relation between FLE and SH in men and women may be different. Similarly, the differences in SH across ages (Lelkes, 2008) lead us to believe that the relation between SH and FLE may be influenced by age. As for competence level, Nakamura's (2018) FL beginner interviewees mentioned happiness, joy and gratitude as the emotional aspects that improved their learning experiences. Intermediate and advanced students, however, focused on cognitive aspects. Therefore, the learners' competence level in the FL might also affect the correlation between FLE and SH. Finally, since it has been suggested that the target language may play an important role for emotional engagement (e.g., De Smet et al., 2018), this factor could also affect the relation between FLE and SH.

METHODS

Participants and Context

A total of 594 FL learners participated by convenience sampling from 17 Spanish official language schools (OLSs). OLSs are public institutions run by autonomous regional educational authorities that specialize in teaching and certifying foreign languages in Spain. The OLSs language curricula are based on the Common European Framework of Reference for Languages (Council of Europe, 2001). Participants were contacted in class, by email or through social media – Twitter, Facebook and online learning platforms. Their ages ranged between 16 and 72 years (M = 42.05 years; SD = 12.76; Mn = 44; Mo = 52). Out of the 594 participants, 432 (72.72%) were women and 162 (27.27%) were men. As in the data on female/male distribution in adult, non-compulsory FL courses in OLSs (66/34) gathered by the Spanish Ministry of Education (MECD, 2016, p. 4), the female/male distribution in our sample is characterized by a vast majority of women.

Even though the participants were FL learners of six languages, almost three quarters of the sample completed the questionnaire in relation to their experiences learning English as a FL (Table 1).

Almost half the sample is university-educated (46.15% reported having a bachelor's, master's, or doctoral degree). The participants' levels of educational attainment are shown in Table 2.

As to the level of competence in the FL, 19.70% (n = 117) of the participants reported having a certified A1 level according to the Common European Framework for Languages (Council of Europe, 2001), 15.32% (n = 91) an A2, 35.19% (n = 209) a B1 and 15.64% (n =, 94) a B2 level. Only 13.97% (n = 83) of the participants claimed that it was their first year studying the FL.

Table 1

FL in relation to which the participants completed the questionnaire

Language	Frequency	Percentage
English	430	72.39
French	83	13.97
German	60	10.10
Russian	17	2.86
Italian	3	0.51
Other	1	0.17
Total	594	100

Table 2
Participants' highest level of education

Education	Frequency	Percentage
Primary Education	14	2.36
Secondary Education	19	3.20
Vocational Training	27	4.55
Higher Secondary Education	100	16.84
Higher Vocational Training	68	11.45
Undergraduate Degree	92	15.49
Bachelor's Degree	193	32.49
Master's Degree	68	11.45
Doctoral Degree	13	2.19
Total	594	100

Instruments

The participants completed a questionnaire in Spanish that consisted of three sections: the sociodemographic section, the foreign language enjoyment scale and the subjective happiness scale.

The sociodemographic section generated the participants' information regarding gender, age, highest level of education, self-reported level of competence, chosen FL, number of FLs they were learning, and the OLS where they were enrolled.

Regarding our FLE instrument, ten items extracted from the FLE scale (Dewaele & MacIntyre, 2014) were used in the present study (Appendix). The items (number 3, 4, 7, 9, 10, 11, 12, 14, 18 and 21 in the original scale) were selected because they captured "the reliability of the original scale without sacrificing the reliability of the measurement" (Dewaele et al., 2019, p. 7). The items included reflect both private and social sources of FLE (Dewaele & MacIntyre, 2016). Internal consistency of the 10 items, as measured by Cronbach alpha coefficient, was high (.85) (internal consistency of the 21 items Dewaele and MacIntyre's 2014 study was .86). Prior to the data collection, the complete FLE scale was translated and adapted to Spanish following the ITC guidelines for translating and adapting tests (2nd Ed.) (International Test Commission, 2018). The translation process was validated in a previous pilot questionnaire run on 101 participants (AUTHORS, in press) and it was based on the cross-cultural adaptation model laid out by Chapman and Carter (1979), which involved several stages: forward translations, forward translation reconciliations, harmonization, pilot testing/cognitive debriefing, pilot testing review/review of cognitive debriefing results and proofreading. This model was implemented in order to minimize the influence of linguistic, cultural and psychological differences on the intended populations.

The 4-item Subjective Happiness Scale (SHS) (Lyubomirsky & Lepper, 1999) in the Spanish version translated and validated by Extremera and Fernández-Berrocal (2014) was used (Appendix). Participants are asked to react to four statements that require them either to self-rate or to compare themselves to others on a 7-point Likert numerical scale. The wording of the anchor points depends on the question. Responses are averaged for an overall score (the fourth item is reverse coded) where high scores indicate high SH. The Cronbach alpha coefficient was high (.90) (Cronbach alpha coefficient for the SHS was .81 in Extremera and Fernández-Berrocal's [2014] study).

Data Analysis

Average scores on the 5-point scale were calculated for 10 items of the FLE scale. Scores ranged from 1 to the maximum 5. A one-sample Kolmorogov-Smirnov test revealed that the distribution was not normal (Z = .07, p < .001). A measure of global subjective happiness was also obtained. Scores ranged from 1 to the maximum 7. Average scores for subjective happiness were calculated. A one-sample Kolmorogov-Smirnov test revealed that the distribution was not normal (Z = .09, p < .001).

Spearman's rank correlation coefficients were calculated between the measures of FLE and those of SH. Effect sizes for r were interpreted according to Plonsky and Oswald's (2014) criteria. Confidence intervals for rho were calculated based on the Fisher r-to-z transformation. To test the significance of the difference between correlation values, the Fisher transformation was used, calculated according to Eid et al. (2011).

RESULTS

The results of the descriptive statistics can be seen in Table 3. FLE and SH were significantly correlated, although only a small positive relationship was found (*rs* = .189, 95% CI [0.111, 0.265], *p* = < .001) (Figure 1). Significant positive correlations between FLE and SH were found for both men and women, although the correlation was slightly stronger for men (Table 4). The difference between the correlation values for each group was .106. (*z* = 1.193 *p* = .117). Significant positive correlations were found between FLE and SH for the young adults, and the mature adults and seniors groups (Table 3). In contrast, the older adolescents and the middle-aged adults groups, which were the groups with the lowest and the highest SH, respectively, showed no significant correlations. The strength of the correlations for age groups were generally weak, except for the mature adults and seniors groups, which was moderate (Table 4). Statistically significant differences were only found between the middle-aged adults and the mature

Table 3

Results of the descriptive statistics

Descriptive statistics	FLE		SH	
	Mean (range: 1-5)	*SD*	Mean (range: 1-7)	*SD*
Female (*n* = 432)	4.27	0.48	5.30	1.10
Men (*n* = 162)	4.22	0.47	5.11	1.04
Older adolescents (16-19) (*n* = 28)	4.18	0.48	4.60	1.21
Young adults (20-39) (*n* = 203)	4.16	0.51	5.15	1.14
Middle-aged adults (40-49) (*n* = 176)	4.26	0.44	5.40	1.02
Mature adults and seniors (50+) (*n* = 187)	4.29	0.46	5.32	0.97
Up to A2 (*n* = 291)	4.23	0.48	5.28	1.07
B1 (*n* = 209)	4.15	0.47	5.18	1.14
B2 (*n* = 94)	4.27	0.43	5.27	1.04
English (*n* = 430)	4.22	0.48	5.23	1.08
French (*n* = 83)	4.32	0.46	5.17	1.22
German (*n* = 60)	4.22	0.48	5.37	1.02

Figure 1

The relationship between Foreign Language Enjoyment (FLE) and Subjective Happiness (SH)

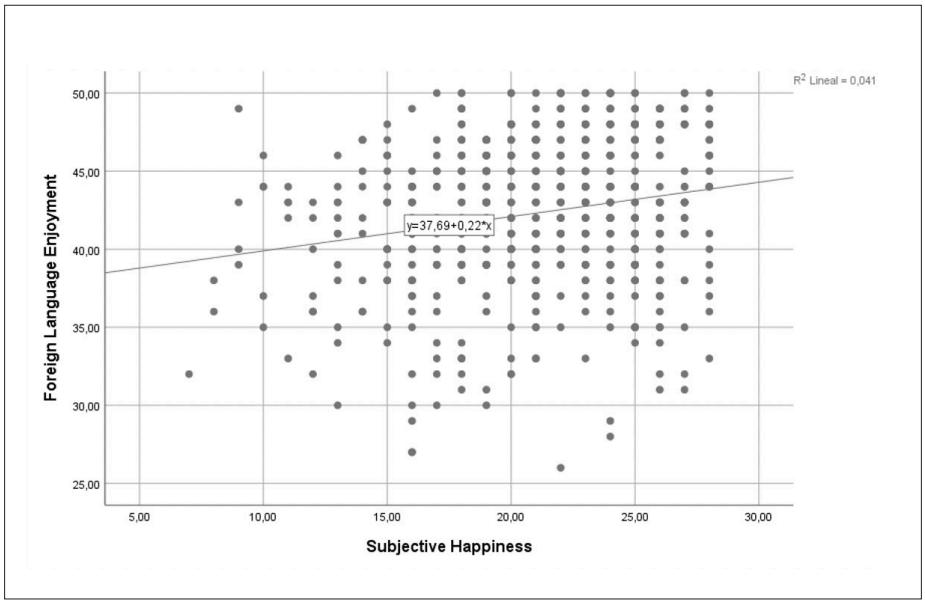

Table 4

Spearman correlation coefficient between FLE and SH, according to gender, age, self-reported level of competence and FL

	rho	95% CI	p
Female	.151	0.058, 0.241	**.002**
Male	.257	0.108, 0.395	**.001**
Older adolescents (16-19)	.259	-0.126, 0.576	.183
Young adults (20-39)	.190	0.054, 0.319	**.007**
Middle-aged Adults (40-49)	.039	-0.109, 0.185	.608
Mature adults and seniors (50+)	.317	0.182, 0.44	< **.001**
Up to A2	.220	0.108, 0.326	< **.001**
B1	.141	0.006, 0.271	**.042**
B2	.180	-0.023, 0.369	.083
English	.216	0.124, 0.304	< **.001**
French	.195	-0.021, 0.394	.076
German	.165	-0.092, 0.402	.210

adults and seniors (Table 5). Positive correlations were found between FLE and SH for all self-reported language competence groups. The strength of the association was weak. Correlation coefficients were statistically significant for the lowest and the middle competence level groups in the study (Table 4). No statistically significant differences were found between correlation values when comparing two language competence level groups at a time and two FL groups (Table 5). Positive correlations between FLE and SH were found for the three most representative foreign languages in the data although the strength of the association was weak. The correlation coefficient was significant for the group of students of English alone (Table 4). When comparing the correlation values of two FL groups at a time no statistically significant differences were found (Table 5).

Table 5

Differences between correlation values (z, p) (age, self-reported competence level and FL groups)

	Differences between correlation values (*z*, *p*)		
	Young adults (20-39)	**Middle-aged adults (40-49)**	**Mature adults and seniors (50+)**
Older adolescents (16-19)	.069 (0.343, .366)	.22 (1.056, .145)	-.058 (-0.298, .383)
Young adults (20-39)	-	.151 (1.477, .07)	.161 (-1.331, .092)
Middle adults (40-49)	-	-	.278 (-2.732, **.003**)
	Up to B1	B2	
Up to A2	.079 (0.895, .185)	.04 (0.347, .364)	
B1	-	.039 (-0.318, .375)	
	French	German	
English	.021 (0.18, .429)	.051 (0.375, .354)	
French	-	.03 (0.179, .429)	

DISCUSSION

A significant positive correlation between FLE and SH was found in the study. Our research thus identifies an association between FLE and an affective variable -that of subjective happiness- that has never been explored before. As the study adopts a cross-sectional, correlational design, causality cannot be assumed. However, life satisfaction being an indicator of the same underlying construct as happiness (Extremera & Fernández-Berrocal, 2014), it may be the case that SH affects the capacity to find pleasure with everyday life experiences, including FL learning. The directional nature of the association between FLE and SH has not been determined in our study, though, and although less plausible, reverse causality may apply. In a study by Dewaele and MacIntyre (2019), teacher-related variables accounted for more than a quarter of the variance in FLE. This means that, by boosting enjoyment in the classroom, the teacher may contribute to the learners' overall sense of happiness. In any case, further research is needed to confirm, or otherwise, these potential explanations.

Overall, FLE and SH shared 3.6% of variance. It is important to note, though, that the percentage of shared variance between FLE and SH is considerably higher than the overall shared variance in different subgroups. Thus, SH explains 6.6% of FLE in male students (versus 2.3% of FLE in female students), 6.7% in the older adolescent group and 10% in mature adults and seniors. Previous studies have also found that the relationship between FLE and other variables -including emotional variables- differ by age. For example, Dewaele and Dewaele (2017) identified changes in the predictors of FLE across age groups in a study with teenage learners, with the teacher exerting a greater effect on the FLE of older learners, and Dewaele (2021) showed that FLE was a predictor factor for FL performance in secondary school students but not in university students. It is interesting to note that, in the older adolescent group, with the lowest level of SH among the four groups, and in the middle-aged adult groups, with the highest level of SH, no significant correlations between FLE and SH were found. Although the sample size in the older adolescent group may have had an effect on significance, as the smaller the sample size the less likely a study will find a significant relationship if one exists (Kirk, 1996), these results may indicate that, below or beyond a certain level of SH, the association between this construct and FLE may be negligible. Nonetheless, only further research could confirm this speculation. Additionally, the percentage of shared variance between FLE and SH also varies by level of competence (e.g., 4.8% for up to A2 learners vs. 1,9% for B1 learners) and language (e.g., 4.6% for English as a FL learners vs. 3.8% French as a FL learners). Our study results also suggest that personality variables may relate to the learners' FLE differently depending on learner-internal factors such as age, gender, competence level and foreign language. These findings are undoubtedly worthy of further research.

Some limitations need to be acknowledged when interpreting results. First, participants come from a specific formal context, the OLS, a Spanish public institution which provides foreign language teaching to students aged 16 and above. Adult FL learners from other geographical or educational backgrounds, informal adult FL learners or learners studying a FL at private institutions are not represented in the data and they may have a different experience of FLE. Studies including other populations should be conducted in order to verify or refute these results. Secondly, not only further quantitative research that infers causality, but also mixed and qualitative approaches are needed to investigate the associations between FLE and other factors, including SH. And, finally, studies are also needed on how SH and other factors interact and jointly affect FLE. These limitations notwithstanding, our study opens a new line of investigation into affective and individual factors related to FLE by exploring the association with one more general personal affective factor that had remained so far unexplored. It contributes to clarifying the interconnections between FLE and other general psychological factors and, simultaneously, to establishing its specificity. Finally, the wide range of participant ages and the number of participants beyond their twenties make the sample more representative of the population of adult FL learners than is usually the case in studies of FLE.

CONCLUSION

The present study has examined the association between enjoyment and subjective happiness in Spanish adult FL learners and how this association varies according to age, gender, FL, and level of competence in the FL, which had never been investigated. By so doing, this study contributes to the line of research seeking to identify the relationship between personality variables and FLE. Additionally, it contributes to broadening the understanding of how different learner-internal factors impinge on the relationship between FLE and happiness in a sample that is more representative of the adult population of FL learners than is typically the case in studies of FLE due to the wide range of participant ages and the amount of participants over the age of twenty.

In our study, we found a statistically significant positive correlation between FLE and SH. Although, given the characteristics of the study, a causal relationship and the direction of causality cannot be assumed, we have suggested that happiness may have an impact on one's ability to enjoy life's pleasures, including FL learning. Additionally, the limited shared variance between FLE and SH indicates the distinctiveness of the former concept while also elucidating its relationships with other broad psychological factors. Furthermore, different patterns of correlations between FLE and SH were also found across gender, age, and language competence level groups. This evidence suggests that the relationship between FLE and SH may operate differently across groups of FL learners. Although further research is needed to confirm or refute our findings in different FL learner populations and contexts, to determine the significance of the findings, and to establish the causality of the relationship between FLE and SH, our investigation contributes to expanding the study of Positive Psychology in the field of FL by exploring its association with happiness and the learner factors that affect this relationship.

DECLARATION OF COMPETING INTEREST

None declared ■

AUTHOR CONTRIBUTIONS

Elvira Barrios: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

Irene Acosta-Manzano: designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper.

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APPENDIX

Escala de disfrute en el aprendizaje de una lengua extranjera

The foreign language enjoyment scale (Dewaele & MacIntyre, 2014) was translated by AUTHOR 1 and AUTHOR 2.

¿En qué medida está de acuerdo con las siguientes afirmaciones? Responde conforme a la siguiente escala: Muy de acuerdo / De acuerdo / Indeciso/a / En desacuerdo / Muy en desacuerdo

1. No me aburro en la clase de lengua extranjera.
2. Disfruto la clase de lengua extranjera.
3. Soy un miembro valorado de la clase de lengua extranjera.
4. En la clase de lengua extranjera, me siento orgulloso/a de mis logros.
5. En la clase de lengua extranjera hay un ambiente positivo.
6. Me resulta atractiva la idea de hablar una lengua extranjera.
7. La clase de lengua extranjera es divertida.
8. Mis compañeros y compañeras son agradables.
9. Hay buen ambiente en la clase de lengua extranjera.
10. En la clase de lengua extranjera nos reímos mucho.

Escala de felicidad subjetiva

The subjective happiness scale (Lyubomirsky & Lepper, 1999) was translated and validated by Extremera and Fernández-Berrocal (2014).

1. En general, me considero una persona...

   1= No muy feliz / 2 / 3 /4 / 5 / 6 / 7 = Muy feliz

2. Comparado con la mayoría de la gente que me rodea, me considero...

   1 = Menos feliz / 2 / 3 /4 / 5 / 6 / 7 = Más feliz

3. Algunas personas suelen ser muy felices. Disfrutan la vida a pesar de lo que ocurra, afrontando la mayoría de las cosas. ¿En qué medida se considera una persona así?

   1 = Nada en absoluto / 2 / 3 /4 / 5 / 6 / 7 = En gran medida

4. Algunas personas suelen ser muy poco felices. Aunque no están deprimidas, no parecen tan felices como ellas quisieran. ¿En qué medida se considera una persona así?

   1 = Nada en absoluto / 2 / 3 /4 / 5 / 6 / 7 = En gran medida

https://doi.org/10.17323/jle.2022.12252

Nominal Stance in Cross-Disciplinary Academic Writing of L1 and L2 Speakers in Noun + that Constructions

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ABSTRACT

Background. Literature indicates that in academic writing, authors are expected to demonstrate a noticeable stance so that they can make their meaning clear. Therefore, differences between native and non-native writers along with cross-disciplinary academic writing assume great significance.

Purpose. The interactional, dialogic, and reflective nature of academic writing requires writers to utilize stance-establishing tools in their writing, the most prominent ones being stance nouns. In addition, the that-clause construction plays a vital role in conveying the author's stance. Studies that compare L1 Turkish writers of English and L1 English writers regarding academic writing are rather scarce. As such, the present paper aims to analyze L1 Turkish writers of English and L1 English writers in eight disciplines from natural and social sciences in terms of the use of stance nouns in that-clause constructions.

Methods. The study employs Jiang and Hyland's (2016) functional classification model in exploring the nominal stance in cross-disciplinary writing of L1 Turkish writers of English and L1 English writers. To this end, journals with high impact in eight disciplines from social and natural sciences were scanned and a total of 320 articles were included in the corpus. The social sciences included in the present study cover applied linguistics, history, psychology, and sociology while the natural sciences cover medicine, engineering, astronomy, and biology. In total, a corpus of 2.232.164 words was formed.

Results and Implications. The study found significant differences not only in terms of natural and social sciences but also in terms of L1/L2 distinction. In addition, a secondary purpose of the study was to see whether writers in social and natural sciences differed in terms of empiricist and interpretive rationality. The results indicated that writers in social sciences tended to use more status and cognition nouns, indicating that they tend to be more interpretive. With significant differences between Turkish and English writers from a cross-disciplinary perspective, the present study offers important insights into how writers weave their stance in academic writing. Moreover, the present study also confirmed that writers in social sciences, whether L1 or L2, tend to use more stance nouns compared with writers in natural sciences.

KEYWORDS:

corpus, L2 disciplinary writing, native speaker, non-native speaker, nominal stance, discourse markers

Citation: Kirmizi, O., & Kirmizi, G. D. (2022). Nominal stance in cross-disciplinary academic writing of L1 and L2 speakers in noun + that constructions. *Journal of Language and Education, 8*(2), 80-91. https://doi.org/10.17323/jle.2022.12252

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Received: Apr 01, 2021
Accepted: Jun 18, 2022
Published: Jun 30, 2022

INTRODUCTION

Linguists have long been nurturing a keen interest in what kind of linguistic tools writers employ to reveal their attitudes and judgments. A huge body of research indicates that the capacity to display ability in the use of appropriate stance in academic writing is viewed as essential (Charles, 2007; Hyland & Guinda, 2012; Gross & Chesley, 2012). Acquiring the ability to use stance elements in academic writing is understandably a difficult aspect for L2 writers (Tang, 2012). Literature seems to have paid due attention to stance expressions in terms of *hedges and boosters* (Wingate, 2012, Cao & Hu, 2014; Li & Wharton, 2012), *appraisal* (Lancaster, 2014), *engagement* (Jin, 2015; Liao, 2020) and *metadiscourse* (Hyland & Tse, 2005; Adel, 2006; Aull & Lancaster, 2014; Akbas & Hatipoğlu, 2018; Bal-Geze-

gin & Bas, 2020). Such studies produced sufficient data on the use of adverbs, adjectives, reporting verbs, or lexical bundles among markers of stance (Cobb, 2003). Nevertheless, as was pointed out by Jiang (2015), nominal stance constructions have received relatively little attention.

Literature offers evidence as to the influence of *discipline* (Hyland, 2005; Khedri, et al., 2013), *language/culture* (Loi & Lim, 2013; Mur Dueñas, 2011), and *genre* (Kuhi & Behnam, 2011, Alinasab et al., 2021) on metadiscourse. In addition, plenty of studies have been conducted on stance constructions devices such as adverbs, adjectives, modal verbs (Gabrielatos & McEnery, 2005; Gross & Chesley, 2012), and first-person pronouns (Işık-Tas, 2018; Lores-Sanz, 2011). What is more, stance has been studied concerning *theses* (Baratta, 2010; Charles, 2007; Jalali, 2017; Akbaş & Hardman, 2018), *university students' essays* (Jiang, 2015; Gardner & Han, 2018), and *research articles* (Jiang & Hyland, 2015; Yağız & Demir, 2015). Even though the epistemological and methodological assumptions about both paradigms are well-known by researchers, little attention has been paid to a comparison of the two paradigms in terms of metadiscourse use. By analyzing "noun + that" constructions, the present study aims to explore how L1 and L2 writers in different disciplines from social and natural sciences put their message across. The implementation of *that*-clause structure is frequent in academic writing, used to express stance or attitude (Biber, 2006; Jiang & Hyland, 2015; Man & Chau, 2019; Parkinson, 2013). It is hoped that the study will provide insights as to the use of existing knowledge in the use of nominal stance in cross-disciplinary writing from L1 and L2 perspective. Existing literature indicates that the use of stance elements is more common in social sciences, or soft sciences, compared to natural sciences, or hard sciences (see Çakır, 2016). Studies on academic discourse have also shown that writers tend to use different interaction patterns in social sciences (soft science) and natural sciences (hard science) (Hyland, 2001).

The "noun + that" structure is highly common in academic writing; nevertheless, it has not been studied extensively. This construction enables writers to express their stance by selecting a head noun. Even though specific registers and academic discourse receive considerable attention, comprehensive studies are rather scarce in this regard (Zhang, 2016). The role of disciplinary influences on stance and evaluation has been reported in the literature (see, Hyland & Tse, 2005). Therefore, the present study, with a corpus of 320 research articles (RAs) comprising both L1 and L2 writers, attempts to shed light on the differential use of stance nouns in "noun + that" constructions.

Stance in Academic Writing

Biber (2006, p. 99) defines stance as a way of displaying "personal feelings and assessments" that writers use for "... certain information, how certain they are about its veracity, how they obtained access to the information, and what perspective they are taking". According to Conrad and Biber (2000), the term stance is a generic term denoting personal feelings and assessments. Terms like *modality* (Halliday, 1985) or *evidentiality* (Chafe & Nichols, 1986), *voice* (Hirvela & Belcher, 2001), *authorial identity* (Ivanic, 1991), and *appraisal* (Martin & White, 2005) are also used in literature. Nevertheless, according to Jiang and Hyland (2015), writers, as they are establishing their stance, benefit from culturally available sources and tend to fit their choices within a particular community or discipline. Therefore, "any stance represents the writer's position, but it is also a position which reflects the epistemological beliefs and values of a community" (Jiang and Hyland, 2015, p. 2).Therefore, by revealing stance, writers both express their epistemic and affective viewpoints concerning knowledge and establish ties with their readers (Aull & Lancaster, 2014, Hyland, 2005a; Lee & Deakin, 2016). Stance is also a tool for writers to bridge the dialogic void for conveying their messages (Martin & White, 2005). Various studies indicate that the capacity to establish a particular stance is an indispensable element of effective writing in L2 (Aull & Lancaster, 2014; Lancaster, 2016; Lee & Deakin, 2016). All in all, as was pointed out by Hyland (2017), the ability to establish a stance is paramount in conveying meaning and making rhetorical decisions. As such, the study of stance and voice has been popular, in particular from the viewpoint of constructivism where social interaction is important (Hyland 2005b).Thus, in a sense, stance is a means for writers to demonstrate their perspectives, authoritativeness, or authorial presence. The underlying reason behind this is that to sound academic writers need not only the linguistic ability but also an awareness of rhetorical features like metadiscourse elements. What is more, academic discourse is also viewed as a socio-political process. The use of stance nouns also indicates how authors view their readers' needs or expectations. Therefore, as is pointed out by Hyland (2012), stance nouns are both for how authors position themselves and how close they feel to the community being addressed. In short, it can be said that any instance of stance involves proximity or the relationship between the writer and the community (Hyland, 2012).

"Noun + that" Construction

"Noun + that" construction is one component of the noun complement construction, which includes structures like "noun + that clause", "noun + to-infinitive", "noun + of-prepositional/preposition" or noun + wh-clause". In the present study, "noun + that" construction was utilized as they are important markers of writers' stance. The importance of that + clause structures, especially "noun + that", was pointed out by prominent figures in the field (Jiang & Hyland, 2015; Hyland & Jiang, 2018). Specifically, Hyland and Jiang (2018) stated that these structures "... represent important rhetorical choices at the interface of lexis and grammar, revealing not only the authorial perspectives of writers ... but also the material they comment on and the voice they adopt to do so." (p. 143).In "noun + that" constructions, there is a head noun followed by a *that*-clause. This construction is highly common in academic writing. The "noun + that" construc-

tion determines how authors evaluate and indicate their attitudes given in the *that*-clause (Hyland & Tse 2005). According to Halliday & Matthiessen (2014), the "noun + that" construction is an embedded postmodifying clause. This construction makes it possible for authors to reflect their rhetorical choices by adding pre-modification as well. Head nouns like *point, assumption, approach, theories,* or *method* do not only organize discourse but are also remarkable indicators of the writer's stance. As can be seen, the meanings of these nouns are not clear by themselves; rather, they are explained in the "that clauses" that follow. Thus, they are called "stance nouns", implying the writer's point of view on the topic (Jiang & Hyland, 2015). Therefore, they are powerful tools since they reveal the stance of a writer (Jiang, 2015).

Functions of Stance Nouns

The most commonly cited classification of stance nouns based on their function is that of Jiang and Hyland (2016). In the present study, this classification was preferred as it revolves around the functional aspects of stance nouns. In some previous classifications, for example, the word "advantage" is given as a "factual" noun. However, Jiang and Hyland (2016, p. 534) argue that the word "advantage" tends to express "quality", implying its function as an expression of the writer's positive evaluation of the following content (*cataphoric reference).*Jiang and Hyland (2016) categorized stance nouns into three broad categories: (1) entity, (2) attribute, and (3) relation. In general, *entities* refers to "metatext, or concrete instances of text". There are four types of stance nouns in the *entities* category, which are *text, event, discourse,* and *cognition*. In this category, *text* nouns refer to "metatext, or concrete instances of text" like *report*, *paper*, and *extract*. Nouns representing *events* are "occurrences of actions and processes or mention of real-world evidential cases", like change or process (p. 9). *Discourse* nouns are concerned with "verbal propositions and speech acts", like an argument or claim (p. 9). *Cognition* nouns are concerned with "beliefs, attitudes, and elements of reasoning", like a decision or idea (p. 9). Examples are as follows:Nouns in *object* category: report, paper, extract: (1) Nouns in *event* category: change, process, observation; (2) Nouns in *discourse* category: argument, claim, conclusion; (3) Nouns in *cognition* category: decision, idea, belief, doubt.

The second broad category of stance nouns is *attributes,* where nouns are thought to function as lexical units which include "writers' evaluations of the quality, status, and formation of entities" (p. 9). There are three groups of nouns in this category, namely (1) quality, (2) manner, and (3) status. The *Quality* nouns are about "whether something is admired or criticized, valued or depreciated, with assessments falling on a scale of plus or minus (p.9). Examples of such words include *advantage*, *difficulty*, and *danger*. The *manner* nouns refer to "the circumstances and formation of actions and states of affairs." (p.9). Examples include time, method, way, and extent. The *status* nouns are about "the author's judgments of epistemic, deontic, and dynamic modality (Palmer, 2001). Regarding this category, epistemic modality is about possibility and certainty with examples of likelihood and truth; deontic modality concerns obligation and necessity such as need and obligation, and dynamic modality denotes ability, opportunity, and tendencies such as ability, capacity, potential, and tendency.Thirdly, the last category is related to relations, involving nouns about relations like cause and effect. These nouns describe how writers conceptualize connections and relationships in conveying meaning (Jiang & Hyland, 2016).

LITERATURE REVIEW

Several studies have been conducted by Biber (e.g. Biber & Gray 2010, 2016; Biber, et al, 2011) which figured out that academic writing abounds in the use of nouns and phrasal modifiers such as attributive adjectives, nouns as nominal premodifiers, and prepositional phrases as postmodifiers.In terms of cross-disciplinary comparisons, Çakır (2016) conducted a study comparing the use of stance adverbs in the abstracts of various disciplines such as sociology, psychology, linguistics, physics, chemistry, and biology. The findings of Çakır's (2016) study show that native writers of English use stance adverbs more commonly than non-native writers. Çakır's study (2016) also found that writers in social sciences use more stance adverbs than natural sciences. Jiang and Hyland (2018), in their corpus-based study, found that metadiscursive nouns like *fact*, *analysis*, and *beliefs* and the "metadiscursive noun + post-nominal" clause patterns were significant methods in manifesting the writer's claim and establishing a "disciplinary stance" (p. 1)

Cross-disciplinary differences have been studied by several researchers. Cao and Hu (2014), for example, in their comprehensive study found that there are significant cross-disciplinary differences in the use of interactional and interactive metadiscourse elements, which, according to them, stem from contrasting epistemologies. Like many other studies, Cao and Hu (2014) also used Hyland's (2005) interactional and interactive framework.In a similar study, Jiang (2015) focused on a corpus-based comparative analysis of 366 Chinese university students with 82 American students. The results of this study showed that L2 students used noticeably fewer stance nouns, in particular in the event, discourse, and cognition categories. On the other hand, their (L2 writers) dexterity in using personal effect and pre-modifying stance through attitudinal adjectives and first-person possessives was remarkable. Similarly, the inability of L2 students in constructing stance was also reported by other studies (Lancaster, 2014; Wingate, 2012).Moreover, several significant studies conducted by Hyland involved stance features and metadiscourse in various disciplines. In one of them, for example, Hyland (2008) worked on 240 RAs from eight disciplines, including medical engineering, electrical engineering, marketing, philosophy, sociology, applied lin-

guistics, physics, and microbiology. His findings indicated a huge use of hedges as a component of stance and engagement features. His findings also indicated that the use of stance and engagement markers abound in social fields compared to natural sciences. Applied linguistics, marketing, and philosophy were the fields found to include the highest frequency of hedges and boosters.

As such, the present study attempts to answer the following research questions: (1)What stance options are available in the academic discourse in social and natural sciences? (2) Do L1 and L2 writers differ in terms of nominal stance in social sciences? (3) Do L1 and L2 writers differ in terms of nominal stance in natural sciences? (4) Do L1 and L2 writers differ in terms of empiricist and interpretive rationality in both social and natural sciences? (5) Do L1 and L2 writers differ in terms of objectivity?

METHODS

Corpus and Databases

The total number of academic articles examined is 320 (160 social sciences and 160 natural sciences). Table 1 shows the data about the corpus used in the present study. The total number of words in the corpus is 2.232.164. The total number of words used by L1 writers is 1.230.491 and by L2 writers 1.001.673. The total number of words in social sciences is 1.285.627. The total number of words in the corpus of the natural sciences is 946.537. The numbers are presented in Table 1.

Inclusion and Exclusion Criteria

The present study is based on an academic corpus that was collected by the researchers by meticulous analysis of the literature. The corpus includes RAs from both social and natural sciences written by native and non-native speakers. The social sciences included in the study are sociology, applied linguistics, history, and media/communication. The natural sciences are biology, engineering, medicine, and astronomy. To facilitate comparison, a similar number of articles were selected from both native and non-native speakers, 10 native and 10 non-native authored articles. Articles were selected randomly. Care was taken to select single-authored articles to see the language use coherently. Researchers collect corpora based on the purposes of their focus, ranging from particular genres to registers of language (McEnery & Hardie, 2012). Therefore, the sizes of corpora may vary depending on the purpose. As for inclusion criteria, we have two guidelines. The first is that we included both research and review articles. Secondly, we selected one article from one author to provide variability. As for exclusion criteria, we did not include case reports, or letters to editors.

Data Analyses

In order to analyze, the concordance software *AntConc* [1](Anthony, 2011) was used. Further manual reading of concordance lines was also conducted so that we could improve the accuracy of the parsing. To ensure the reliability of the results, both the authors conducted the coding process at a monthly interval. The inter-rater reliability was found to be 0.89.

Procedure

For each discipline, peer-reviewed high-quality international journals were scanned. Along with the suggestions provided by disciplinary experts, care was also taken to include journals that are indexed by major indexes in each field (*SSCI, SCI-expanded, AHCI, ESCI, SCOPUS* for social sciences). In the selection of journals, experts from each field were consulted, and based on the opinions of experts a list of journals was prepared for each field. Later, further analysis was conducted for the suitability of each journal. The descriptions of journals on journals' websites were examined to see whether they are clear representatives of each field. After identifying as many journals as possible, the next step was to determine the articles. Only research articles were included in the corpus. Both general and specific journals were included. For example, in applied linguistics general journals like *Applied Linguistics* or *Annual Review of Applied Linguistics* as well as specialized journals such as *International Journal of Language and Communicating Disorders* and *Language Planning* were included in the analysis.

Table 1

The corpus used in the present study

	Social sciences				Natural sciences			
	App. Ling.	**Soc.**	**Hist.**	**Psyc.**	**Bio.**	**Med.**	**Ast.**	**Eng.**
L1 writers	142.481	158.061	202.143	162.378	138.487	134.386	146.167	146.388
L2 writers	128.203	198.748	182.856	110.757	74.545	68.570	109.402	128.592
Total	270.684	356.809	384.999	273.135	213.032	202.956	255.788	274.980

[1] Anthony, L. (2011). *AntConc (Version 3.2.2)* [Computer Software]. Tokyo, Japan: Waseda University.

RESULTS AND DISCUSSION

Stance Nouns as Head Nouns

This part strives to answer the first research question, namely which stance nouns are prevalent in the academic discourse in social and natural sciences. The total number of "noun + that" constructions in the corpus of the present study is 2540, nearly 8 stance nouns per article. The results are given in Table 2, with the total number of items and items per 10.000 words. The total number of stance nouns under the category of *entity* is 1.371 (53.97% of total stance nouns) and under the category of *attribute*, it is 957 (37.6% of total stance nouns). The total number of stance nouns for the category of *relation* is 212 (8% of total stance nouns)

For the *entity* category, the most commonly used stance nouns were under the *cognition* category (n=403,) followed by the *discourse* category (n=338). The least used stance nouns were stance nouns about *event* (n=305). As for the *attribute* category, the most commonly used nouns were under the category of *status* (n=487) followed by *manner* (n=283). Table 4 also indicates that the most frequently used stance nouns by both L1 and L2 writers are status (n=487, 19,17% of total stance nouns) and *cognition* nouns (n=403, 15,86 of total stance nouns). The frequent use of stance nouns in *status* and *cognition* categories indicates that both L1 and L2 writers tend to make interpretive comments in the process of establishing their stance (Schmid, 2000). This endorses Halliday and Martin's (1993) argument that nominalization is common in academic writing.

When it comes to the distribution of stance nouns in social sciences in terms of L1 and L2 writers, the findings can be seen in Table 3. This section tries to answer the second research question, specifically whether L1 and L2 writers in social sciences differ in nominal stance. Table 3 indicates that there are remarkable differences between L1 and L2 writers in terms of stance noun use in social sciences. The total number of stance nouns in *entity* for L1 writers is 666 (26,6% of total stance nouns) and for L2 writers 334 (13% of total stance nouns). Log-likelihood values (90,55, $p < 0.001$) indicate that L1 writers tend to use stance nouns in *entity* much more than L2 writers. In the category of *entity*, the number of stance nouns in cognition used by L1 writers is 221 and L2 writers are 80, overwhelmingly high for native speakers (Log-likelihood = +59.30 $p < 0.001$). As for the *discourse* category here, the number of stance nouns used by L1 writers is 171, and for L2 writers is 94 (Log-Likelihood = +17.68, $p < 0.001$). L1 writers also used more stance nouns in *event* (Log-Likelihood=+16.77, $p < 0.001$) and the *objects* categories (Log-Likelihood=+7.77, $p < 0.001$). Examples (6)-(8) exemplify *cognition*, *event*, and *discourse* categories.

(6) *Indeed, the idea that societal multilingualism is a hindrance to development can still be encountered today. (N, Applied Linguistics)*

(7) *It was this rather serendipitous observation that led to Cannon's interest in the emotional effects of stimuli on internal functions. (N, Psychology)*

(8) *At the same time, the argument that there is no longer a clear distinction between families, friends, and kin is frequently made, apparently reflecting changed practices of solidarity or connectedness (N, Sociology)*

When the *attribute* category is taken into consideration, it is seen that the total number of stance nouns used by L1 writers is 463 and by L2 writers is 302. L1 writers use stance nouns significantly more than L2 writers (Log-Likelihood=+23,91, $p < 0.001$). Mainly, the difference is in the category of *manner* as exemplified in (9). The number of stance nouns used by L1 writers in the *manner* category is 144 and by L2 writers 60 (Log-Likelihood=+30.07, $p < 0.001$). For the *status* and *quality* categories, however, L2 writers used slightly more stance

Table 2

"Noun+that" constructions across disciplines

	Total No of items	Items per 10.000 words	% of total stance words
Entity	1.371	6.14	53.97
Objects	325	1.45	12.79
Event	305	1.36	12.00
Discourse	338	1.51	13.30
Cognition	403	1.80	15.86
Attribute	957	4.28	37.67
Quality	187	0.83	7.36
Status	487	2.18	19.17
Manner	283	1.26	11.14
Relation	212	0.94	8.34
Total	2540	11.37	100

nouns (Log-Likelihood=-0.25, p < 0.001, Log-Likelihood=-1.81, p < 0.001, respectively).

(9) In the same way that film can create its own reflective account of history, its own historiography or 'historiophoty', so artworks can be a valuable way to analyse (not just describe) the past. (N, History)

This section tries to answer the question of whether L1 and L2 writers in natural sciences differ in the use of nominal stance nouns. Table 4 presents the results regarding stance noun use in natural sciences in terms of L1 and L2 writers. L1 writers use more stance nouns both in the *entity* category (n=294) and the *attribute* category (n=208) than L2 writers (Log-Likelihood=+30,79, p < 0.001, Log-Likelihood=+23.51, p < 0.001, respectively). The biggest difference in the category of *entity* was observed in stance nouns in cognition as can be seen in (10). The number of stance nouns in the *cognition* category used by L1 writers is 83 and L2 writers 19 (Log-Likelihood=+22,02, p < 0.001). The next category where L1 writers use more stance nouns is the objects category as exemplified in (11). The number of total stance nouns used by L1 writers in this category is 61 and L2 writers 18 (Log-Likelihood=+10.82, p < 0.001).

(10) The article gives a detailed account of Geoffroy's transformist theories and supports his belief that changes in the composition of the atmosphere drove the transmutation of species. (N, Biology)

(11) This interconnectedness must also, as a consequence, produce data that can be evaluated continuously.(N, Engineering)

Under the *attribute* category, L1 learners use more stance nouns for all the sub-categories. For quality, for example, the number of stance nouns used by L1 writers is 43 while this number is only 1 for L2 writers (Log-Likelihood=+36.58, p < 0.001) as exemplified in (12). Finally, as for the *relation* category, L1 writers also exceed L2 learners in terms of stance nouns use (Log-Likelihood=+19.24, p < 0.001). In total, the total number of stance nouns used by L1 writers is 560, and by L2 writers 195. L1 writers tend to far exceed L2 writers in stance noun use (Log-Likelihood=+69,26, p < 0.001). In sentence 13, the use of metadiscursive noun of a related category can be seen.

(12) The solid line fits and all the data for each camera are normalized to the value that makes each fit equal to unity at 2002.16. (N, Astronomy, attribute quality)

(13) It was perhaps for this very reason that in these and his later writings he felt the need to distinguish the grounds of his practice so strongly from such 'empirics' (or indeed from practicing apothecaries). (N, medicine) relation)

These findings indicate that in social sciences L1 writers seem to use more stances nouns than L2 writers compared to natural sciences. For example, the total number of stance nouns used by L1 writers in social sciences is 1220 and by L2 writers 688 (Log-Likelihood=+115,76, p < 0.001). In natural sciences, however, although L1 writers exceed L2 writers in terms of stance noun use (Log-Likelihood=+69,26, p < 0.001), the rate is not as high as in social sciences. To be more particular, a huge difference was observed in the *objects* category. For social sciences, the total number of stance nouns used by L1 writers in the *objects* category is 666 whereas this number is 334 for L2 writers (Log-Likelihood=+90,55, p < 0.001). L1 writers seem to have almost doubled L2 writers in this category. For natural sciences, this rate is not that high.

Empiricist and Interpretive Rationality

This section aims to answer the question of whether L1 and L2 writers differ in terms of empiricist and interpretive reasoning. As is known, empiricism refers to the view that the only way to attain knowledge is through our experiences, observations, or senses. Chafe and Nichols (1986) indicated that event, cognition, and status nouns reflect empiricism

Table 3

"Noun+that" frequencies in social sciences per 10,000 words (%of total)

	N	NN	LL
Entity	10 (666)	5.36 (334)	+90.55
Objects	2.24(149)	1.56(97)	+7.77
Event	1.87 (125)	1.01(63)	+16.77
Discourse	2.57(171)	1.51 (94)	+17.68
Cognition	3.32(221)	1.28 (80)	+59.30
Attribute	5.58 (463)	4.85 (302)	+23.91
Quality	1.06 (71)	1.16 (72)	-0.25
Status	2.36 (157)	2.73 (170)	-1.81
Manner	2.16 (144)	0.96 (60)	+30.07
Relation	1.36 (91)	0.83 (52)	+8.24
Total	16.94 (1220)	11.04 (688)	+115.76

Table 4
"Noun+that" frequencies in natural sciences per 10,000 words (% of total)

	N	NN	LL
Entity	5.17 (294)	2.78 (109)	+30,79
Objects	1.07 (61)	0.47 (18)	+10.82
Event	1.69 (96)	1.33 (51)	+1.93
Discourse	0.95 (54)	0.49 (19)	+6.51
Cognition	1.46 (83)	0.49 (19)	+22.02
Attribute	3.67 (208)	1.95 (75)	+23.51
Quality	0.76 (43)	0.02 (1)	+36.58
Status	1.92 (109)	1.33 (51)	+4.82
Manner	0.99(56)	0.60 (23)	+4.25
Relation	1.02 (58)	0.28 (11)	+19.24
Total	9.86 (560)	5.01 (195)	+69,26

and interpretivism. The present study found that there are differences between social sciences and natural sciences in terms of status and cognition nouns. The total number of *status* nouns in social sciences is 327, and the total number of cognition nouns in social sciences is 301. The total number of status nouns in natural sciences is 102 and cognition nouns is 160. For comparison, the numbers were converted into items per 10.000 words. From this perspective, the rate of status nouns in social sciences is 2.54, and cognition nouns are 2.34. These rates are comparatively low in natural sciences. In natural sciences, the rate for status nouns is 1.07 and for the *cognition* nouns it is 1.69. These findings are presented in Table 5. This finding lends support to Schmid's (2000) proposition that "noun + that" construction is not only about objects category. Rather, the higher rates of status and cognition nouns in social sciences indicate that writers in social sciences tend to make more interpretive comments as they construct their arguments.In a similar vein, Chafe and Nichols (1986) put forward that stance nouns like *event* and *cognition* nouns are significantly related to empiricism and interpretive rationality, respectively. *Cognition* nouns were found to be more commonly used in social sciences by both L1 and L2 speakers. However, for the *events* category, it was found that in natural sciences they are used more frequently than social sciences. This finding is endorsed in the literature. In literature, some studies suggest that natural sciences or hard sciences depend more on empirical evidence in presenting their arguments (Jiang & Hyland, 2015). In the present study, the total number of event nouns in social sciences was 188 (1.46 per 10.000 words) and for natural sciences 147 (1.55 per 10.000 words).

Objectivity in Disciplines and Writers

This section tries to answer the question of whether there are differences between L1 and L2 writers in terms of objectivity. The nouns in the *attribute* category represent objectivity and impersonal evaluations. Hyland (2002) puts forward that in natural sciences writers avoid using personal evaluations in strengthening their points. In a similar vein, it is generally hypothesized that in social sciences writers tend to stick to personal interpretations and intellectual reasoning (Charles 2007, Hyland 2005a). The results related to objectivity are given in Table 6. The table shows that the number of *attitude* nouns used by L1 writers in social sciences is 463 and by L2 writers 302, amounting to 765 attribute nouns for social sciences. The number of attribute nouns used by L1 writers in natural sciences is 208 and L2 writers 75. The total number is 283. The use of *attribute* nouns by writers in social sciences far exceeds the ones used in natural sciences

Table 5
The distribution of status and cognition for social and natural sciences

	Social sciences				Natural sciences			
	L1	L2	Total	Items per 10.000 words	L1	L2	Total	Items per 10.000 words
Event	125	63	188	1.46	96	51	147	1.55
Status	157	170	327	2.54	83	19	102	1.07
Cognition	221	80	301	2.34	109	51	160	1.69

(Log-Likelihood= +107.13, $p < 0.001$). This lends support to the idea that in social sciences writers employ more personal interpretations.

Within the scope of the study, L1 and L2 writers were compared in terms of their use of the *attribute* nouns. The results are presented in Table 7. As we can understand from the table, the number of *attribute* nouns by L1 writers is 463 and by L2 writers is 208. In total, the number of the *attribute* nouns used by L1 writers is 671. As for L2 writers, the number of the *attribute* nouns in social sciences is 302 and in natural sciences 95. In total, the number of attribute nouns used by L2 writers is 377. The log-likelihood was calculated as +35.07, indicating that L1 writers use more attribute nouns compared to L2 writers. This can be interpreted as L1 writers being more objective in academic writing.

Table 6

The use of attribute nouns in social and natural sciences

	Social sciences				Natural sciences			
	L1	L2	Total	Items per 10.000 words	L1	L2	Total	Items per 10.000 words
Attribute	463	302	765	5.95	208	75	283	2.98

Table 7

The objectivity of L1 and L2 writers

	L1 writers				L2 writers			
	Social	Natural	Total	Items per 10.000 words	Social	Natural	Total	Items per 10.000 words
Attribute	463	208	671	5.45	302	95	377	3.75

DISCUSSION

The discussion above indicates that academic writing is an arena where writers' intentions, claims, and assumptions come along in the form of stance and voice. To get heard, writers do their best to take "ownership of their work" (Jiang & Hyland, 2015, p. 20) in the accompaniment of epistemic and evaluative judgments about entities, attributes, and the relations between phenomena. The "noun + that" construction, as a noun complement structure, serves the function of stance by enabling writers to choose head nouns. The present study has examined the use of "noun + that" construction in cross-disciplinary L1 and L2 writing. "Noun + that" construction is particularly found to be noteworthy in marking the writer's stance on beliefs, attitudes, reasoning, or judgments of epistemic status (Jiang and Hyland, 2015, 2018).In the first place, looking at the general picture, the study found that the most commonly used stance nouns in the *entity* category were cognition nouns, followed by discourse nouns. In the attribute category, the most widely used stance nouns were status nouns. In general, writers preferred more entity nouns than attribute ones. To be particular, in social sciences the most common stance nouns were also under the entity category. In the *entity* category, the most common ones were object nouns and discourse nouns. Under the attribute category, the most common stance nouns were status nouns and manner nouns. Such findings were reported in the literature. Çakır (2016), for example, found that L1 writers use more stance nouns than L2 writers. Furthermore, Çakır's (2016) study also found that stance noun use is more common in social sciences.Similar views were voiced by Akbaş (2012), who reported that English-speaking writers tend to produce more navigable and coherent texts through the use of more sentence connectors. Akbaş (2012) also showed that Turkish writers employed far less interactional metadiscourse in an attempt to evade revealing their authorial identity. Hyland (2005) endorses this idea suggesting that Anglo-American writers tend to use more organizational patterns to put across their messages.The present study found that L1 writers tend to use more stance nouns than L2 writers. What is more, it was found that writers in social sciences use more stance nouns than the ones in natural sciences, an insight which is reflected in the literature (Durrant, 2017; Gardner et al., 2018). The most frequently used stance nouns, both by L1 and L2 writers, were *status* and *cognition* nouns. This implies that both L1 and L2 writers depend on interpretive comments as they are establishing their stance (Schmid, 2000). The discussion above lays bare the relative inefficiency of L2 writers in adopting or efficiently maintaining a particular stance. With regard to this, noun complement structure as a stance construction in L2 writing must be underlined by the writing instructor (Jiang, 2015). Along with this, writing instructors are warned to integrate genre and register analysis because some registers like spoken may not be so dependent on noun complement structures.Another aim of the present study was to see whether there are differences in social and natural sciences in terms of empiricist and interpretive rationality. To do this, we checked specifically event, cognition, and status nouns as these are assumed

to reflect empiricist and interpretive rationality (Chafe & Nichols, 1986). The results indicated that these stance nouns were more frequently used in social sciences by both L1 and L2 speakers. On the other hand, *event* nouns were found to be more commonly used in natural sciences. Similar findings were reported by other researchers in the literature (Jiang & Hyland, 2015).One prominent finding of the present study was that in social sciences writers, both L1 and L2, tend to use status and cognition nouns more than in natural sciences. As was indicated by Schmid (2000), the use of status and cognition nouns can be associated with more interpretive comments in building arguments. Therefore, we can say that writers in social sciences depend more on interpretation when building their arguments. This finding was also voiced by Jiang (2017). Similarly, Chafe and Nichols (1986) put forward that the use of event and cognition nouns signal empiricism and interpretive rationality, respectively. Moreover, Jiang and Hyland (2015) suggested that writers in natural sciences resort to event nouns more than social sciences as humanities and social sciences as "...empirical evidence is the primary mode of knowledge construction" (p. 20) in natural sciences. The present study found support for this proposition, indicating that the number of *event* nouns was more frequently used by both L1 and L2 writers in natural sciences. Hence, instruction in academic writing should focus on the elaboration of how to sound more empirical or interpretive. Additional practice should be done to help learners or writers on how to foreground empiricism.As for objectivity, the seminal work conducted by Jiang and Hyland (2018) sheds important light on the use of stance and evaluation in the form of the "that+-clause" structure. Their study diachronically compared social (applied linguistics and sociology) and natural sciences (biology and electronic engineering) in terms of stance markers. Their findings are remarkable. In the first place, they indicated that there has been a less authorial voice in academic argumentation in most of the disciplines they studied, the biggest fall being in applied linguistics, where objectivity became prominent. The reason for the authors' partial or academic disguise can be attributed to the desire to sound more empiricist, increase objectivity, reduce personal interest, or get rid of faulty reasoning. In particular, their findings indicated that writers in applied linguistics mainly prefer to evade evaluations. This point also merits attention. Writers should be made aware of how to establish their stance in academic writing.

One point to mention in the comparison of L1 and L2 writers is that there is controversy regarding the use of L1 writers as ultimate reference points for English learning. However, there being no other possible reference point, L2 writers, not only students but also academicians, set their priority on native speaker competence (Adel, 2006). In the present study, we compared L1 and L2 writers, yet we did not set L1 writers as reference points to qualify L2 writers' RAs as adequate or sufficient. The comparison in the present study aimed to present a general picture of stance noun use. The results indicated that L1 writers tend to be more objective and use more stance nouns compared to L2 writers.One limitation of the study can be to include "noun + that" construction only. Some studies integrate "noun + to-infinitive" and "noun + preposition" structures (see Jiang & Hyland, 2015). The reason why we stuck to the "noun + that" structure is partly since "noun + that" construction is a common construction in academic writing and partly because it is viewed as an efficient way for writers to evaluate and indicate their attitudes to the information at hand (Hyland &Tse 2005). Another reason was the fact that we worked with a large corpus. Further studies can include "noun + to-infinitive" and "noun + preposition" to provide a larger picture of stance in cross-disciplinary writing of L1 and L2 writers.

CONCLUSION

The significance of authorial stance is increasing and receiving substantial attention from scholars as it allows writers to negotiate the acceptance of arguments and embrace stances. The present study focused on the analysis of RAs, a significant component of academic discourse. RAs assume significance not only because they involve the objectives of authors but also institutions and maybe communities. The present study has found that there are differences between RAs written in different disciplines. Therefore, the study of RAs merits attention and it is likely to produce more insights not only from linguistic perspectives but also from a pedagogical perspective. Hence, the study of academic discourse is in its infancy despite the recent increasing attention. Therefore, more studies are needed on RAs to get a better understanding of academic discourse.

The significance of focusing on cross-disciplinary differences has long been on the agenda of researchers. Recent research has also underscored the significance of cross-disciplinary influences. As for objectivity, there has been a shift to being more objective in social sciences like sociology and applied linguistics, which is an interesting finding. To enlarge this point, future studies can specifically focus on how and why social sciences are becoming more objective. To conclude, it can be seen that "noun + that" construction as a stance marker enables writers to establish their perspective, communicate explicitly or implicitly with their readers, create a particular stance, or do their best to persuade their readers. It is hoped that the present study provided some insights into the cross-disciplinary academic writing of L1 and L2 writers. At least, it supported two important claims. The first one was related to the pursuit of objectivity in natural sciences. In the present study, this was endorsed. Moreover, the study also supported the claim that social sciences use more stance nouns and depend more on interpretive reasoning or evaluative judgments of writers compared to social sciences. Such findings indicate that stance is a fundamental and powerful component of academic writing. As such, it would be critical to suggest that nominal

stance construction should be included in academic writing courses, with explicit instruction likely to offer affordances in equipped academic writers to set their stance.Studies such as the present one make it clear that metadiscourse elements like stance nouns are instances whereby writers reveal their interaction with the text, how they related to their readers, and how the text relates to itself. Therefore, although there are some controversial findings such as methodological flaws, ambiguities relating to borders of metadiscourse, or conceptual fuzziness, studies on metadiscourse provide insights into how writers construct their discourse. In addition, longitudinal studies must be conducted to see the dynamic development of stance noun use in academic writing.

DECLARATION OF COMPETING INTEREST

None declared. ■

AUTHOR CONTRIBUTIONS

Özkan Kırmızı: conceived and designed the analysis, collected the data, contributed data or analysis tools, performed the analysis, wrote the paper.

Gülin Dağdeviren Kırmızı: conceived and designed the analysis, collected the data, contributed data or analysis tools, performed the analysis, wrote the paper.

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https://doi.org/10.17323/jle.2022.13471

Does Journal Indexation Matter? A Genre-Approach Move Analysis of Nursing English Research Article Abstracts

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ABSTRACT

Background. A plethora of previous studies have discussed the importance of a genre-approach move analysis because the analysis results can provide a picture of the typical conventions of research article writing across disciplines.

Purpose. Nursing as a professional discipline, however, has received scant attention, particularly in the abstract section in the journals with different indexation. To fill such an empirical void, this qualitative study probes the notion of whether journal indexation matters in manifesting the rhetorical moves in the nursing abstracts.

Methods. Fifty abstracts from a Scopus-indexed Q1 journal and another 50 from three Sinta-indexed journals in Indonesia were analyzed manually. This study employed a descriptive comparative approach to analyze and present the data.

Results and Implications. The findings demonstrated conformity manifestations of method and results moves along with their linguistic realizations by using simple past tense in active or passive forms. The article abstracts from the Scopus-indexed nursing journal emphasized the novelty of the research more than their counterparts from the identification of gap of previous research and highlighting the significance of the study. Implications: This study provides the textual evidence of the affirmation of the contributing role of journal indexation type in projecting a higher standard of abstract writing.

KEYWORDS:

journal indexation, move analysis, nursing, rhetorical structure, research article abstract, Scopus-indexed nursing journals

Citation: Lubis, A. H., & Kurniawan, E. (2022). Does journal indexation matter? A genre-approach move analysis of nursing English research article abstracts. *Journal of Language and Education, 8*(2), 92-105. https://doi.org/10.17323/jle.2022.13471

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Received: December 07, 2021
Accepted: June 15, 2022
Published: June 30, 2022

INTRODUCTION

Publications in scientific journals are beneficial for scholars and academicians, without exception those in the field of nursing studies as a professional discipline because scientific journals are considered the prime outlet for circulation and development of disciplinary knowledge. It is also inseparable from the field conditions of nursing practice that cause dynamics and differences every day. Hence, updating knowledge, methods, communication styles, and teaching knowledge is essential. Research articles published in scientific journals will have an impact on the distribution and renewal of nursing knowledge and teaching itself which will increase the circulation of nursing practice innovations (Beyea & Nicoll, 1997; Oermann et al., 2008; Urquhart, 1998). On the pragmatic side, publications in scientific journals will help academicians gain promotions and salary increases (Friginal & Mustafa, 2017). In other words, publishing in scientific journals has been an integral part for academicians as the downstream of their research to keep circulating and updating disciplinary knowledge toward the development of disciplinary practices.

The development of nursing practice today depends on the spread of nursing science. Therefore, it is undeniable that international publications have now become another requirement for nursing scholars or researchers to regularly test

the reliability of their findings (Derman & Jaeger, 2018, p. 122). However, publishing research articles in English is not an easy task; especially in the Indonesian context. For example, Ramos (2015) observed that a considerable number of nursing postgraduate students are dealing with difficulties in writing academic papers, and their written assignments do not meet their instructor's expectations, particularly in genre conventions. Therefore, studying the genre conventions of English research articles through move a genre-approach move analysis can be beneficial for students and academicians in the field of nursing so that it helps increase the opportunity to be successful in their publications in scientific journals.

A comparative analysis of the rhetorical structure of abstracts between a reputable international journal and a national-accredited journal is the focus of this research. Despite being the shortest section, as compared to other sections in an academic paper, the abstract, in Hyland's (2000) lens, is the first and foremost element that the readers look at and serve as a gateway for international readers to judge whether they will continue to read the contents or not (see Lorés, 2004). An abstract is also an effective means of overviewing research findings and implications (Cleveland & Cleveland, 2013) and transferring them for easy retrieval in this digital era (Chan & Foo, 2004; Posteguillo, 1999). Thus, abstracts represent one of the key sections in scholarly research (van Bonn & Swales, 2007; Doró, 2013; Marefat & Muhammadzadeh, 2013; Saboori & Hashemi, 2013). Research article abstracts are well-known for their brevity, explicit purpose, and format requirements (Swales & Feak, 2009). Abstract quality also influences the possibility of a research article being accepted or rejected by the journal's editorial team (Kurniawan, et al., 2019a; Saeeaw & Tangkiengsirisin, 2014). Therefore, the organization of information conveyed in a journal article abstract should meet international writing standards. However, nursing discipline as a professional discipline has received scant attention in terms of genre-approach move analysis. Previous studies have extensively looked at a variety of research article sections of nursing journals from the standpoint of genre analysis. Buus (2005), for instance, used a genre-approach move analysis in scrutinizing the method section of scholarly nursing journal articles. Quite recently, Amirsheibani (2015) compared the introduction section of English language teaching and nursing papers. The results mainly revealed no significant differences between both fields in manifesting the CARS (Creating A Research Space) model – a model Swales (1990, 2004) proposed as a template for authors to write research article introductions. Using a similar discipline pairing, Ghazanfari et al. (2016), concentrated on the conclusion section. They also found no significant difference between both fields in manifesting the rhetorical moves. Meanwhile, Uzun (2016) analyzed the method section of nursing research articles and revealed the most frequent moves in the method. However, much remains less explored regarding the typical rhetorical moves manifested in nursing English research article abstracts.

Research Article Abstracts

Some scholars have proposed several definitions of research article (RA) abstracts. The RA abstract can be seen as a mini paper or summary of the paper to understand the research variables before reading the entire paper (Hartley & Benjamin, 1998). It becomes the readers' first exposure to comprehend the general points of the article (Huckin, 2001; Pratiwi & Kurniawan, 2021). In the world of international publication, the abstract remains the prime sub-genre to evaluate the content quality of the journal by the journal indexing agency staff such as Elsevier (*Scopus Content Coverage Guide,* 2020). It is no surprise then that academic investigations on the eligible rhetorical structure of RA abstracts for international publications ensue.

Rhetorical structure is associated with the way an author organizes the information to convey the message to the audience effectively. It contains a set of communicative (move) and sub-communicative (step) functions that tie together coherently (Swales, 1990). A 'move' is an element that has a specified target within the text, and it is divided into some types based on the function of the text. It may contain a combination of multiple smaller elements that will realize the move itself called steps (Connor, Upton, & Kanoksilapatham, 2007). Typically, the rhetorical structure of the RA abstracts consists of four moves, as in the concept of the IMRD model: Introduction, Method, Results, and Discussion (Martín-Martín, 2002). Hyland's (2000) five move configuration—INTRODUCTION, PURPOSE, METHOD, PRODUCT, CONCLUSION—has also been widely accepted and used among scholars, conducting a genre-approach move analysis on research article abstracts. He also delineated the possible steps that typify the moves. Hyland's (2000) move configuration was adopted as a guideline to analyze the data due to its more precise definition of Move 5, CONCLUSION, covering both the discussion and recommendation or implication compared to Santos' (1996) model which only emphasizes the discussion of the results and Swales' (1990) that collapsed the INTRODUCTION and PURPOSE moves.

To understand the boundary of each move, linguistic realizations also become the focus of the present study. They may include the way authors preferably use certain types of tenses and the choice of active/passive voice in manifesting the moves and steps. The present study only focuses on the use of verb tense and voice in relation to rhetorical moves and steps.

Previous Research on Genre-Approach Move Analysis of Research Article Abstracts

Several previous studies have conducted genre-approach move analyses of research article abstracts. Three essential aspects have been explored. Regarding the occurrences of rhetorical moves, previous findings indicated that PURPOSE, METHOD, and PRODUCT were the most frequently identified moves; hence conventional moves regardless of

the type of the journals: local and international reputable journals (e.g., Kurniawan, et al., 2019a; Kurniawan & Sabila, 2021; Amnuai, 2019; Behnam & Golpour, 2014; Can, Karabacak, & Qin, 2016; Saboori & Hashemi, 2013; Vathanalaoha & Tangkiengsirisin, 2018). Meanwhile, INTRODUCTION and CONCLUSION exhibited variations across different journals and scientific disciplines. Behnam and Golpour (2014), for instance, in their comparative study of Iranian and English abstracts, unveiled that CONCLUSION was relatively more frequent in the English abstracts. Meanwhile, Amnuai (2019) found that Thai authors differed from the international counterparts in manifesting INTRODUCTION and CONCLUSION in their abstracts. In a similar vein, Vathanalaoha and Tangkiengsirisin (2018) reported that Thai and international authors authors behaved differently in the manifestation of INTRODUCTION in their abstracts. In the Indonesian context, Kurniawan and Sabila (2021) and Kosasih (2018) revealed that CONCLUSION was the least incorporated move in the Indonesian abstracts. However, the general structure of the abstracts with four or five moves was more often manifested in reputable international journals (Kurniawan, et al., 2019a; Saeeaw & Tangkiengsirisin, 2014). The above studies appear to suggest that the rhetorical structure of the abstracts varies especially in INTRODUCTION and CONCLUSION depending on the status of the authors (local or international).

From an interdisciplinary perspective, research has shown that consensus has not yet been reached as to which moves in scientific article abstracts are considered the norms. Soft-science disciplines, for instance, such as linguistics (Can, Karabacak, & Qin, 2016), education (Kafes, 2012), and tourism (Kurniawan & Sabila, 2021) tended not to incorporate CONCLUSION in their abstracts. On the contrary, hard-science disciplines such as economics (Saboori & Hashemi, 2013), environmental science (Saeeaw & Tangkiengsirisin, 2014), and medicine (Vathanalaoha & Tangkiengsirisin, 2018) provided CONCLUSION after RESULT/PRODUCT. Research conducted by Çandarlı (2012) revealed that most Turkish writers did not frequently include CONCLUSION in their abstracts.) In their analysis of the abstracts of Biology studies, Xiao and Cao (2013) indicated that the background of the study, INTRODUCTION, was more dominantly manifested by native English authors. The variations in the rhetorical structure of abstracts from the previous studies are presented in Table 1.

Table 1

Several previous studies on moves and steps

Author(s)	Focus/Field	Findings
Amnuai (2019)	Thai vs international authors	INTRODUCTION was more dominant in Thai; CONCLUSION was more dominant in international abstracts
Kurniawan, Lubis, Suherdi, & Danuwijaya (2019)	Applied linguistics international journals	INTRODUCTION and CONCLUSION were conventional
Kurniawan & Sabila (2021)	Indonesian vs international journals on tourism	INTRODUCTION was more dominant in Indonesian; CONCLUSION was more dominant in international abstracts
Behnam & Golpour (2014)	Iranian vs English abstracts in applied linguistics and mathematics	Despite some variations in moves across the two disciplines, CONCLUSION was more frequent in English abstract
Can, Karabacak, & Qin (2016)	International abstracts in applied linguistics	INTRODUCTION was not as dominant as CONCLUSION
Çandarlı (2012)	Turkish vs international authors in education journals	CONCLUSION was used less by Turkish authors
Kosasih (2018)	Indonesian master students' theses in fisheries management, public administration, management, and mathematics education	CONCLUSION was the least manifested move
Saboori & Hashemi (2013)	Top tier international journals in applied linguistics, applied economics and applied engineering	INTRODUCTION was not as dominant as CONCLUSION
Saeeaw & Tangkiengsirisin (2014)	Top tier journals on environmental science	CONCLUSION was more frequent than INTRODUCTION
Vathanalaoha & Tangkiengsirisin (2018)	Thai vs international dental journals	INTRODUCTION was much more dominant in international abstracts
Xiao & Cao (2013)	Chinese vs English native authors in journals on biology	INTRODUCTION was employed more by native English authors

Table 2.
Linguistic realizations in the applied linguistics abstracts

	More prestigious journals	Less prestigious journals
Tenses	Simple present tense was used dominantly in INTRODUCTION & PURPOSE	Present perfect tense was used dominantly in INTRODUCTION & simple past in PURPOSE
Voices	Passive was used more in METHOD & RESULT in more prestigious journals	

Variations are also attested in the linguistic realizations of the abstracts depending on the characteristics of the journals, as can be seen in Table 2. Comparing the linguistic realizations of abstracts from Scopus-indexed journals across different quartiles in applied linguistics, Kurniawan et al. (2019a) disclosed that simple present tense time was more dominantly used to realize the INTRODUCTION and PURPOSE moves in the abstracts from more prestigious journals. Contrastingly, the abstracts from less prestigious journals tended to use present perfect tense for INTRODUCTION move and simple past tense for PURPOSE move. Passive forms were used more by the abstract writers from reputable journals to realize METHOD and CONCLUSION.

In the context of the nursing field, genre analysis of scientific articles, more specifically abstracts, remains scares. To mention a few, Ramos (2015) investigated undergraduate nursing students' case studies and thesis proposals in medical universities in Southeast Asia. Among numerous aspects of students' writing, Ramos examined the entire moves of students' writing and found that some necessary moves were absent. A research study that is closely relevant to the scope of our paper comes from Piqué-Noguera and Camaño-Puig (2015) that specifically examined abstracts from twelve nursing journals. The results revealed that although the move structure varied in the corpus data, the indicative abstract—a very general, brief type of abstract commonly found in review papers—occurred more frequently than the informative abstract—a more detailed type of abstract with specified information from the background to conclusions and typically found in research papers. However, the abstracts were retrieved from local journals only. A comparative analysis between journals with different types of journal indexation is worth doing as journal indexation represents certain demands and standards, which may vary across indexing agencies. An empirical void from the current genre analyses is an examination of nursing abstracts published in two distinct journal indexing agencies.

Of interest in this paper is this underpinning assumption that journal indexation can be a distinguishing factor in publication quality. Literature has demonstrated that the indexation of journals serves as a prototypical matrix that a journal meets the established standard (Nagoba et al., 2016) as well as a pathway to stellar research publication (Kurniawan et al., 2019b). In addition to that, indexation is often parallel to visibility, with internationally indexed journals reaching a much broader readership, which may allow for international collaboration among researchers, resulting in more contribution to the academic community (Holland, Duncombe, Dyas, & Meester, 2018). With such promising benefits, reputable journals impose strict requirements for manuscripts to be considered for publication to ascertain the highest quality. To meet that end, international databases, such as Scopus, professionally hire independent, international boards of editors, librarians, and bibliometricians (Rew, 2015). With such rigid requisites and professional board, mainstream international journals may be deemed more credible than locally-indexed counterparts; thus, perpetuating a presumption that the former is superior to the latter (Kurniawan, et al., 2019b).

Thus, this study seeks to fill the void by examining the manifestations of rhetorical moves in nursing research articles abstracts from selected nursing journals indexed in Scopus and Sinta – an Indonesian journal index. In particular, the present study attempts to address the following research questions: (1) What rhetorical moves are manifested in the nursing research article abstracts across two different indexing agencies? (2) To what extent is journal indexation associated with the manifestation of rhetorical structure of the abstracts?

METHODS

Data Set

This study was designed as a genre-approach move analysis (Baker, 2010; Hyland, 2009; Swales, 1990) to firstly explore the rhetorical moves of nursing abstracts and whether journal indexation results in different manifestations of rhetorical moves of nursing abstracts. The data were 100 research article abstracts about nursing studies taken from four journals. The criteria for selecting the abstracts were: accessible to download and written in English. International Journal of Nursing Studies (n=50 abstracts) is published in the United Kingdom and managed by Elsevier with Scopus-indexed Q1 (a quartile in Scopus is a category attached to the scientific journal based on its credibility where Q1 is the highest category and Q4 is the lowest one). The journal requires all submissions to include an abstract of 400 words or less. On

the other side, three nursing journals from Indonesia (n=50 abstracts from all journals) were Jurnal Keperawatan Indonesia (UI) (n=16 abstracts), Jurnal Pendidikan Keperawatan Indonesia (UPI) (n=18 abstracts), Jurnal Keperawatan Soedirman (UNSOED) (n=16 abstracts). They were nationally accredited, indexed by Sinta (the Indonesian science and technology index administered under the Minister of Education). The range of words for the abstract in the journals is 100-300 words. The criteria for selecting the abstracts were: accessible to download and written in English.

Data Collection Procedure

Initial analysis was done to recognize the rhetorical structure of the abstracts. Hyland's (2020) framework was adopted to analyze the moves because the framework closely conformed to the initial analysis results (see Table 3 as a sample of the initial analysis results). However, during the analysis, the researchers were taking notes of any existing moves or steps, not covered in Hyland's analysis. Table 1 depicts the coding scheme. Table 4 below exhibits the coding results of a sample text.

Some sentences in the abstracts of International Journal of Nursing Studies did not contain a verb because the abstracts used specific tags such as Aim, Method, and Results. That is why some authors directly start the sentences using to-infinitive form, particularly in the Aim part. Meanwhile, the abstracts from the Sinta-indexed journals did not use any special tags to indicate the content. However, the number of tags in the abstracts is not similar to each other, meaning that the manifestation of rhetorical moves in the abstracts also depends on the authors' preferences, particularly in the Introduction and Conclusion moves.

Data Analysis Procedure

This study employed Kurniawan et al.'s (2019a) and Lubis' (2020) analysis procedure. First, all titles and abstracts were read to understand the topic and general points of the paper. The texts were broken down into sentences. Then, the sentences as the units of analysis were coded manually by the researchers as exemplified in Table 2. The coding results were classified into moves. The classification results were used to count the occurrences of each move and step to determine its salience. Kanoksilapatham's (2005) benchmark was employed comprising three categories: obligatory (100% of occurrence), conventional (66% or higher, but below 100%), and optional (below 66%). The rhetorical structure of the abstracts of the journals was obtained by calculating the number of moves manifested. This benchmark was employed to help the readers get the general conclusion of the move-step occurrences so that other writers can prepare their manuscript abstracts more carefully, based on the results of previous studies.

The analysis of linguistic realizations focused on the use of tense and sentence voice (active and passive form) in each move. Indeed, during the initial analysis, we identified several abstracts which did not use any verbs. In the main analysis stage, we carefully selected other abstracts from the same journal, which used verbs in all moves; in other words, the moves were realized in a complete sentence form. We underlined the verb phrase (e.g., this study aimed to identify) used in each sentence, featuring a move. Then, the type of tense and sentence voice of each sentence was presented in a table along with the explanation of the move. Afterward, we reviewed the analysis results to ensure data reliability.

Table 3

Coding scheme in the present study

Move		Step
M1	INTRODUCTION	S1 Arguing for topic significance
		S2 Making topic generalization
		S3 Defining the key term(s)
		S4 Identifying gap
M2	PURPOSE	Stating the research purpose
M3	METHOD	S1 Describing participants/data sources
		S2 Describing instrument(s)
		S3 Describing procedure and context
M4	RESULT	Describing the main results
M5	CONCLUSION	S1 Deducing conclusion
		S2 Evaluating the significance of the research
		S3 Stating limitation
		S4 Presenting recommendation or implication

Table 4
The sample of the coding results

Abstract No. 45 (International Journal of Nursing Studies)	Label (Step-based)	Classification (Move-based)
Title: Work Environment Characteristics Associated with Quality of Care in Dutch Nursing Homes: A Cross-Sectional Study		
A lack of relationship between direct care staffing levels and quality of care, as found in prior studies, underscores the importance of considering the quality of the work environment instead of only considering staff ratios.	Significance of the topic	Move 1 (Step 1)
Only a few studies, however, have combined direct care staffing with work environment characteristics when assessing the relationship with quality of care in nursing homes.	Identifying gap	Move 1 (Step 4)
To examine the relationship between direct care staffing levels, work environment characteristics and perceived quality of care in Dutch nursing homes.	Stating the research purpose	Move 2
Cross-sectional, observational study in cooperation with the Dutch Prevalence Measurement of Care Problems.	Describing design	Move 3 (Step 1)
Twenty-four somatic and 31 psychogeriatric wards from 21 nursing homes in the Netherlands. Forty-one ward managers and 274 staff members (registered nurses or certified nurse assistants) from the 55 participating wards.	Describing participants	Move 3 (Step 2)
Ward rosters were discussed with managers to obtain an insight into direct care staffing levels (i.e., total direct care staff hours per resident per day).	Describing analysis procedure	Move 3 (Step 4)
Participating staff members completed a questionnaire on work environment characteristics (i.e., ward culture, team climate, communication and coordination, role model availability, and multidisciplinary collaboration) and they rated the quality of care in their ward.	Describing analysis procedure	Move 3 (Step 4)
Data were analyzed using multilevel linear regression analyses (random intercept).	Describing analysis procedure	Move 3 (Step 4)
Separate analyses were conducted for somatic and psychogeriatric wards.	Describing analysis procedure	Move 3 (Step 4)
In general, staff members were satisfied with the quality of care in their wards. Staff members from psychogeriatric wards scored higher on the statement 'In the event that a family member had to be admitted to a nursing home now, I would recommend this ward'.	Describing main results	Move 4
A better team climate was related to better perceived quality of care in both ward types ($p = 0.020$).	Describing main results	Move 4
In somatic wards, there was a positive association between multidisciplinary collaboration and agreement by staff of ward recommendation for a family member ($p = 0.028$).	Describing main results	Move 4
In psychogeriatric wards, a lower score on market culture ($p = 0.019$), better communication/coordination ($p = 0.018$) and a higher rating for multidisciplinary collaboration ($p = 0.003$) were significantly associated with a higher grade for overall quality of care.	Describing main results	Move 4
Total direct care staffing, adhocracy culture, hierarchy culture, as well as role model availability were not significantly related to quality of care.	Describing main results	Move 4
Our findings suggest that team climate may be an important factor to consider when trying to improve quality of care.	Stating conclusion	Move 5 (Step 1)
Generating more evidence on which work environment characteristics actually lead to better quality of care is needed.	Highlighting recommendation	Move 5 (Step 4)

RESULTS

Rhetorical Moves Manifested in the Nursing Research Article Abstracts

This sub-section explains the rhetorical moves manifested in the nursing abstracts from Scopus-indexed and Sinta-indexed journals. In total, there were 1259 sentences categorized as moves in the entire data set. Generally, the METHOD move obtained the highest number of occurrences with 427 sentences (34%), followed by RESULT move with 297 sentences (24%), INTRODUCTION move with 259 sentences (20%), CONCLUSION move with 176 sentences (14%), and PURPOSE move with 100 sentences (8%). This indicates that more sentences are spent to inform how the research was conducted and what results emerged from the research in the nursing abstracts. The number of occurrences of the moves did not necessarily reflect its salience in the data set. Table 5 displays the results. The findings showed that method and results moves were obligatory in all journals (100%). Introduction move was conventional in all journals. On the other side, purpose and conclusion moves were obligatory in International Journal of Nursing Studies, but conventional in the local journals (96% and 94%, respectively). The findings demonstrate that journal indexation can result in differing standards of manifesting the rhetorical moves in the abstracts.

Introduction

Table 5 displays the comparative results of rhetorical moves between Scopus-indexed and Sinta-indexed research article abstracts. The findings showed that in conveying the introduction move, both groups of abstracts were mostly concerned with highlighting the significance of the research topic and describing previous findings. They less focused on defining the key terms. However, a discrepancy emerged in the tendency of abstracts from the Scopus-indexed journal to identify the research gap as the motive of the research as compared to the Sinta-indexed journals (64% and 12%, respectively). Introduction move was typically realized by using simple present tense (1) and/or simple future tense in active forms (2).

1. *However,* **there is limited evidence** *informing flushing practice and* **little is known** *about the current flushing practices. [International Journal of Nursing Studies, Abstract No. 13]*
2. *The increase of the age* **will cause changes** *in the structure and physiological properties [...]. [Jurnal Pendidikan Keperawatan UPI, Abstract No. 1]*

Purpose

The journal indexation type did not result in a significant number of gaps regarding the manifestation of purpose move in both types of journals. This move was mostly real-

Table 5

The comparative results of the move-step salience

Moves	Featuring abstracts		Steps	Featuring abstracts	
	Scopus-indexed journal	Sinta-indexed journals		Scopus-indexed journal	Sinta-indexed journals
Introduction	48 (96%)	49 (98%)	Highlighting topic significance	30 (60%)	29 (58%)
			Describing previous findings	31 (62%)	36 (72%)
			Defining key terms	5 (10%)	12 (24%)
			Identifying gap	32 (64%)	6 (12%)
Purpose	50 (100%)	48 (96%)	N/A		
Method	50 (100%)	50 (100%)	Stating research design	41 (82%)	40 (80%)
			Describing participants	46 (92%)	34 (68%)
			Describing instruments	38 (76%)	21 (42%)
			Describing procedures	47 (94%)	27 (54%)
Result	50 (100%)	50 (100%)	N/A		
Conclusion	50 (100%)	47 (97%)	Interpreting results	42 (84%)	25 (50%)
			Highlighting significance of the study	15 (30%)	2 (4%)
			Stating limitations	1 (2%)	0 (0%)
			Highlighting recommendations	19 (38%)	28 (56%)

ized by using simple past tense in active forms. Excerpt (3-4) represent the linguistic realizations.

3. **This study aimed to evaluate** *the efficacy of a specialist training programme for acute hospital staff regarding improving attitudes, satisfaction and feelings of caring efficacy, in provision of care to people with dementia. [International Journal of Nursing Studies, Abstract No. 36]*
4. **The purpose of this research was to know** *the correlation between Body Mass Index with elderly blood pressure in puskesmas Melong Asih Cimahi. [Jurnal Pendidikan Keperawatan Indonesia, UPI, Abstract No. 1]*

Methods

This move was generally manifested by stating the research design, describing the participants, research instruments, and procedures. A discrepancy was identified in which the Sinta-indexed abstracts considerably did not incorporate the description of the instruments used and the research procedures. The findings imply that the local journals had a tendency not to require the author(s) to provide more information regarding both elements. This move was realized by simple past tense in active or passive forms. Excerpt (5-6) present some of the examples.

5. **Instruments used included** *Blau's Career Commitment Scale and Orlinsky and Rønnestad's Interpersonal Adjective Scale. [International Journal of Nursing Studies, Abstract No. 33]*
6. **This research used a quasi-experimental design***, pre-post with control group that involved 44 samples of female adult suffered from overweight and obesity. [Jurnal Keperawatan Indonesia, UI, Abstract No. 19]*

Results

Not surprisingly, the result move was manifested in all abstracts regardless of journal indexation. The nature of scientific or research-based writing fundamentally requires the authors to present the main results of the research so that the readers can understand the representative portrait of the whole content of the papers. Typically, the realization of the result move involved the use of simple past tense in active forms mostly as depicted in excerpt (7-8).

7. **Nursing students did not differ** *from students in teaching and social work programs in terms of the degree of affirming personality trait. [International Journal of Nursing Studies, Abstract No. 33]*
8. **The result showed that** *74 elderly who undertook physical exercise 65% did not experience depression, while 58,8% who did not perform exercise experienced mild depression. [Jurnal Keperawatan Indonesia, UI, Abstract No. 21]*

Conclusion

The salience of the conclusion move in both types of journals necessarily influences the manifestation of its constituent steps. More Sinta-indexed abstracts manifested recommendations step than Scopus-indexed abstracts (56% and 38%, respectively). On the other hand, interpretations of the results and significance of the study were more emphasized in the Scopus-indexed abstracts than in their counterparts (see Table 3). Apart from that, 2% (one abstract) from the Scopus-indexed journal preferred to state the limitations of the study, which was also found by Kurniawan et al. (2019a) in the field of applied linguistics. This move was realized mostly by simple present tense in active forms as exemplified in (9-10).

9. **Thus it can be concluded that** *there is significant influence steam bath therapy in increasing the physiological response to stress. [Jurnal Keperawatan Soedirman, UNSOED, Abstract No. 37]*
10. **These findings present a unique insight** *into the quality and quantity of staff-patient interactions in acute care. [International Journal of Nursing Studies, Abstract No. 22]*

Journal Indexation Influence on the Manifestation of Rhetorical Structure of the Abstracts

This sub-section unveils the role of journal indexation in manifesting the rhetorical structure of the nursing abstracts.

Table 7 showed that in terms of the moves, all authors manifested the same rhetorical structure, starting from the introduction, research objectives, research method, result, and conclusion. In other words, all journals have determined the shared move structure of the abstracts, which is eligible to be employed by the authors. Due to the highly rigid rhetorical structure, the opening and closing moves of the abstracts were also similar. The abstracts started with an introduction. Then, the abstracts were closed by the statement of conclusion. However, journal indexation is associated with the rhetorical structure of the steps. While the identification of gap in the previous studies typically occurred after describing previous findings in the Scopus-indexed abstracts, such step occurred otherwise in their counterparts. Another discrepancy, associated with the journal indexation was noticed in structuring the steps in conveying Move 5 Conclusion. The Scopus-indexed abstracts tended to highlight the significance of the study after interpreting the research results, which was not considerably evident in the Sinta-indexed abstracts. In Move 3 Method, both groups of abstracts did not exhibit a discrepancy regarding the position of the steps. This may be caused by the logic of the information where the description of the research procedure appears after the statement of research design and the description of the participants and instruments. The results indicate that while journal indexation is not associated with the move-level rhetorical structure, it does play a role in the manifestation of the step-level rhetorical structure.

Furthermore, the salience status of the moves and steps can influence its configuration. Table 6 exhibits the results. The indexation status of the journal may not influence the

Table 6

The comparative typical rhetorical structure of nursing abstracts across journals

Rhetorical structure of Scopus-indexed abstracts		Rhetorical structure of Sinta-indexed abstracts	
Move	**Step**	**Move**	**Step**
Introduction	Highlighting topic significance	Introduction	Highlighting topic significance
↓	Describing previous findings	↓	
	Identifying gap		Describing previous findings
Purpose	No constituting steps	Purpose	No constituting steps
↓		↓	
Method	Stating research design	Method	Stating research design
↓	Describing participants	↓	Describing participants
	Describing instruments		Describing instruments
	Describing procedures		Describing procedures
Result	No constituting steps	Result	No constituting steps
↓		↓	
Conclusion	Interpreting results	Conclusion	Interpreting results
	Highlighting significance of the study		Highlighting recommendations
	Highlighting recommendations		

move-step configuration. The two-step configuration of the Introduction move was more preferred by almost half of the abstracts in both groups. However, no abstract manifested all steps in Introduction and Conclusion moves. This may be due to the need for much space if the authors want to manifest all steps in each move. The indexation status of the journal can influence the move-step configuration. While one-step configuration in the Introduction move occurred more in the abstracts from Sinta-indexed journals, three-step configuration appeared slightly more in the Scopus-indexed counterparts. Additionally, four-step configuration in the Method move and two-step configuration in the Conclusion move were considerably more evident in the Scopus-indexed journal than in its counterparts. Even, three abstracts from the latter group did not offer any conclusions. This indicates that the indexation status of the journal may reflect its expectations on the authors to convey the information regarding the research method and conclusion drawn from the main results.

DISCUSSION

This study has delineated the manifestation of the rhetorical moves of nursing research article abstracts from Scopus-indexed and Sinta-indexed journals. The findings demonstrate that commonalities and discrepancies are evident across the two types of journal indexation. Regarding the commonalities, noteworthy is the fact that all authors in the nursing journals under examination manifested the same rhetorical structure, starting from the introduction, research objectives, research method, results, and conclusion. This concurs with Khansari, Heng, Yuit, and Tan's (2016) finding that the majority of RA abstracts follow the underlying rhetorical structure of RAs, which further underscores Swales' (1990) premise that abstracts serve as a mirror of RAs. Another key finding that both journal groups have in common is that all abstracts from both groups of journals manifest the method and result moves. This finding corroborates the same pattern exemplified in the abstracts of applied linguistics and educational technology (Pho, 2008), linguistics (El-Dakhs, 2018), tourism (Ahmed, 2015), biology, engineering, linguistics, medicine, and physics (Hardjanto, 2017). This appears to suggest that in terms of the rhetorical structure of RA abstracts, nursing authors fall into the same category as authors of other disciplines in obligatorily showcasing methods and results. This also indicates that the nursing scholars in both journal groups employed the informative style of an abstract since the authors do not only inform the main findings but also describe the research procedures. Meanwhile, discrepancies are identified. Involving Dentistry research article abstracts, Vathanalaoha and Tangkiengsirisin (2018) demonstrated that the salience of the results move in the abstracts from the reputable journals was lower than that in the abstracts from the local journals (97.5% and 100%, respectively). Similarly, Amnuai (2019) found that while 90% of the Accounting abstracts from the international journals manifested the results move, 100% of the abstracts from the local journals did so. The differing nature of the disciplines, albeit in the same category of science, might be the possible cause of such discrepancy. Hence, journal index-

Table 7

The configurations of the rhetorical structure of the moves in the abstracts

Move	Configuration	Number of featuring abstracts	
		Scopus-indexed journal	**Sinta-indexed journals**
Introduction	One-step	**8**	**21**
	Two-step	23	22
	Three-step	**14**	**6**
	Four-step	-	-
Method	One-step	1	6
	Two-step	**6**	**22**
	Three-step	13	16
	Four-step	**30**	**6**
Conclusion	One-step	24	39
	Two-step	**25**	**8**
	Three-step	1	-
	Four-step	-	-

ation might not necessarily influence the manifestation of the method and result moves in this study. The awareness of the importance of both moves among the local authors might also be another contributing factor. Moreover, the journal indexation type does not influence the manifestation of the introduction and conclusion moves in which both moves are regarded as conventional. The findings of the present study corroborate Vathanalaoha and Tangkiengsirisin (2018) and Amnuai (2019), particularly on the conclusion move. Although it was shown that there was a gap in the relative occurrence of purpose and conclusion moves where the two moves were obligatory in the international journals, but conventional in the local journals, the margin appears margina–a 2 % difference. Clearly, this still indicates that the two moves are pertinent in RA abstracts irrespective of indexing categories. Again, this finding fortifies the argument that journal indexation plays little role, if any, in the realization of the rhetorical moves of RA abstracts.

Furthermore, the linguistic realizations seem not considerably different. Regarding the tense, the authors employ present simple tense to convey the introduction and conclusion moves. The purpose move can be realized by using present simple or past simple tense. The past simple tense is conventional to convey the method and findings moves. Regarding the voice and subject-verb agreement, the findings imply that if the authors employ active voice, the subjects are move-dependent and usually related to the macro elements of the study (e.g., this paper, this study, the findings) or self-reference (e.g., the researchers) with the verb + that-clause combination for explaining the findings or concluding the research (e.g., reported that, conclude that) or to-infinitives to tell the research purpose (e.g., aim to investigate). Meanwhile, if the authors employ passive voice, the subjects may vary, but still be move-specific (e.g., ***the research topic*** *has been investigated* for the introduction move or ***a questionnaire*** *was administered* for the method move).

On the other hand, several non-typical linguistic realizations are identified in the data set of the present study. Some abstracts from the local journals use future simple tense to convey the significance of the topic in question as well as the findings of the previous research. Moreover, an abstract from the top-tier nursing journal employs present continuous tense to convey the significance of the topic. This indicates that the use of the non-typical linguistic features depends on the contextual functions of the sentences, not the types of the journal indexation.

Last but not least, the rhetorical structure of the abstracts from the international and local journals has been examined. The findings reveal that the discrepancies in organizing the information conveyed in the introduction, method, and conclusion moves between the two groups of abstracts are evident. First, the gap identification is significantly not featured in the local journals (64%:12%). Second, the detailed description of the instruments and research procedures received more focus in the abstracts of the top-tier journals. Third, although the percentage of occurrence of the recommendations in the conclusion move of the local abstracts is higher than that of the international abstracts (56%:38%, respectively), the statement of the significance

of the study as a way of expressing the research novelty is more obvious in the international abstracts than in the local ones (30%:4%, respectively). The discrepancies show that there is a role in the type of the journal indexation. The top-tier journal demands a higher standard of the abstract writing in which the availability of the research novelty, gap identification, and detailed description of the research method in the abstracts are the requisites to be able to cope with the journal's standards. The findings justify the previous research that the journal indexation type results in the differing demands of some elements in the abstracts (Kurniawan, et al., 2019a).

CONCLUSION

This study has investigated the rhetorical moves manifested in the nursing research article abstracts across two different indexing agencies and the extent to which journal indexation is associated with the manifestation of the rhetorical structure of the abstracts. The findings revealed the role of genre-approach move analysis in examining the role of journal indexation in the rhetorical structure of the nursing research article abstracts. As far as moves are concerned, indexation does not play an important part in the configuration of moves in the nursing abstracts; all the moves were identifiable in the abstracts, mirroring the RA structures. However, journal indexation matters in the step level. While the recommendation for future research is more apparent in the abstracts of the local journals, the manifestations of the research novelty through gap identification and statement of topic significance and the description of the research procedure are more evident in the abstracts from the international top-tier journals. This reinforces the differing standards of abstract genre conventions in the step level, which might be influenced by the orientation of the top-tier journal to maintain the abstract's quality as a contributing factor to increasing its impact factor internationally. Apart from that, a fairly solid trend is evident regarding the linguistic realizations of the verb tense and sentence voice of each move. This study, therefore, suggests more explorations on the complexity of nursing abstract writing from a contrastive approach. The results of the research can be employed as a reference for teaching English for research publication purposes. As implied from the previous literature, a genre-based pedagogy can arm nursing students with a paramount skill to express themselves in ways widely acceptable in their discourse community. Acceptable rhetorical patterns of quality, internationally published research articles, in this respect those of abstract, should be taught/trained explicitly and ample amount of relevant exercises on such patterns should be facilitated to heighten the students' awareness of the genre conventions. The establishment of a support group comprising English teachers, clinical instructors, and curriculum developers that comprehensively assesses students' needs throughout the academic writing class is another point of worthy consideration.

DECLARATION OF COMPETING INTEREST

None declared ■.

AUTHOR CONTRIBUTIONS

Arif Husein Lubis: conceived and designed the analysis, collected the data, performed the analysis , wrote the paper.

Eri Kurniawan: conceived and designed the analysis, developed the paper, cross-checked the analysis results.

Wawan Gunawan: cross-checked the design, cross-checked the analysis results, edited the paper.

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https://doi.org/10.17323/jle.2022.10826

The Use and Development of Lexical Bundles in Arab EFL Writing: A Corpus-Driven Study

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ABSTRACT

Background. Lexical Bundles (LBs) have become the focus of many recent corpus linguistics studies. Research has found variable use of LBs in terms of quality and quantity pertaining to different linguistic groups or registers. Still, there is a paucity of research investigating Arab EFL writers' use and development of such a feature.

Purpose. This study investigates the 4-word LBs use and development by Arab EFL learners and expert writers in a corpus of 250000 words regarding their frequency, functions, and structure.

Methods. Two corpora were compiled for Arab learners and scholars. The LB use of both groups was compared to investigate the development of LB use. Further, the Arab corpus was analysed against a native reference corpus extracted from the British Academic Written English (BAWE) corpus to compare LB use across the two corpora.

Results and Implications. The results imply that there is no noticeable effect of postgraduate education or professional practice on using LBs. The other results, however, are in-line with the previous literature in that native speakers' use of LBs varies in quantity and quality from non-natives'. The findings reveal that stance LBs are more frequent in the native corpus and that they tend to use more VP-based clausal LBs than their non-native counterparts. These findings offer empirical evidence that EFL writing quality is lower despite the current academic writing instruction they receive. They, therefore, indicate the need to foster academic writing instruction programs to include training on using LBs in learners' writing at both Bachelor and postgraduate levels. Also, the results are expected to raise teachers' awareness of how EFL learners use LBs to develop their writing quality and thus to adapt their teaching strategies accordingly. Moreover, Arab scholars are called to reconsider their use of effective writing techniques including LBs for more effective writing.

KEYWORDS:

lexical bundles, academic writing, corpus linguistics, Arab EFL, expert writers

Citation: Sanosi, A. B. (2022). The use and development of lexical bundles in Arab EFL writing: A corpus-driven study. *Journal of Language and Education, 8*(2), 106-121. https://doi.org/10.17323/jle.2022.10826

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Received: May 14, 2020
Accepted: March 31, 2022
Published: June 30, 2022

INTRODUCTION

One of the core elements of higher education is the writing skill, since students aspire to be identified as proficient writers in their different fields (Kazemi et al., 2014). Scholars who intend to publish in English also aim to produce high-level academic writing which qualifies their research articles for acceptance and publication. Achieving these goals, however, calls for learners and scholars to follow specific patterns and techniques which are believed to produce a solid, comprehensible and cohesive piece of writing. Among these techniques is the use of Lexical Bundles (LBs) which are considered "an important component of fluent linguistic production and a key distinguishing feature of particular modes, registers and genres" (Hyland & Jiang, 2018, p. 383). Moreover, LBs are believed to facilitate both the production and comprehension of discourse (Gil & Caro, 2019). Writers "do not select single words at a time but choose pre-constructed phrases to express a particular meaning" (Rezoug & Vincent, 2018, p. 48). Following this, "many of the items that have been identified as serving a signalling function in discourse are multi-word units rather than single words" (Nesi & Basturkmen, 2009, p. 24).

Due to the importance of LBs in academic writing, they have recently been studied

from many perspectives. Certain studies have explored their use in different genres and registers e.g. (Biber et al., 2004), other studies have compared the use of LBs by native speakers to non-native use e.g. (Ädel & Erman, 2012), while other studies have explored factors which might affect the use of LBs such as L1 transfer e.g. (Dontcheva-Navratilova, 2012). The findings of most previous studies can be generalised in that the use of LBs differs according to the register e.g. (academic writing vs. spoken register) and the the linguistic background of the writer (native or non-native). It is not clear, however, whether scholars and expert writers use LBs better than learners or in a similar way to native speakers. In other words, no sufficient clues are available that further studies and professional practice can develop the use of LBs. Thus more research is needed first to investigate EFL writers' use of LBs and to check if this use is developed overtime; and secondly to compare it to native speakers' use of such a feature. This study investigates the use and development of LBs by Arab EFL learners from these perpectives.

Multi-Word Units

The term *Multi-word Units* (MWUs) (Biber et al., 2004; Granger, 2018; Moon, 1998) is an umbrella term encompassing a range of sequences of lexical structures, the meaning of which can be comprehended not only by applying syntactic or semantic conventions, but also by other measures such as their frequency of use, idiomaticity, or pragmatic functions. This general term includes other terms which pertain to different types of MWUs and denote more restricted descriptions. Examples of these terms are *collocations* (Nattinger & DeCarrico, 1992; Salazar, 2014). They are referred to as vocabulary items which tend to co-occur with other specific items, sharing syntactic relations and some degree of semantic opacity (Granger, 2018) such as in *take a break* or *break a record*. These items, as Nattinger and DeCarrico (1992) noted, "should occur at a frequency greater than the chance would predict" (p. 20). Multi-word units can also be represented by *idioms* which refer to invariable expressions which can subsume a large number of multi-word items whether semantically opaque or not (Moon, 1998). Examples of idioms can range from two-words sequences such as *hot potatoes* to a complete sentence such as *Don't put all your eggs in one baske*t.

A third example of MWUs, investigated by the current study, is *Lexical Bundles (LBs).* LBs are defined by Biber et al. (1999) as "sequences of word forms that commonly go together in natural discourse" (p. 990). In this respect, LBs are "extended collocations" (Bychkovska & Lee, 2017, p. 39) since they share the feature of co-occurrence of different words. Moreover, while some LBs can represent complete grammatical structures such as *on the other hand,* and *at the same time,* most of them are incomplete grammatical units such as *in the form of* and *as can be seen.* Since LBs are identified "solely on frequency of occurrence and breadth of use" (Hyland & Jiang, 2018, p. 386), corpus linguistics is used to extract LBs based on specific frequency and dispersion criteria. The analysis of lexical bundles has only been made possible by advances in corpus analysis tools. To this end, a considerable body of research has been conducted recently investigating LBs (Allen, 2010)

Researchers tend to investigate the occurrence of three to four-word LBs (Biber et al., 1999; Güngör & Uysal, 2016, and Rezoug & Vincent, 2018). Two-word bundles are not usually investigated, since there are too many of them. On the other hand, five-word or six-word bundles are far less common in different registers. Biber and Barbieri, (2007) stated that the frequency cut-off is normally around 40 times in one-million words, while Hyland and Jiang (2018) specified a lower threshold of 20 times per one-million words. In general, it should be recognised that "the higher the frequency cut-off is, the more representative the lexical bundles are and thus have greater significance for investigation" (Yang, 2017, pp. 58-59). Moreover, recurrent LBs are generally distributed among different texts within a corpus, helping to avoid idiosyncrasies from individual writers/speakers (Chen, 2009). The dispersion criteria of LBs are specified by researchers according to the total number of texts in their corpus (Hyland & Jiang, 2018). However, a common threshold is at least five different texts, as set by Biber et al. (1999).

Functions of Lexical Bundles

Lexical bundles serve important discourse functions in both spoken and written texts (Biber & Barbieri, 2007). Biber (2006) identified three major types of LBs according to the functions they accomplish: (1) stance bundles, (2) discourse organisers, and (3) referential expressions. Stance bundles are used to express attitudes or assessment whether personal or impersonal. The second type of LBs, i.e. discourse organisers, are used to indicate the relationship between different segments of a discourse. They can introduce a new topic or elaborate on a previous one. Referential bundles make direct reference to physical or abstract entities or to the context itself. They may identify or focus on something, specify attributes or express time, place or text reference.

Biber et al. (2004) provided a comprehensive classification of the functional types of LBs in academic prose, as shown in Table 1.

There is a general similarity between discourse organisers and referential bundles. For example, the two LBs are syntactically identical, but serve two different functions according to the above taxonomy. Furthermore, potential confusion between subtypes of bundles could arise even within the same category. For instance, *one of the most* which is used above as an example of identification/focus referential bundle can also serve as a quantity specification referential bundle. Another example is *to look at the* albeit a clear discourse organiser, for a not completely explicit reason is considered a topic introduction bundle rather than a topic elaboration one. These concerns are addressed by the authors who acknowledge that "a single bundle serves differ-

Table1

Functional Classification of Lexical Bundles in Academic Prose

Type / Subtype of Bundle	Example
Stance Bundle	
Epistemic Stance	*the fact that the*
Attitudinal/Modality	*it is important to*
Ability	*it is possible to*
Discourse Organisers	
Topic Introduction	*to look at the*
Topic Elaboration	*on the other hand,*
Referential Bundles	
Identification/Focus	*one of the most*
Specification of Attribute	
Quantity Specification	*the rest of the*
Tangible Framing Attribute	*as a result of*
Intangible Framing Attribute	*in the form of*
Time/place/text reference	
Place Reference	*in the united states*
Time Reference	*at the same time*
Text Dixies	*as shown in figure/table*
Multifunctional Reference	*at the end of*

Note. Adapted from "If you look at…: Lexical bundles in university teaching and textbooks" by D. Biber, S. Conrad, & V. Cortes, 2004, *Applied Linguistics, 25*(3), 371-405. https://doi.org/10.1093/applin/25.3.371

ent functions depending on the context" (Biber et al., 2004, p. 384). They state that they classify the bundles according to their typical meaning and use of each one of them. For the present study, this is a potential limitation, since the researcher did not manually examine each LB to ascertain what its function was according to the surrounding context, since the context of all the texts are the same and this leads to limited functions across the corpora.

Structure of Lexical Bundles

Lexical bundles do not always represent complete structural units, and they are normally used to bridge phrases or clauses (Gil & Caro, 2019). However, previous studies attempted to categorise them according to their basic grammatical constituents. In a detailed classification, Biber, et al. (1999) grouped LBs in academic prose into 12 major categories which are outlined in Table 2:

In a revised classification, Biber (2006) identified three groups of LBs which are: Np/PP-based bundles; VP-based bundles; and Dependant clause bundles. The former classification is adopted by many recent studies e.g. Yang (2017) and Gil and Caro (2019). However, for the current study, a combined structural scheme is adopted, in which the located LBs are firstly classified in the light of Biber's 2006 taxonomy and then for the sake of a finer analysis, their structural category according to Biber et al. (1999) will be reported. For example, the LB *at the end of the* is classified generally as an NP-based bundle and described in detail as NP + *of* phrase fragment**.**

Previous Studies on Lexical Bundles

Many studies have investigated the use of specific lexical aspects in academic written and, to a lesser extent, spoken discourse. Biber et al. (2004) investigated multi-word sequences in two different university registers: textbooks and university teaching. Comparing the LB used in the two registers, they found that classroom teaching uses more stance and discourse organising bundles than conversation and that more referential bundles are used in academic prose. This point entails a further argument about the quantity of the LBs used in a specific register as this may mean either LB tokens (the number of LBs used in a text or a corpus) or LB type (the number of unique instances of LBs used in a text or a corpus). This distinction is also referred to as bundle density versus bundle diversity (Granger, 2018; Lehmann, 2013). The LB literature suggests that while more LB tokens are used in speech, more LB types are used in writing.

Other studies have compared the use of LBs by non-native writers to their use by native counterparts. Ädel and Erman (2012) investigated the use of 4-word bundles by Swedish university students writing in English in comparison to their native peers. Their results showed that native speakers' use of LBs was more varied and frequent than non-native use. Analogous findings were also reported in many other stud-

Table 2
Structural Categories of LBs in Academic Prose

	Example
noun phrase with *an of*-phrase fragment	*the end of the*
noun phrase with other post-modifier fragments	*the extent to which*
PP with an embedded of-phrase fragment	*as a result of*
other PP (fragments)	*at the same time*
anticipatory *it* + VP/adjective phrase	*it was found that /it is important to*
passive verb + prepositional phrase fragment	*can be found in*
copula *be* + noun phrase/adjective phrase	*is one of the – is similar to that*
(verb phrase +) *that-clause* fragment	*should be noted that*
(verb/adjective +) to-clause fragment	*can be used to / May be able to*
adverbial clause fragment	*as shown in figure*
pronoun/noun phrase + *be* (+ . . .)	*This is not to – there are a number*
other expressions	*as well as the*

Note. Adapted from "Longman grammar of spoken and written English", by D. Biber, S. Johansson, G. Leech, S. Conrad, and E. Finegan, (1999), pp. 1014-1024. Copyright 1999 by Pearson Education Limited.)

ies e.g. (Chen, 2009; Amirian et al., 2013; Bychkovska & Lee, 2017; Shin, 2019). Research on native vs. non-native use of LBs was not limited to learners' writing. Other studies (e.g. Salazar, 2014; Güngör & Uysal, 2016; Ucar, 2017) investigated advanced non-native writers' use of LBs and compared it to native scholars. The results, as might be expected, showed different patterns of LBs by non-native writers.

Dontcheva-Navratilova (2012) suggested an effect of language transfer on the use and structure of LBs by non-native speakers of English. These results are supported by Paquot (2013) who investigated French EFL use of LBs. She found a significant L1 effect on their LB use that she traced back to "various properties of French words, including their collocational use, lexico-grammatical patterns, function, discourse conventions, and frequency of use" (p. 391).

Despite this variety of perspectives in addressing LBs, there are still few studies regarding EFL learners' use and development of LBs. For example, few studies have investigated the use of LB by different groups of EFL learners or users who share the same L1 background. An example of these studies is (Johnston, 2017) who compares the LB use by Chinese intermediate learners and professional writers, determining that professionals use LBs differently in terms of form, function, and frequency. Another study was conducted by Zhang et al. (2021), who also found considerable structural and functional differences between Chinese students and expert writers. These studies, however, focused on differences in terms of discipline variation (Johnston, 2017) and analysed the structural and functional differences of the LBs used (Zhang et al., 2021). Investigating the overall LB use in one discipline and by two groups of writers of the same linguistic background and two different proficiency levels is still a research gap. Moreover, research on the use of LBs by the Arab EFL learners is limited and has been directed to analysing the use of LBs by EFL learners in different registers e.g. (Alhusban and Vijayakumar, 2021). Other studies analysed the use of LB in specific areas. For example, Alamri (2021) conducted a genre analysis of the research articles written by Saudi writers to identify LBs associated with patterns of moves in research articles. Conversely, as far as the author is aware, there is no research that has investigated the use and development of Arab EFL writers of LBs. The research gap discussed above motivated the production of the current study which investigates LB use by Arab learners and experts through a two-phase analysis. In the first phase, LB use by non-native speakers was investigated to explore the effect of professional experience and postgraduate studies. The use of both non-native groups was then compared to the use of native writers to investigate any variation in frequency, functions or structure of LBs.

To explore the use of Arab EFL learners and scholars of LBs and the effect of professional practice and post graduate studies on such use. Thus, the current research attempts to answer the following questions: (1) What is the difference between the use of lexical bundles by Arab EFL learners and scholars? (2) What is the difference between the use of lexical bundles by Arab EFL writers and native speakers?

METHODS

The current study used the corpus linguistics method, aiming to describe language use through analysing samples of texts written by Arab EFL writers. This aim could be achieved by investigating the frequency distribution of the specific

linguistic structure under study i.e. lexical bundles. Studies of such a type normally adopt the corpus method, since this method "aims to derive linguistic categories systematically from the recurrent patterns and the frequency distributions that emerge from language in context." (Tognini-Bonelli, 2001, p. 87). Since the present study did not adopt pre-hypothesised LBs as used by the participants but depended on the corpora to inform such findings, it is a corpus-driven study.

The Corpora

This study used two corpora: a non-native writing corpus and a reference one. The non-native corpus is entitled the *Arab EFL Writing Corpus* (AEWC). It incorporates over 250.000 tokens and it is composed of two sub-corpora. The first sub-corpus, *Arab Learner English Corpus* (ALEC), was manually compiled from research articles and reports written by senior EFL students at Prince Sattam ibn Abdulaziz University, Saudi Arabia. Some of these articles were graduation projects, while others were regular writing assignments. The other subcorpus of AEWC, however, was compiled from research articles written by Saudi Arabian scholars who have published research in international journals in the field of EFL and Applied linguistics. Thus, it was labelled *Arab Scholar English Corpus* (ASEC). The texts were extracted from the Saudi Digital Library, the national online library which incorporates much research in different scientific specialisations. The scholars are PhD holders in the fields of Applied Linguistics and TESOL. While they are believed to possess a high level of fluency in English language, they are non-native speakers. As such it cannot be postulated that they have a native-level competence of the English language. All the topics of the papers were related to Applied Linguistics and TESOL. The reference corpus, on the other hand, consisted of texts taken from the British Academic Written English (BAWE)[1] corpus, selected to match the learner corpus in quantity and quality. Detailed information about the two corpora is displayed in Table3.

As reported in Table 3, the average text-length of ASEC is higher than its counterparts in ALEC and BAWE. This variance influenced the total number of texts in ASEC to become less than those in ALEC and BAWE, and attempts were made to balance the total word-count of the two sub-corpora. No significance variation occurs between other statistics of the corpus**.**

Procedure

All the texts were converted into *txt* format using Anthony[2] AntFileConverter software. Further, the texts were processed using EmEditor Professional[3] software. Using the Regex feature, all the noise including numbers, mathematical symbols, university and authors' names were deleted. Moreover, extra spaces, line breaks and other formatting characters resulting from the converting process were removed.

Regarding the BAWE sub-corpus, the researcher firstly informed the project owner of his intent to use parts of the corpus and confirming his consent to the conditions[4], then he selected 113 texts according to these criteria: (1) L1: English. (2) Discipline: Arts and Humanities (AH) including English and Linguistics. (3) Genre family: essay; Macro type: simple assignment (4) Courses: BA English and Linguistics and MA TESOL.

Table 3

The Corpora Statistics

Corpus	Non-native Corpus (AEWC)			Reference Corpus (BAWE)	TOTAL
Sub-corpus	ALEC	ASEC	Sum		
Token	125040	125608	250648	250278	500926
Type	7576	8258	11919*	19735	35569
Texts	57	33	90	113	203
Average text-length	2193	3806	2785	2166	3104

**Note.* This is the actual number of types in the whole corpus AEWC. It does not represent the sum of types in ALEC and ASEC as many types are shared by the two corpora.

[1] BAWE was developed at the Universities of Warwick, Reading and Oxford Brookes, under the directorship of Hilary Nesi and Sheena Gardner (formerly of the Centre for Applied Linguistics [previously called CELTE], Warwick), Paul Thompson (Department of Applied Linguistics, Reading) and Paul Wickens (Westminster Institute of Education, Oxford Brookes), with funding from the ESRC (RES-000-23-0800). *Source: The University of Warwick*. https://warwick.ac.uk/fac/soc/al/research/collections/bawe/how_to_cite_bawe/. 21st April. 2020

[2] Anthony, L. (2017). AntFileConverter (version 1.2.1) [Computer Software]. Waseda University. http://www.antlab.sci.waseda.ac.jp/

[3] Emurasoft, Inc. (2019). *EmEditor Professional* (Version 19.3.2) [Computer Software]. Filepuma. https://www.filepuma.com/download/emeditor_professional_64bit_19.3.2-23779/

[4] BAWE corpus is available free of charge for research purpose at: https://ota.bodleian.ox.ac.uk/repository/xmlui/handle/20.500.12024/2539. Certain conditions need to be met before using it.

After building the corpora, the major step of the analysis was to extract the LBs. Using the *Ngram* feature, the researcher utilised *LancsBox* Software[5] to extract all the LBs in the corpora. Then the frequency and dispersion criteria mentioned above were applied, i.e. only 4-word bundles were considered for analysis, since the 4-word bundles represent the optimal structure of LBs (Biber et al., 1999). Moreover, LBs that occurred at least 40 times per million words in at least four texts were elected as data for the study. Since each corpus word count is around 250.000 words, the formula (40 ÷ 1.000.000 × 250.000) was applied and LBs occurring 10 times, or more were investigated. Topic and context-related bundles were excluded. LBs such as *English as a foreign language, Kingdom of Saudi Arabia* were manually excluded, since they might distort the data. Further, overlapping LBs were merged for the same reason, e.g. the two LBs *there are many ways* occurred (18) times and *are many ways to* recurred (14) times. Therefore, the two LBS were merged into one: *[there] are many ways (to)* and the higher frequency (18) was assigned to it. A manual check using the concordance feature of *LancsBox* was conducted, in order to confirm that there are no LBs with *are many ways* followed by a different preposition.

The resultant data was labelled according to the combined structural scheme. First, a general description of the LB was made according to Biber (2006) classification. In this stage each LB was marked as NP-based, VP-based, or PP-based. Further, each LB was marked with a detailed label following Biber et al. (1999) classification. The researchers asked three referees specialised in English language and linguistics to revise the labelling according to the scheme and made a few changes. The labelled LBs according to the above conditions represent the findings of the study and they are presented and discussed below.

RESULTS

In order to respond to the first research question which is: *What is the difference between lexical bundle use by Arab EFL learners and scholars?* the lexical bundles used by each group were compared. The analysis of the AEWC revealed that Arab learners and scholars used LBs in similar ways in terms of the number of LBs used across the two subcorpora. In ALEC, 21 four-word bundles were identified, whereas in ASEC 28 LBs were identified. Table 4 summarises the findings.

Table 4 shows that the amount of use of LBs by learners and scholars is almost identical. Although the 4-word LBs in ASEC outnumber those in ALEC. The overall LB tokens are approximately the same: 376 versus 389 tokens. Moreover, the variation of the LBs used across the two sub-corpora is also approximately the same. This result is inferred from the convergent type/token ratios of the two sub-corpora i.e. 0.06 versus 0.07.

Table 4

Summary of LBs in AEWC

	ALEC	ASEC
Total Corpus Tokens	125040	125608
4-word LBs (Type)	21	28
LB Tokens	376	389
Type/Token ratio	0.06	0.07

Table 5

Shared Four-word bundles in ALEC and ASEC

Bundle	ALEC		ASEC	
	Rank	Freq*	Rank	Freq.*
one of the most	1	49	15	13
is one of the	2	37	21	11
on the other hand	4	27	6	16
the results of the	16	12	8	15
as well as the	20	10	24	10

**Note. Freq. = Raw frequency.*

[5] Brezina, V., Timperley, M., & McEnery, T. (2018). #LancsBox (Version 4.5) [Computer Software]. Lancaster Univeristy. http://corpora.lancs.ac.uk/lancsbox

When computing the percentage of LB tokens from the overall token count of the two sub-corpora, the analysis revealed 49 unique LB types in the corpus (21 in the ALEC and 28 in the ASEC), with five LB types are shared by the two sub-corpora. Table 5 displays the shared LBs. All the LBs in the two sub-corpora will be presented in Appendix A.

The 44 types distinct to ALEC or ASEC were compared with those in the reference corpus. With regard to the functional distribution of the LBs in both sub-corpora, it was found that referential bundles were used more than other types in both sub-corpora when compared to the other types. Table 6 summarises the functional distribution of LB types across AEWC.

A final point of the first phase of the analysis was to investigate the structural types of the LBs used across the AEWC. Following Biber, et al. (1999), Table 7 provides a detailed overview of the structural categories of LB types in the two sub-corpora according to the frequency of occurrence.

Table 6

Functional Distribution of LBs in ALEC and ASEC

Type	ALEC		ASEC	
	Number	**Percentage**	**Number**	**Percentage**
Referential	15	71.4 %	24	85.7 %
Discourse Organizer	3	14.3 %	3	10.7 %
Stance	3	14.3 %	1	3.6%

Table7

Structural Types of LBs in ALEC and ASEC

LB structure	ALEC			ASEC		
	Freq.	**example**	**percent**	**Freq.**	**example**	**percent**
NP-Based	8	-	38 %	11	-	39 %
Np + *of* phrase fragment	6	*one of the most*		9	*the finding of the*	
Np + other post modifier fragment	2	an important role in		2	the participants in the	
PP-based	6	-	29 %	9	-	32 %
PP with an embedded *of*-phrase fragment	3	*at the end of*		5	*in the field of*	
Other PP (fragments)	3	*of the most important*		4	with regard to the	
VP-based	5	-	24 %	7	-	25 %
Anticipatory *it* + VP/adjective phrase	1	*it is important to*		1	*it was found that*	
Copula *be* + NP	2	*is one of the*		1	*is one of the*	
That-clause fragment	-	-		3	*that there is a*	
Adverbial clause fragment	-	-		1	*as shown in table*	
To-clause	1	*to deal with the*		1	*to be the most*	
Pronoun + be + NP	1	*[there] are many ways to*		-	-	
Other Expressions	2	*when it comes to*	9 %	1	*as well as the*	4 %
Total	**21**			**28**		

Figure 1

LBs functional type percentage across the two corpora

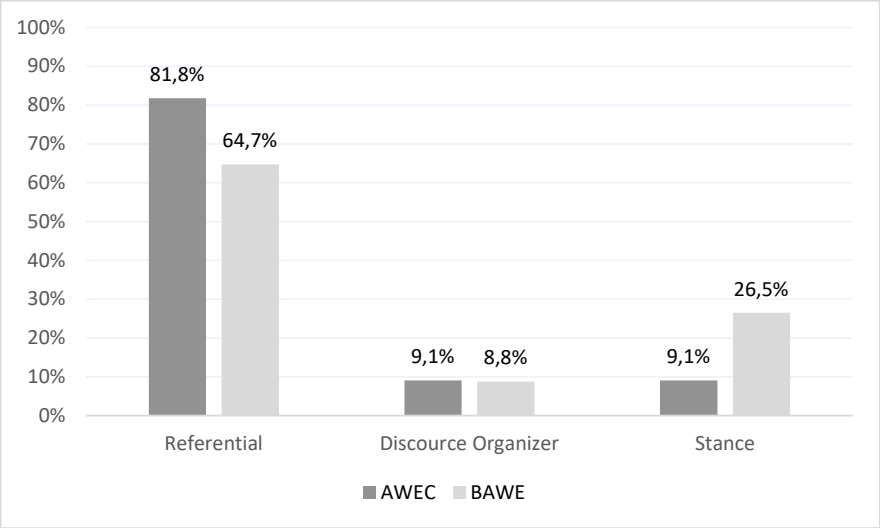

Table 7 shows that the two corpora included similar LBs in terms of their structural types. Most of the LBs in both corpora are NP-based. Interestingly, the proportion of NP-based LBs in the two corpora are analogous (38 % in the ALEC and 39 % in the ASEC). The second type of LBs used by learners and scholars is the PP-based structural type (29 % in ALEC VS. 32 % in ASEC). The least-used type, however, is the VP-based one (representing 24 % in ALEC and 25 % in ASEC). Other types not classified by Biber et al. (1999) are rarely used in the two corpora.

In answer to the second research question i.e. *What is the difference between lexical bundle use by Arab EFL writers and native speakers?* the use of LBs in the AEWC corpus (after incorporating the results of both ALEC and ASEC and merging the shared LBs) was compared to the reference corpus selected from BAWE. The applied method was to compare the overall LB types in the non-native learner and scholar corpus to the reference corpus. The same criteria of LB size, frequency and dispersion were used to extract LBs types and tokens in the BAWE sub-corpus. The number of LBs generated by these criteria was 68 LB types in the BAWE sub-corpus vis-a-vis 44 LB types in AEWC. In addition to the difference in the number of LBs used by the native speakers, there was also a divergence in the types of LBs used. Table 8 displays a comparison between the LB frequency and functional types in the two corpora:

Because of the difference in the numbers of LBs of the two corpora, it might be more proper to represent the percentage of each LB class in the whole corpus. Figure 1 summarises the main findings in terms of the percentages of each type of LB in the two corpora.

Figure 1 shows that Arab writers used referential bundles more frequently than the British writers. Moreover, they used stance bundles far less than their British counterparts. Despite the difference in the functional types of LBs, there are still shared LBs between the two corpora. These are presented in Table 9. It should be mentioned that the comparison in Table 9 is between AEWC corpus as a whole (44 LBs) and the BAWE sub-corpus (68 LBs). This comparison addressed the 13 LBs that occur simultaneously in BAWE and in either one sub-corpus of AEWC i.e. ALEC or ASEC or in both of them. Interestingly, 4 of the shared LBs in AEWC are also existed in BAWE, while the other 9 LBs are found in BAWE and in one of the sub-corpora of AEWC.

Most of the shared LBs are clearly referential. This is mainly due to the fact that most of the LBs used in AEWC are referential. This suggests that the distinction in functional types between the two corpora is in discourse and stance bundle, as evidently used more in the corpus of

Table8

Frequency and functional types of LBs in AEWC and BAWE

Type	AEWC	BAWE
Referential	36	44
Discourse Organizer	4	6
Stance	4	18
Total	**44**	**68**

Table 9
LBs occurring in both BAWE and AEWC

No.	LB	Structure	Function	Frequency	
				AEWC	BAWE
1	one of the most	NP-based	Referential	62	20
2	is one of the	VP-based	Referential	48	15
3	that there is a	VP-based	Referential	16	16
4	the use of the	NP-based	Referential	13	36
5	as a result of	VP-based	Referential	12	14
6	at the end of	PP-based	Referential	12	40
7	the rest of the	NP-based	Referential	12	23
8	it was found that	VP-based	Referential	11	10
9	at the beginning of	PP-based	Referential	11	26
10	the meaning of the	NP-based	Referential	10	17
11	on the other hand	PP-based	Discourse Organizer	43	57
12	as well as the	other	Discourse Organizer	20	13
13	it is important to	VP-based	Stance	19	24

the native speakers i.e. BAWE. Regarding the structural distribution of the LBs in the BAWE sub-corpus, there is a clear difference in structural type preferences, as presented in Table 10.

Table 10
Structural types of LBs in both corpora

Structure type	BAWE	per cent	AEWC	per cent
NP-Based	22	32.4 %	18	40.9 %
VP-Based	27	39.7 %	9	20.5 %
PP-Based	18	26.5 %	15	34.1 %
Other	1	1.5 %	2	4.5 %
Total	**68**	**100**	**44**	**100**

Table 10 indicates that while British writers tend to use more verb-based LBs, Arab learners and scholars use more NP-based LBs. A detailed classification of the structural types used in the BAWE sub-corpus is presented in Appendix C.

DISCUSSION

The results provided by the first phase of the analysis revealed that Arab EFL learners and scholars employed comparable LBs in terms of both quantity and function. This is an improbable result when compared to the literature which identifies LBs as a feature that marks advanced and fluent writing (Biber & Barbieri, 2007; Allen, 2010; Hyland & Jiang, 2018; and Granger, 2018). Following this, it was expected that scholars would use more LBs in terms of both quantity and quality i.e. it was expected that scholars' use of LBs would be different in token and type when compared to learners. This could be represented, for example, in their use of more structural types known to mark advanced proficient levels e.g. more use of clausal fragments or NP-based bundles. This presumption was postulated in the light of many factors, including scholars' study, experience and practice. Their failure to achieve this, however, suggests two possibilities: (1) experience and post-graduate education have no effect on the use of LBs; and (2) being a non-native English speaker is a strong factor that prevails over other factors governing the use of LB. It can thus be hypothesised that non-native speaker use of LBs is not as effective as that of native speakers. This hypothesis can be traced back to L1 interference as found by Paquot (2013) and Granger (2013). According to this hypothesis, L1 collocational use and lexi-

co-grammatical properties affect the choice and use of foreign language LBs by learners. Another reason to justify the different use of LBs is the use of traditional language teaching methods based on word-level on their language description (Salazar, 2014) rather than on the discourse level. This type of teaching might affect learners use of LBs.

Three of the shared LBs were used much more by the Arab learners than by the Arab scholars i.e. *one of the most (49 vs. 13); is one of the (37 vs. 11),* and *on the other hand (27 vs. 16);* whereas only one bundle was used slightly more by the scholars i.e. *the results of the (15 vs. 12)*. This finding supports the conclusion that the scholars in this study did not outperform the learners at any level. Although this finding was unlikely at the beginning, it is in line with a few previous studies, for example, (Gil & Caro, 2019) which found a high level of resemblance between LBs used by L1 Spanish learners and expert writers of English. Whatever the reason, further research is needed to prove or refute this finding since research-related factors might lead to this result.

In terms of functional analysis, it was found that most of the bundles used in both sub-corpora were referential bundles of different types. These LBs are utilised to identify something e.g. *is one of the,* specify quantity e.g. *the majority of the*, or refer to a specific place in the text e.g. *as shown in table*. This result confirms what was suggested by Biber et al. (2004), i.e. that referential bundles are usually the most common type in academic writing. Arab learners, however, express their attitudes to the text more than Arab scholars, with 3 of the identified LBs being stance bundles. Another finding to note is that two of the discourse organisers are common in both sub-corpora i.e. *on the other hand* and *as well as the.* The highly frequent use of referential bundles across the two sub-corpora indicated the focus of the writers of the two sub-corpora to reflect on their own text, since most of these referential bundles are related to information and data presented earlier in their texts.

The structural types of the LBs identified in the two sub-corpora were also similar in terms of both quantity and quality. Both learners and scholars tended to use NP-based LBs while unclassified bundles are not common in both of them. Moreover, the two sub-corpora used approximately the same structural types of LBs with slight differences. Scholars used two structural types that were absent in ALEC i.e. *that-clause fragment* and *adverbial clause fragment*. It is interesting that both types are in fact of clausal VP-based types. ALEC, on the other hand, made exclusive use of one structural type - phrasal i.e. *Pronoun + NP + be*. Thus, it can be said that the only difference between the corpora is in that Arab EFL scholars use more clausal LBs than learners. This difference, though trivial, suggests more sophisticated language use by the Arab scholars.

When the overall use of the AEWC corpus is compared to the reference corpus of the native speakers, similar results to the previous literature were found. The overall use of LBs in the selected corpus from the BAWE outnumbers the LBs used in the AEWC i.e. 68 versus 44. This finding coincides with the results of many previous studies e.g. (Ädel & Erman, 2012; Bychkovska & Lee, 2017; Esfandiari & Barbary, 2017; Salazar, 2014). The less frequent use of LBs by non-native writers can be justified by the consideration that the optimal use of formulaic expressions, in general, is much more difficult for non-native speakers, since it is more related to intuitive aspects that only native speakers possess. When it comes to academic writing, it was previously found that low usage of LBs is a mark of non-native speakers writing (Güngör & Uysal, 2016), while the use of MWUs including LBs is a feature which marks sophisticated native-like academic writing (Salazar, 2014). This low usage can be traced to the methods of EFL teaching which focus on single-word structure. Focusing on MWUs can make using LBs structures more sophisticated and native-like than using teaching techniques based on single-word structures

The variance in the use of LB across the two corpora is not only in the frequency level, there is an explicit variation in the functional and structural types used across the two corpora. As noted previously by Bychkovska and Lee (2017) and Güngör and Uysal, (2016), native speakers use more stance bundles than non-native speakers. In the BAWE sub-corpus, the writers employed epistemic e.g. *the fact that the,* attitudinal e.g. *it is important to, and* ability stance bundles *e.g. it is possible to.* Considering that stance bundles are used to express a writer's level of certainty about the subject and/or his/her attitudes towards what s/he is writing, this finding suggests that Arab EFL writers are satisfied with projecting other people's or general viewpoints without reflecting their own or evaluating what they are writing about. This finding is also indicative of the higher quality of LBs used by native speakers, since stance bundles are found to mark higher proficiency levels (Granger, 2018), at least in certain registers such as academic writing. Stance bundles are considered a sign of higher linguistic and thinking skills because they express an assessment of what has been previously written, which is an advanced feature of academic writing. The implication that Arab learners do not utilise this feature and merely present their own ideas is further supported by the finding that more referential bundles are used in AEWC. It is also known that referential bundles are used to identify an entity or its attribute, meaning that writers are more neutral when using such type of LBs.

Another aspect of the difference between the LBs used in the two corpora is represented in the structural types of most of the bundles used in each of the corpora. While native speakers tended to use clausal VP-based bundles, most of the LBs used by the Arab learners and scholars were phrasal NP-based. In fact, around 40% of the LBs detected in the BAWE sub-corpus were clausal VP-based bundles while approximately the same percentage of AEWC LBs were of an NP-based phrasal type. There was no consensus in the structural types preferred by non-native speakers. Therefore, while this finding was provided by

certain previous studies such as Salazar (2014) and Bychkovska and Lee(2017), other studies found that native writers use more NP-phrasal LBs than non-native or equal to them. This can be traced back to the nature of the L1 of the writers, since these studies were conducted to investigate texts by writers with different L1s e.g. Persian (Amirian et al., 2013) and Turkish (Güngör & Uysal, 2016). Moreover, VP-clausal bundles are not only used less in AEWC than in BAWE sub-corpus, but it is also the least used type in the corpus, since in addition to NP-based phrasal LBs non-native speakers also use PP-based bundles which are used moderately in the BAWE sub-corpus. Since research on the LBs in Standard Arabic is still rare, no definitive comparison can be stated at this stage. However, this is a potentially rich area of study for further research.

CONCLUSION

This study has aimed to investigate the use of lexical bundles by Arab learners and scholars in their academic writing. In order to achieve such an aim, quantitative and functional analyses were performed on the learner and reference corpora. First, a general comparison was made regarding the use of LBs by learners and scholars. The findings revealed no evident difference between the frequency, function or types of LBs used by learners and scholars. This leads to the hypothesis that there is no significant effect of experience or higher studies on the use of LBs by Arab EFL writers. However, the second phase of the analysis shows that native writers of English use LBs differently in terms of frequency, type and structure.

Further research is required to explore this finding and to extend the investigation, in order to incorporate a deeper analysis of the probable reasons for this variance. These reasons could be attributed to potential limitations of the current research: i.e. that this study utilised texts of single discipline, genre and context. Further studies that take this into consideration could yield more reliable results to support or refute the present findings.

The results of the present study and proposed further research may lead to better implementation of LB instruction programs which teach Arab EFL learners academic writing skills at the phrasal level, not only at the vocabulary level. These proposed programs may consider the LBs which have been proved to be preferable by scholars and native speakers in the field of academic writing in applied linguistics and/or humanities in general. Moreover, these programs should include the targeted bundles in context-based teaching materials which enhance learners' competence in acquiring and using LBs rather than focusing on the LBs as isolated units. Achieving this, the researcher believes, will lead to better, more robust writing by Arab EFL learners and scholars.

DECLARATION OF COMPETING INTEREST

None declared ■

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APPENDIX A

Four-word bundles in AEWC

Sub-corpus		ALEC			ASEC
Rank	**Freq***	**Bundle**	**Rank**	**Freq.***	**Bundle**
1	49	one of the most	1	23	in the current study
2	37	is one of the	2	21	the effect of the
3	27	to deal with the	3	20	as shown in table
4	27	on the other hand	4	20	in the use of
5	22	of the most important	5	17	the total number of
6	20	the best way to	6	16	on the other hand
7	19	it is important to	7	16	that there is a
8	18	[there] are many ways	8	15	the results of the
9	14	are many ways to	9	15	the first of these
10	14	at an early age	10	15	with regard to the
11	14	the end of the	11	14	of the present study
12	13	an important role in	12	14	the majority of the
13	12	as a result of	13	14	the participants in the
14	12	at the end of	14	13	in the field of
15	12	the rest of the	15	13	one of the most
16	12	the results of the	16	13	the use of the
17	12	when it comes to	17	12	of the importance of
18	11	at the beginning of	18	12	that most of the
19	11	the development of the	19	12	the findings of the
20	10	as well as the	20	11	a high level of
21	10	the meaning of the	21	11	is one of the
			22	11	it was found that
			23	11	on the use of
			24	10	as well as the
			25	10	in the process of
			26	10	significant difference between the
			27	10	that the use of
			28	10	to be the most
Total Hits	**376**		**Total Hits**	**389**	

Note. Freq* raw frequency

APPENDIX B

List of the LBs in the selected BAWE sub-corpus

Rank	Freq.*	Range	LBs	Structure	Function
1	57	30	on the other hand	PP Fragment	Discourse Organizer
2	50	20	the way in which	Np +post modifier fragment	Referential
3	40	29	at the end of	pp + embedded *of*-phrase	Referential
4	37	30	the end of the	NP + *of* phrase fragment	Referential
5	36	22	the use of the	NP + *of* phrase fragment	Referential
6	33	15	it is possible to	anticipatory *it* + adjective phrase	Stance
7	26	20	at the beginning of	pp + embedded *of*-phrase	Referential
8	24	20	at the same time	PP fragment	Referential
9	24	19	the beginning of the	NP + *of* phrase fragment	Referential
10	24	14	it is important to	anticipatory it + AdjP	Stance
11	24	17	the fact that the	NP + other post-modifier fragments	Stance
12	23	17	the rest of the	NP + *of* phrase fragment	Referential
13	22	16	in the form of	pp + embedded *of*-phrase	Referential
14	21	11	it could be argued [that]	anticipatory *it* + VP	Stance
15	20	16	that there is no	that clause fragment	Referential
16	20	13	it is interesting that	anticipatory *it* + AdjP	Stance
17	20	14	one of the most	NP + of phrase fragment	Referential
18	19	13	it is said that	anticipatory *it* + VP	Stance
19	17	12	the meaning of the	NP + *of* phrase fragment	Referential
20	17	12	through the use of	pp + embedded *of*-phrase	Referential
21	17	12	way in which the	Np +post modifier fragment	Referential
22	16	14	it seems to be	anticipatory *it* + VP	stance
23	16	13	that there is a	that-clause fragment	Referential
24	15	13	by the use of	pp + embedded *of*-phrase	Referential
25	15	10	is one of the	VP + NP	Referential
26	15	8	the extent to which	Np +post modifier fragment	Referential
27	15	11	the repetition of the	NP + *of* phrase fragment	Referential
28	15	8	the ways in which	Np +post modifier fragment	Referential
29	15	11	to the fact that	PP fragment	Referential
30	14	10	as a result of	pp + embedded *of*-phrase	Referential
31	14	10	that it is a	that-clause fragment	Referential
32	14	11	it is interesting to	anticipatory it + adjective phrase	stance
33	14	11	in this way the	PP fragment	Discourse Organizer
34	14	10	is an example of	copula *be* + noun phrase	Referential
35	14	10	the image of the	NP + *of* phrase fragment	Referential
36	13	8	in contrast to the	PP fragment	Discourse Organizer

Rank	Freq.*	Range	LBs	Structure	Function
37	13	11	as well as the	other expressions	Discourse Organizer
38	13	7	can be seen in	passive verb + PP fragment	Stance
39	13	5	to make sense of	To clause	Stance
40	13	4	to be able to	To clause	Stance
41	12	6	are more likely to	copula be + AdjP	Stance
42	12	6	as can be seen	adverbial clause fragment	Stance
43	12	10	can be seen as	passive verb + PP fragment	Stance
44	12	9	in the case of	pp + embedded *of*-phrase	Referential
45	12	10	it is clear that	anticipatory *it* + adjective phrase	Stance
46	12	10	the nature of the	NP + *of* phrase fragment	Referential
47	12	8	the form of a	NP + of phrase fragment	Referential
48	11	9	it is necessary to	anticipatory *it* + AdjP	Stance
49	11	8	in order to make	PP fragment	Discourse Organizer
50	11	8	to focus on the	to-clause	Referential
51	11	6	with the help of	PP fragment	Referential
52	11	9	be read as a	passive verb + PP fragment	Stance
53	11	5	could be read as	passive verb + PP fragment	Referential
54	11	7	due to the fact	PP fragment	Referential
55	10	9	with the use of	pp + embedded *of*-phrase	Referential
56	10	5	a part of the	NP + *of* phrase fragment	Referential
57	10	9	allows the reader to	VP + to-clause	Discourse Organizer
58	10	10	example of this is	NP + *of* phrase fragment	Referential
59	10	9	in the middle of	pp + embedded *of*-phrase	Referential
60	10	9	it is difficult to	anticipatory *it* + adjective phrase	Referential
61	10	7	it was found that	anticipatory it + VP	Referential
62	10	9	of the text is	PP fragment	Referential
63	10	6	the context of the	NP + *of* phrase fragment	Referential
64	10	8	the idea of the	NP + *of* phrase fragment	Referential
65	10	9	the importance of the	NP + *of* phrase fragment	Stance
66	10	9	the role of the	NP + *of* phrase fragment	Referential
67	10	9	the structure of the	NP + *of* phrase fragment	Referential
68	10	6	is likely to be	copula *be* +AdjP	Stance

Note. Freq* raw frequency

APPENDIX C

Structural Types of LBs in the BAWE sub-corpus*

LB structure	Frequency	example
VP-based		
Anticipatory *it* + VP/adjective phrase	11	it is possible to
Copula *be* + NP/AdjP	4	is an example of
That-clause fragment	3	that it is a
Adverbial clause fragment	1	as can be see
VP + to-clause	1	allows the reader to
To-clause	3	to be able to
passive verb + PP fragment	4	can be seen in
NP-Based		
Np + *of* phrase fragment	17	the end of the
Np + other post modifier fragment	5	the way in which
PP-based		
PP with embedded *of*-phrase fragment	9	at the end of
Other PP (fragments)	9	at the same time
Other Expressions	1	as well as the
Total	**68**	

**Note.* Structure classification as suggested by (Biber, Johansson, Leech, Conrad, & Finegan, 1999, pp. 1014-1024)

https://doi.org/10.17323/jle.2022.11501

The Relationship Between Native and Foreign Language Speaking Proficiency in University Students

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ABSTRACT

Background. There are many factors that affect the development of speaking in a foreign language. Drawing on the theories that state that competencies established in a native language will transfer across foreign languages, this study examines whether there is a relationship between native and foreign language speaking proficiency.

Purpose. Although literature research indicates that native and foreign language acquisition processes are interrelated, there is a lack of studies comparing proficiency levels of native and foreign language speaking skills in adult learners. The purpose of this study was to examine the relationship between speaking competences in English as a Foreign Language and Czech as a Native Language in university students.

Methods. A between-group design was used to compare two groups of fifty university students at two different levels of their speaking proficiency in English. Both groups were tested in speaking in Czech. Each test was assessed by an analytical rating scale examining four speaking sub-skills: accuracy, discourse, content and paralinguistics. The scores were analyzed using the F-Test for Equality of Variances and T-Test for the Differences between the Means.

Results. The results showed that the group with the lower level of speaking proficiency in English achieved significantly worse scores for their speaking sub-skills in Czech than the group with the higher level of speaking proficiency in English.

Implications. The study offers another piece of empirical evidence in support of the theories that state that competencies established in a native language will transfer across foreign languages and suggests the importance of the development of native language competence with regard to later proficiency in a foreign language.

KEYWORDS:

language learning, speaking skill, communicative competence, assessment of speaking, Czech as a Native Language (NL), English as a Foreign Language (FL), adult language learner

Citation: Stankova, E., Chlumska, R., & Zerzanova, D. (2022). The relationship between native and foreign language speaking proficiency in university students. *Journal of Language and Education, 8*(2), 122-139. https://doi.org/10.17323/jle.2022.11501

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Received: October 14, 2020
Accepted: March 31, 2022
Published: June 30, 2022

INTRODUCTION

Over the last decades native language (NL/L1) and foreign language (FL/L2) learning and teaching has been predominantly affected by the integrated approach to the development of four language skills: listening, speaking, reading and writing. Most teachers and students would agree that one of the most difficult skills for students to master is speaking (Darancik, 2018; Abugohar et al., 2019; Hruby & Stankova, 2020). One of the reasons is that despite the declared emphasis on language skills development, learners of English as a Foreign Language (EFL) in countries where English is not widely spoken outside the classroom, such as in the Czech Republic, might still build substantial knowledge about the language through study of its grammar and vocabulary, but have difficulty in developing oral proficiency because they lack exposure to the language and experience in using it (Abbaspour, 2016).

Apart from the opportunity to speak, there are many other factors related to the learner that affect the development of speaking in a foreign language, such as personality, language aptitude, learning style, strategies, motivation, metacognition, autonomy, and, last

but not least, the effect of an NL/L1. Among others, Ellis (2015) examined several studies on language and skills transfer and concluded that:

> *The effects of L1 transfer on L2 learning are extensive, varied and persistent. They are also illuminative of the cognitive processes involved in L2 use and acquisition: no theory of L2 use or acquisition can be complete without an account of L1 transfer. (Ellis 2015, p. 154).*

Among numerous suggestions for further research, Ellis suggested focusing on the general relationship between L1 and L2 proficiency. In an effort to address the need, this study examines the relationship between speaking competences in an NL and FL. The aim is to find out whether there is empirical evidence of the relationship between speaking proficiency levels in Czech as a Native Language (CNL/L1) and English as a Foreign Language (EFL/L2) in university students.

The theoretical framework of this study is centered on theories stating that competencies established in a native language will transfer across languages. They stem from the Common Underlying Proficiency Model (CUP), in which the aspects of a bilingual's proficiency in L1 and L2 are seen as common or interdependent across languages (Cummins, 1981), and the linguistic interdependence hypothesis which states that in bilingual development, language and literacy skills can be transferred from one language to another (Cummins, 1986).

Objective of the Research

The research objective aimed to find out whether there was a significant relationship between the students' levels of EFL and CNL speaking skills at the Functional level after 11-12 years of their compulsory English language study and 13 years of their Czech language study. Although the scientific literature provides corroborative evidence on various aspects of the interaction between FL and NL acquisition, we did not dare to predict that such a relationship exists in adults, especially when their NL was tested at the Functional level. We believed that students were supposed to master their NL at the Functional level, which does not require high cognitively demanding tasks, during their primary and secondary education. Therefore, we assumed that there was no significant relationship between the levels of students' speaking skills in EFL and CNL. Therefore, the hypothesis was formulated as follows: 'There is no difference between G1 and G2 in the means of the scores for speaking skills in Czech.'

The objective was achieved by comparing the scores for speaking skills in CNL between two groups of students at the University of Defence in Brno, the Czech Republic. Group 1 (G1) consisted of students who had achieved Level 1 in speaking in English, and Group 2 (G2) had achieved Level 2 in speaking in English. Students' speaking skills in English had been tested prior to the research by the NATO STANAG 6001 Examination1 during the students' first or second year of study

The following section presents pertinent concepts related to the variables used in the research, and the account of studies that examine various aspects of language acquisition with respect to the interaction between native and foreign languages. Then the background for the study is briefly explained, followed by the sections introducing the research, its findings and their implications.

LITERATURE REVIEW

Communicative Competence in Speaking

The purpose of this sub-section is to introduce the nature of speaking and concepts related to its assessment on which our variables depend.

One of the frequently cited definitions of *speaking* states that 'speaking is an interactive process of meaning that involves producing, receiving and processing information' (Burns & Joyce, 1997). We distinguish between two modes of speaking - *presentation* and *communication*. The presentation mode allows students to plan and rehearse what they will say until they are satisfied with the final product, whereas communication in the sense of face-to-face speaking allows speakers to get immediate feedback and adjust further communication to it. Communication is interactive, where the main feature is turn-taking, and it happens in real time, which implies that the production of speech in real time imposes pressures, but also allows freedoms in terms of compensating for these difficulties**.** The use of formulaic expressions, hesitation devices, self-correction, rephrasing and repetition can help speakers become more fluent and cope with real time demands (Hughes, 2002). The purpose of our research is to compare speaking proficiency in CNL and EFL through communication simulations of real-life situations.

In modern linguistics, Chomsky (1965, p. 4) introduced the terms *competence* and *performance*. In his view, competence is the speaker-hearer knowledge of the language, and performance is the actual use of the language in concrete situations. Since Chomsky's definition of *competence* was considered simplistic by many linguists, Hymes (1966) elaborated on it and coined the term *communicative competence* that included communicative form and function in integral relation to each other. The concept was broadened by Canale & Swain (1980), the proponents of communicative approach to second language teaching and testing, who argued that the ability to communicate requires four sub-competencies: (1) grammatical (ability to create grammatically correct utterances); (2) sociolinguistic (ability to produce sociolinguistically appropriate utterances); (3) discourse (ability to pro-

[1] BILC (2021). http://www.natobilc.org/en

duce coherent and cohesive utterances), and (4) strategic (ability to solve communication problems as they arise).

Similarly, The Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001) defines *communicative language competence* as 'knowledge of, and ability to use, the formal resources from which well-formed, meaningful messages may be assembled and formulated' (p. 118). It comprises several components: (1) linguistic (lexical, grammatical, phonological, semantic, orthographic and orthoepic competencies); (2) sociolinguistic (rules of politeness, norms governing relations between generations, sexes, classes and social groups, linguistic codification of certain fundamental rituals in the functioning of a community), and (3) pragmatic (it concerns the mastery of discourse, cohesion and coherence, the identification of text types and forms, irony and parody).

Communicative competence manifests itself in a number of different genres (narrative, identifying, comment-elaboration, debate and argument, decision-making and negotiating outcomes), informal and formal with varying functions (Carther & McCarthy, 1997). The development of communicative competence is closely related to *linguistic literacy*, defined by Ravid & Tolchinsky (2002, p. 420) as 'gaining control over a larger and more flexible linguistic repertoire and simultaneously becoming more aware of one's own spoken and written language systems'. Berman (2016) addresses the topic of developing linguistic literacy from the perspective of 'later language development'. She states that linguistic literacy involves the ability to use language in different discursive contexts and for varied functions by appropriate deployment of three interrelated facets of language use: genre, register and stance. The results of her research suggest that the spoken language of well-educated literate adults demonstrates the impact with their familiarity with written discourse. The view that the two modes of verbalization are intertwined is in line with our experience in teaching EFL at the University of Defence, where speaking and writing present considerable challenge (Hruby & Stankova, 2019, 2020).

In terms of developing speaking sub-skills, Abbaspour (2016) emphasizes two inseparable aspects – fluency and accuracy, in addition to cognitive, linguistic, affective, sociolinguistic factors and factors of speaking effectiveness, grammar, discourse, strategy and interaction that influence the speaking of learners. Although different scholars give various definitions for the terms, in general, accuracy refers to the ability to produce correct sentences (not only grammatically but also with the emphasis on vocabulary, intonation and register), while fluency refers to smoothness, rate of speech, absence of excessive pausing, absence of disturbing hesitation markers, length of utterances and connectedness. Both accuracy and fluency concern the ability to communicate ideas effectively and the ability to produce continuous speech without causing comprehension difficulties or a breakdown of communication. Therefore, they belong to commonly assessed sub-skills in speaking.

Dimensions of Proficiency

Due to its complexity, speaking proficiency is difficult to assess. Cummins (1984) suggested two dimensions of proficiency, contextualized (conversational fluency) and decontextualized (used in academic situations), that relate in specific ways to determinants of the acquisition process, namely, attribute-based and input-based aspects. Attribute-based aspects of proficiency refer to those dimensions of proficiency whose acquisition is strongly influenced by relatively stable attributes of the individual learner, for example, cognitive and personality variables. On the other hand, input-based aspects are considerably less related to stable attributes of the individual than they are to the quality and quantity of input received from the environment. In support of developing language proficiency within contextualized and decontextualized dimensions, Cummings (1984) differentiates between cognitively demanding and undemanding tasks. From our perspective, the dimensions of proficiency and proposed language tasks might be considered as one of the theoretical bases for the development and assessment of current language proficiency. They manifest themselves, for example, in the descriptors of the sources for standardized language assessment we used for creating the instrument for measuring speaking proficiency in Czech, as explained below.

Three decades later, language proficiency of native and nonnative speakers was thoroughly investigated by Hulstijn (2015). He claimed, similarly to Cummings (1984), that language proficiency can be seen as consisting of Basic Language Cognition (BLC) and Higher Language Cognition (HLC), where BLC is the language cognition that all native speakers have in common and HLC is the domain where differences between native speakers can be observed. In contrast to Cummings (1984), who was preoccupied with literacy skills, Hulstijn restricted BLC to speech reception and speech production. One of the questions Hulstijn (2015, p. 154) raised was whether BLC comes close to the B1 level descriptions of the CEFR activities, even though the CEFR had been proposed for L2 learners and not for L1 users. Since our study examines CNL at the B1 level, we believe that we can offer a contribution related to this question.

Rating Scales

From a practical point of view, the criteria used to assess speaking can range from global assessments to detailed analytical scales. According to Luoma (2004), the developers of speaking assessment must have a clear understanding of what speaking is like and then define the kind of speaking they want to test in a particular context; after that, they develop appropriate tasks and rating criteria that test this. Moreover, they have to inform the examinees about what they test, and make sure that the testing processes follow the stated plans. Luoma (2004) presents samples of speaking tasks and scales for their assessment, and provides an excellent theoretical background and practical guidance for

developing them. Astorga-Cabezas (2015) summarizes the opinions on holistic scoring, which stems from the overall impression of speaking, and is rapid because it benefits from the experience of interlocutors (Luoma, 2004; Goh & Burns, 2012). Analytic scoring contains a certain number of criteria, called competencies or sub-skills, usually 3-5, each of which has descriptors at the different levels of the scale (Luoma, 2004; Jones, 1996; Hughes, 1989). Teachers or testers can choose either a holistic or analytic approach to assessing speaking, or they can combine them, depending on the circumstances and institutional constraints. In our research, we opt for the analytic approach to assess speaking skills in Czech, since we consider it more objective.

The development of our speaking tasks and rating scale was guided by the intention of assessing the same speaking subskills in CNL as those being assessed in EFL by the standardized examination according to NATO STANAG 6001. Therefore, we introduce here the NATO STANDARD A TrainP-5 document as the main source on which our assessment instrument is based; and the CEFR for referring NATO STANAG 6001 proficiency levels to an internationally acknowledged civilian standard.

In NATO member countries, the guidelines for language curriculum, test development and for recording and reporting Standardized Language Profiles (SLPs) of military and civilian personnel are provided by *The Bureau for International Language Coordination (BILC)*. The SLPs of personnel are assessed in the NATO STANAG 6001 Examination, whose purpose is to evaluate the language competence that a candidate brings to real life in the specific and exactly defined context of the future (Shohamy, 2000). The tests of language competence aim to assess language competence regardless of the way, content and length of language study, and they are based especially on the specification of what candidates should be able to express in the language. The descriptors of the main language skills (listening, speaking, reading, and writing) for six language proficiency levels coded 0-5 (No proficiency, Survival, Functional, Professional, Expert and Highly-articulate native) are published in NATO STANDARD A TrainP-5. Our research focuses on the Survival and Functional levels, whose descriptors are presented in Appendix A.

The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR) (Council of Europe, 2001) is a guideline used to describe achievements of learners of foreign languages across Europe and, increasingly, in other countries. It discusses various purposes of assessment, different approaches to the assessment process, and offers illustrative descriptors of language ability, including some for speaking. Descriptors can be used as a basis to create test-specific criteria. The development of our rating scale was influenced by the Analytic descriptors for spoken language (Council of Europe, 2001, pp. 28-29). Like most CEFR scales, it provides descriptors for six proficiency levels (Basic: A1 and A2; Independent: B1 and B2; Proficient: C1 and C2) of five linguistic features: range, accuracy, fluency, interaction and coherence.

Although the assessment of communicative competence in a foreign language has received enormous attention, there is a lack of research studies on the assessment of communicative competence in a native language, especially in adolescents and adults (Hulstijn, 2015). The reason is obvious. Apart from assessing native language competence at schools, there is no need to assess it in most professional careers, contrary to that in a foreign language. In our opinion, the rating scales to assess an NL and an FL should differ, depending on what we want to measure. Our assumption is supported by Cummins (1981), who states that:

> *Native speakers achieve mastery levels in some sub-skills prior to others. For example, within grammatical competence, virtually all native speakers master pronunciation before spelling. Similarly, some aspects of sociolinguistic, discourse and strategic competence will be mastered at an early age, and others will be mastered much later, if at all. (Cummins, 1981, p. 21).*

Therefore, we also considered the scale developed to measure Czech speaking skills in the Czech secondary school leaving examination, called the Maturita Examination, which was available on the Ministry of Education website until 2019. It provided scaled descriptors of four competencies – content, lexical, grammatical and phonological competencies – for four grades (1, 2, 3, 4). However, in 2020, the oral part of the Maturita Examination was subjected to changes and the rating criteria for oral performance were altered. Now, only three competencies are assessed: performance in accordance with language standards and the principles of language culture; structure and fluency; and argumentative competence – for five grades (1, 2, 3, 4, 5)[2]. The concept of this classification influenced the development of our scale designed to measure speaking skills in Czech.

In summary, this literature research presents various aspects of the assessment of speaking proficiency in native and foreign languages with the aim to justify the selection of the evaluation instruments we used in our research. As explained below, CNL was assessed by an analytical rating scale testing four speaking sub-skills: accuracy, discourse, content and paralinguistics, created by the authors of this article. EFL had been assessed by the NATO STANAG 6001 Examination prior to our research. Both languages were tested at the Functional level and the candidates were assigned similar speaking tasks.

[2] Kriteria hodnoceni ustni zkousky [Criteria for the Assessment of the Oral Exam]. Appendix 3. (2020). https://maturita.cermat.cz/files/files/maturita/KRITERIA-HODNOCENI/2020/prilohy_sdeleni_kriteria_hodnoceni_dle_135.pdf

Relationship between a Native and Foreign Language

The following studies examine various aspects of language acquisition with respect to the interaction between native and foreign languages. They provide theoretical background for our research aim to compare speaking proficiency between an NL and an FL in adult FL learners.

The relationship between the acquisition of L1 and L2 in bilingual children was thoroughly studied by Cummins (1979, 1981, 1991). His developmental 'interdependence hypothesis' proposed that 'the level of L2 competence a bilingual child attains is partially a function of the type of competence the child has developed in LI at the time when intensive exposure to L2 begins' (Cummins, 1979, p. 233). Based on empirical evidence presented by numerous studies, he designed the Common Underlying Proficiency Model (CUP) in which the literacy-related aspects of bilingual proficiency in L1 and L2 are seen as common or interdependent across languages (Cummins, 1981). CUP refers to the interdependence of concepts, skills and linguistic knowledge found in a central processing system. Cummins (1984) states that cognitive and literacy skills established in L1 will transfer across languages.

Although the interdependence hypothesis and CUP were formulated in the context of bilingualism, which is different from learning ESF in the Czech Republic, we believe that their relevance extends beyond the submersion or immersion learning situations, and thus we can adopt them as a theoretical base for our research.

Cummins also examined several studies of adult L2 learners concerning correlations between L1 and L2 reading scores and writing performance, and found enough evidence in support of the interdependence hypothesis. He emphasized that writing expertise is common across languages, but for effective writing performance in an L2 both expertise and specific knowledge of the L2 are required (Cummins, 1991, p. 83).

The most valuable studies related to our research are the studies aimed at identifying difficulties in FL learning related to problems with developing language skills in an NL in high school students. For example, Ganschow, Sparks & Javorsky (1998) conducted research which showed that high school students who achieved higher grades in an FL had significantly stronger NL and FL aptitude skills, which refer to the potential that a person has for learning languages, than students who achieved lower grades in an FL. They found out that most poor FL learners have overt or subtle problems with the phonological/orthographic and syntactic components of language, that their problems are likely to be a consequence of successful or unsuccessful FL learning, and that poor learners might benefit from direct and explicit instruction.

In addition to that, Sparks, Patton, Ganschow & Humbach (2009) provided evidence for a long-term cross-linguistic transfer of NL to FL skills. High school students classified as FL learners with high, average and low proficiency were compared on their NL achievement measures of reading, spelling, vocabulary, phonological awareness and listening comprehension administered in the first, second, third and fifth grades. An aptitude measure was administered in the ninth grade, as well as decoding and spelling of FL words. High-proficiency FL learners exhibited stronger NL skills and FL aptitude than average and low-proficiency FL learners. The results showed that the differences in NL skills had emerged early in elementary school and were related to FL proficiency and achievement several years later in high school.

Recent research on the interaction between NL and FL competencies has been focusing on literacy skills, reading and writing (Kecskes & Papp, 2000; Alkhateeb, 2018; Wei, 2020; Kim & Pae, 2021). For example, Kecskes & Papp (2000) examined positive consequences of learning an FL on the use of NL. Based on their experimental study on writing, they argue that language transfer contains not only forms and structures, as confirmed by previous studies, but also functions and knowledge. From their perspective, multilingual development is a dynamic and cumulative process characterized by transfer of different nature and results in a common underlying conceptual base with two or more language channels that constantly interact with each other. Their perspective is in line with the theoretical framework of this study.

So far, most current empirical studies regarding speaking have limited themselves to investigating the relationship between L1 and L2 fluency. For example, Derwing et al. (2009), who studied L1 fluency in Russian- and Ukrainian- and Mandarin-speaking adult immigrants to Canada, indicated a relationship between L1 and L2 in the initial stages of exposure to L2, although this relationship was found to be stronger in Slavic than in Mandarin learners. Duran-Karaoz & Tavakoli (2020), who investigated fluency behavior and L2 proficiency in Turkish English learners, concluded that L1 fluency contributed significantly to models that predicted pausing behavior and mid-clause pauses, while L2 proficiency scores predicted L2 speech rate and L2 repair. In our research, fluency is included in paralinguistics that contributes to the overall score for speaking ability in Czech.

The latest study on L1 and L2 speaking proficiency among college students was conducted by Botezatu et al. (2021), and focused on L1 and L2 proficiency from the perspectives of external and internal learner factors influencing language acquisition. The research team concluded that with respect to external learner factors, more frequent L2 exposure predicted higher L2 and L1 proficiency, while earlier L2 exposure predicted higher L2 proficiency, but poorer L1 maintenance. When considering internal factors of the learner, it was found that the levels of L1 and L2 proficiency were highly correlated and that better working memory accounted for additional variance in the L2 and L1 proficiency, while

more frequent exposure to L2 was associated with better cognitive control. We believe that searching for factors influencing L1 and L2 acquisition is of paramount importance and that our research examining the relationship between NL and FL speaking proficiency contributes to this quest.

In addition to investigating transfer in L1 and L2 competencies, there are numerous recent case studies on cross-linguistic influence, the influence that knowledge of one language has on an individual's learning or use of another language (Jarvis & Pavlenko, 2008), focusing mainly on lexical, morphological, grammatical, semantic and syntactic transfer (Paquot, 2017; Orcasitas-Vicandi, 2019; Kaushanskaya & Smith, 2016; Yager & Gullberg, 2020; Yuan, 2010; respectively). Moreover, renewed attention has been paid to cross-linguistic influence from the psycholinguistic perspective (Dörnyei, 2005; Levy, McVeigh, Marful, & Anderson, 2007; Slabakova, 2017; Westergaard, Mitrofanova, Mykhaylyk, & Rodina, 2017; Sherwood Smith, 2020).

Although literature research shows that there is a large body of studies indicating the interrelationship between native and foreign languages in various aspects of language acquisition, studies comparing proficiency levels in native and foreign language speaking skills in adult learners are scarce; therefore, we have decided to examine the relationship between proficiency levels of speaking skills in CNL and EFL.

METHODS

Background

At the University of Defence, where the research was conducted, foreign language training and testing is provided by the Language Centre. Military students, the subjects of this research, are obliged to reach at least the Functional level in EFL in all four language skills, expressed as SLP 2222 (for listening, speaking, reading and writing skills respectively), by the end of their sixth semester, and should achieve at least two threes in the SLP sequence by the end of their tenth semester. Compared to CEFR, SLP 2222 corresponds to B1, and two threes in the SLP sequence are close to B2.

Although the requirements do not seem to be very challenging, considering the fact that the expected output level of English in secondary school graduates corresponds to B2 at Grammar Schools and B1 at Secondary Specialized Schools according to the CEFR, not all students of the University of Defence meet them. The consequences are serious: if the students do not achieve SLP 2222 by the end of the fifth semester, they have to leave the University of Defence. This causes unwanted losses in the Czech military, since the students are already well-trained military professionals who might have reasonable prospects of becoming experts in their field of study. Such concerns led the University of Defence managers and educators to regular monitoring and evaluating student academic results (Cechova, Neubauer, & Sedlacik, 2019) with the aim of introducing effective measures to eliminate their failures (Hruby & Stankova, 2019, 2020).

Within monitoring the students' level of SLP, regular internal statistical evaluations conducted after each semester show that the students at the University of Defence experience more difficulties in achieving an appropriate SLP in productive skills - writing and speaking than in receptive skills - reading and listening (Hruby & Stankova, 2020). Therefore, educators from the University of Defence currently examine factors that might hinder the development of productive English language skills. Based on the research in the literature and our observation in classes, we suppose that among many factors, the level of proficiency of students in Czech speaking skills could play an important role. This assumption is supported by the students themselves, as sometimes some students at lower proficiency levels in the English language complain that they would not be able to perform some tasks or discuss some topics even in Czech. To investigate their claim, we decided to compare the levels of their speaking skills in EFL and CNL.

The research was conducted in the years 2018–2020. To accomplish the research objectives, an empirical study employing quantitative research methods was designed. The selection of appropriate methods was made from reference books on research in language learning and teaching (Brown, 2004; Mackey & Gass; 2008; Nuan, 2008).

Research Design

The research objective was addressed by using a between-group design (Mackey & Gass, 2008). Two groups of fifty participants with a different level of proficiency in speaking in English were tested in speaking Czech. Each exam was recorded, using a voice recorder, and the speaking skill was assessed by the authors of the article. The assessment was based on the analytical rating scale employing four speaking sub-skills: accuracy, discourse, content and paralinguistics. The scale was pretested and its validity and reliability were ensured by implementing recommendations stated by Luoma (2004). Each score assigned was the result of the consensus of two examiners, as is common practice in NATO STANAG 6001 testing. The scores were analyzed using inferential statistics with the aim of comparing speaking skills in Czech between both groups.

Participants

The research sample consisted of 100 Czech students attending the Faculty of Military Leadership or the Faculty of Military Technology at the University of Defence, the Czech Republic. In the years 2018–2020, when involved in the investigation, they were in their first or second year of study, 20-24 years old, and they had been learning EFL at primary and secondary schools for 11-12 years. Their level of speaking proficiency had been assessed using the NATO STANAG 6001 Examination by a two-level test, aiming to achieve SLP

1–2, during their first year of study at the university. They had been acquiring the Czech language for their whole life and had studied it at primary and secondary schools for 13 years. They were chosen at random as volunteers and they gave their express consent to participate in the research.

To obtain data to compare their Czech speaking proficiency, G1 and G2 were formed according to the level of participation in their speaking skills in English. G1 included fifty students who had reached SLP 1 (Survival level) in speaking English, which corresponds to level A1 according to CEFR. G2 was comprised of 50 students who had obtained SLP 2 (Functional level) in speaking English, which corresponds to level B1 according to CEFR. However, we must bear in mind that the real level of participants in G2 might have been even higher, since at the time of the research, some of them had had the opportunity to undergo only a two-level NATO STANAG 6001 Examination aimed at SLP 1-2. The descriptors for both levels are stated in Appendix A and the characteristics of both groups are shown in Table 1.

The first three lines in Table 1 present three independent variables set for each group: the level of their speaking skills in English and the duration of their study of the English and Czech language. The proportion of men and women reflects the representation of male and female military students at the University of Defence.

Rating Scale and Speaking Tasks

The rating scale has been developed with respect to the assessment of speaking skills in NATO STANAG 6001 Examination at the Functional level (see Appendix A). Apart from using the descriptors for SLP 2 stated in NATO STANDARD A TrainP-5, its development has also been influenced by the descriptors for levels B1 and B2 according to CEFR, and the classification was inspired by the rating scale used to assess oral performance in Czech in the Maturita Examination, as explained in the introduction section. As shown in Table 2, we selected four commonly rated sub-skills – accuracy, discourse, content and paralinguistics, and specified what a candidate can do using the descriptors for the Functional level. The representation of each sub-skill in the overall assessment is expressed by the maximum score (Max.).

Each sub-skill was rated by three grades: (1) Excellent (only occasional errors): 21–30 points for sub-skills 1–3 and 7–10 points for sub-skill 4; (2) Good (some errors): 11–20 points for sub-skills 1–3 and 4–6 points for sub-skill 4; (3) Insufficient (frequent errors): 1–10 points for sub-skills 1–3 and 1–3 points for sub-skill 4.

The speaking tasks were factually oriented and included description, narration, instruction and comparison. The topics corresponded to the themes stated in the descriptors for the Functional level (Appendix A). The exam consisted of four parts similar to those used in the NATO STANAG 6001 Examination: a conversation based on the background of the participant (family, study, hobbies, etc.), a role-play, an information gathering task and a short impromptu speech (e.g., my hometown, my favorite book/movie, and my best friend).

Data Analysis

The scores assigned for the Czech-speaking sub-skills of the students were gathered and processed as dependent variables. Microsoft Excel[3] was used for data collection, analysis, and graphical presentation. The level of probability for all tests, the alpha level, was set at $*p < .05$ that is commonly used in educational research (Brown, 2004).

The hypothesis was formulated as follows: H: 'There is no difference between G1 and G2 in the means of scores for speaking skills in Czech.' To test it, it was necessary to carry out two statistical tests to compare the data sets of all variables – accuracy, discourse, content, paralinguistics and the total – between G1 and G2.

F-Test for Equality of Variances

First, the F-Test was utilized to determine the equality or inequality of variances at $*p < .05$ for the scores of individual sub-skills and the total between G1 and G2. Its results allowed us to select an appropriate unpaired T-Test with equal or unequal variances for testing each variable.

Table 1

Characteristics of the Research Sample

Characteristics	Group 1 (n = 50)	Group 2 (n = 50)
SLP in speaking E	1	2
EL study	11-12 years	11-12 years
CL study	13 years	13 years
Men	38 (76%)	42 (84%)
Women	12 (24%)	8 (16%)

[3] http://www.excelfunctions.net

Table 2
Rating Scale for Assessing Speaking Skill in Czech

Sub-skill	Detail	Max.
1 Accuracy	Can use the appropriate vocabulary, grammar and pronunciation correctly.	30
2 Discourse	Can combine and link sentences into paragraph-length discourse correctly. Can organize ideas in a logical way.	30
3 Content	Can deal with the topic, produces an appropriate amount and quality of content. Is creative in imitating the assigned real-life situations.	30
4 Paralinguistics	Can maintain appropriate volume, tempo, melody, pauses, articulation, Fluency and flow of interaction.	10
Total		**100**

Note. Max. = maximum score for each sub-skill

T-Test for the Differences between the Means

The T-Test determined the significance of the differences between the means of the variables of G1 and G2. The null hypothesis for was formulated: H_0: 'The means of the scores for speaking skills in Czech between G1 and G2 are equal.'

H_0: $\mu_1 = \mu_2$
H_A: $\mu_1 \neq \mu_2$

where

H_0 = null hypothesis,
H_A = alternative hypothesis,
μ_1 = the mean of a variable in G1,
μ_2 = the mean of a variable in G2.

The null hypothesis was tested by an appropriate T-Test with equal or unequal variances. Finally, the total scores of the individuals of both groups were plotted on a graph to illustrate the differences between the groups.

RESULTS

The objective of the study was to compare the subjects' speaking skills in CNL between G1 and G2 through measuring four sub-skills, accuracy, discourse, content and paralinguistics. The scores achieved for the sub-skills were totaled and are presented in Appendix B.

Significance of the Differences Between G1 and G2 in Scores for Four Sub-skills and the Total

First, the F-Test was utilized to determine the equality or inequality of variances at *p < .05 for the scores for individual sub-skills and the total. It calculated the means for both groups, μ_1 and μ_2, and the p-values, p (F-Test). Table 3 shows that the p-values for the two batches for accuracy, discourse, content, and total are higher than 0.05, which means that their variances are equal, and the suitable test for these variables is the T-Test with equal variances. In the case of the two batches for paralinguistic, the appropriate test is the T-Test with unequal variances.

The T-Test was expected to determine the significance of the differences between the means, μ_1 and μ_2, between the groups. The results presented in Table 3 show that all the p-values calculated by the T-Test are smaller than 0.05. In addition to that, all the computed t-values, the absolute t-Stat values, are greater than the critical t-values (t-Crit), which allows us to reject the null hypothesis and conclude that there is enough evidence that there are significant differences between the groups in all the rated sub-skills and the total score at *p < .05.

The results demonstrate that students in G1 achieved significantly worse scores for all the rated sub-skills and the total for speaking in CNL than students in G2. Therefore, the null hypothesis (H_0: 'The means of the scores for speaking skills in Czech between G1 and G2 are equal.') was rejected and the alternative hypothesis (H_A) was supported. The computed t-values allow us to order the differences in the scores for sub-skills between groups according to their significance: content, discourse, accuracy and paralinguistics. The order shows that the most significant difference between groups lies in delivering appropriate content.

Visual Comparison of Total Scores Between G1 and G2

For visual comparison of the Czech speaking skills of the students between G1 and G2, the total scores of all the students in both groups have been sorted from the worst to the best results and plotted on the graph in Figure 1. The horizontal axis represents the order of the students in both groups, and the vertical axis shows the percentage of scores for the student's speaking skills in Czech.

The graph illustrates that the group with the lower level of speaking proficiency in English (G1) achieved worse scores

for their speaking skills in Czech, compared to the group with the higher level of speaking proficiency in English (G2). The visual representation allows us to notice the exceptions in both groups, which are discussed in the following section.

To sum it up, the results did not confirm the hypothesis we formulated within our research objective H: 'There is no difference between G1 and G2 in the means of the scores for speaking skills in Czech.' Students in G1 achieved significantly worse scores for all rated sub-skills and the total in speaking in CNL than students in G2.

DISCUSSION

The results have revealed that there is a significant difference between G1 and G2 in terms of the means of scores for all rated speaking sub-skills and the total in CNL. As we explained, the hypothesis had been formulated on the basis of non-existent convincing evidence of a close relationship between NL and FL speaking proficiency tested at the Functional level, although we admitted that we had expected that a difference could be identified. What surprised us most was the high degree of significance of the relationship between the levels of proficiency in Czech and English speaking. Therefore, we believe that our study has offered a convincing piece of empirical evidence that supports the importance of understanding the impact of NL proficiency has on FL acquisition even in adulthood.

From a theoretical perspective, the outcome of our study supports Cummins' (1981) Common Underlying Proficiency Model (CUP) referring to the interdependence of concepts, skills and linguistic knowledge found in a central processing system, and his finding that cognitive and literacy skills established in a native language will transfer across languages. In addition to that, we believe that the results of our assessment of CNL speaking skills at the level close to B1, according to the CEFR, might contribute to the quest for a common core for language proficiency in native speakers, or Basic Language Cognition (BLC), introduced by Hulstijn (2015). As illustrated in the graph in Figure 1, the vast majority of the undergraduates tested at CNL at the level close to B1 scored more than 50%. Therefore, we can assume that the B1 level constituted a 'comfortable' level for our research sample, in terms of both language activities and general competencies. This outcome supports Hulstijn's assumption that BLC could come close to the descriptions at the B1 level of CEFR's activities, although we are aware of the fact that the sample of undergraduates differs from the population of native speakers in terms of the internal and external factors that affected their acquisition of an NL and an FL.

The outcome of our study is consistent with other studies which proved a positive relationship between different aspects of native and foreign language proficiency, and the evidence on long-term, cross-linguistic transfer of skills from an NL to FL (Ganschow, Sparks, & Javorsky, 1998; Sparks, Patton, Ganschow, & Humbach, 2009; and others as cited in Ellis, 2015 and Hulstijn, 2015). Although these studies differ from our research aim in various aspects, e.g., they focused on different language competencies, they did not employ a discourse-analytic approach to assessment, and they tested learners whose formal educational process in learning both languages had been yet in progress, our findings are in line with their convincing results regarding long-term linguistic influence between an NL and FL.

To our best knowledge, there is a paucity of studies aimed at comparing speaking proficiency between an NL and an FL in adults; therefore, the researchers who have been systematically preoccupied with language proficiency in native and non-native speakers (Ellis, 2015; Hulstijn, 2015) call for more empirical research in this field. Recent studies concerning speaking have mainly examined the dependence between L1 and L2 fluency in different stages of L2 exposure and indicated cross-language interference in fluency (Derwing et al., 2009; Paap et al., 2019). Duran-Karaoz & Tavakoli (2020) found an interdependence of L1 and L2 in pausing behavior and mid-clause pauses. Our result in paralinguistics, which comprised fluency, showed a significant relationship between CNL and EFL, which is in accord with the mentioned studies. Nevertheless, fluency is only one part of the speaking process, and current research should not limit itself to the examination of this competence only.

Table 3

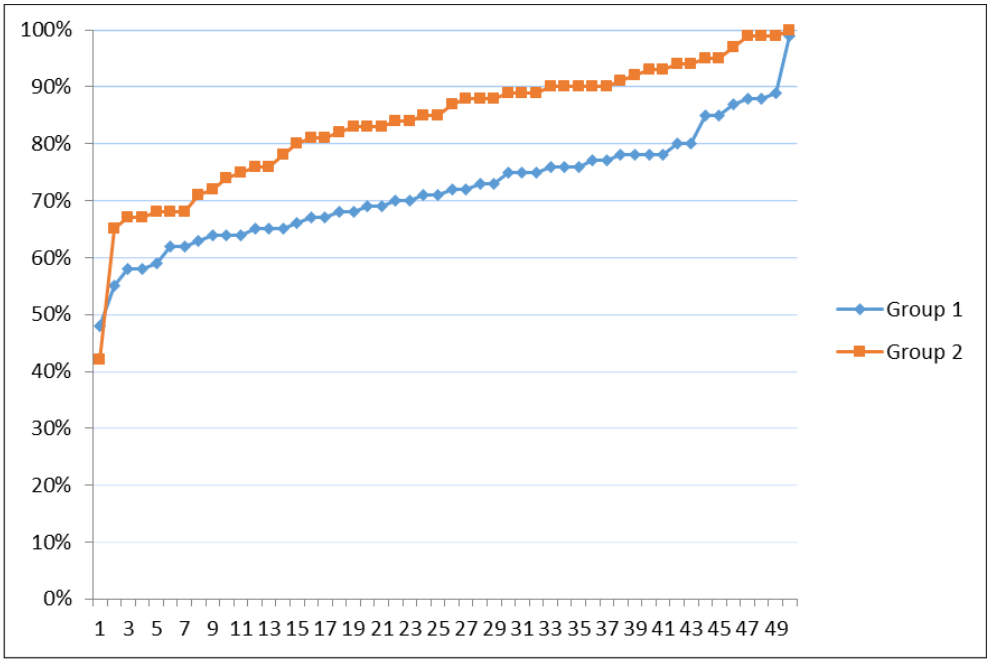
Results of the F-Test and T-Test performed on the Rated Scores for Speaking Sub-skills in Czech for G1 and G2

Variables	μ1	μ2	p (F-Test)	p (T-Test)	t-Stat	t-Crit
Accuracy	20.96	23.92	0.240178	9.95872E-05	-4.057911558	1.984467
Discourse	22.10	25.64	0.156579	5.98207E-07	-5.341658659	1.984467
Content	21.82	26.10	0.252516	2.04053E-07	-5.590719948	1.984467
Paralinguistics	8.08	7.08	0.006789	0.000121099	-4.023254286	1.987289
Total	**71.96**	**83.74**	**0.240178**	**2.29141E-07**	**-5.564122831**	**1.984467**

Note. μ_1 = the mean of a variable in G1 (n = 50), μ_2 = the mean of a variable in G2 (n = 50), p (F-Test) = the p-value of the F-Test, p (T-Test) = the p-value of the T-Test, t-Stat = the t-value of the T-Test, t-Crit = critical t-value, *p < .05.

Figure 1

Comparison of the Total Scores for the Students´ Speaking Skills in Czech between G1 and G2 in Individual Students



The latest study on L1 and L2 proficiency, examining external and internal sources of variation in L1 and L2 proficiency in 112 native English L2 college students, detected a high correlation between L1 and L2 speaking proficiency in association with working memory (Botezatu et al., 2021). Thus, we can assume that working memory is one of the crucial internal factors that influence language acquisition, manifesting itself in NL and FL proficiency levels. We believe that similar studies substantially contribute to language acquisition research and that researchers might consider using our method of rating and comparing NL and FL speaking skills in their quest for factors influencing language acquisition. In our future research, we intend to follow this path and examine some internal and external factors which have affected CNL and EFL proficiency levels in our research sample.

Implications and Recommendations

The implications of our findings are consistent with studies that emphasize the importance of developing linguistic literacy from the perspective of later 'language development' (Ravid & Tolchinsky, 2002; Berman, 2016). Regarding speaking competence in a native language, our opinion is in line with the findings emphasizing the importance of its development from the earliest stages of life (Cummins, 1979, 1981, 1984, 1991; Sparks, Patton, Ganschow, & Humbach, 2009). As suggested by Cummins (1984), the acquisition process depends on relatively stable attributes of the individual learner and on the quality and quantity of input received from the environment, which implies that educators should elaborate on the input to address shortcomings in speaking competence.

The role of the input is further analyzed by Kuo et al. (2020) who investigated the relationship between the input and literacy and linguistic/metalinguistic development in bilingual children and suggested that the concept of the input should be reexamined and go beyond the quantity and quality of the exposure of the assessed language. With regard to our results showing that the most significant difference between G1 and G2 occurred in the production of an appropriate content, we hope that educators will react to this challenge and join us in the effort to examine, suggest, and offer poor speakers a tailored input aimed at producing rich content in an organized way. For example, many researchers emphasize writing expertise as common across languages (e.g., Cummins, 1991; Ravid & Tolchinsky, 2002; Kecskes & Papp, 2000; Alkhateeb, 2018; Wei, 2020; Kim & Pae, 2021). Berman's (2016) findings that well-educated literate adults demonstrate the impact of their familiarity with written discourse should encourage educators to search for ways to implement writing tasks to improve speaking competences, namely content and discourse. Ultimately, all language skills are important and their growth is interdependent (Winke & Gass, 2019).

In general, we believe that our findings have indicated that the assessment of speaking sub-skills in an NL is meaningful and beneficial, since it may identify strong and weak points of learners' speaking competency, and thus prepare the ground for a tailored development in speaking in all stages of education. The rating scale we are offering here can be considered a suitable instrument for assessing NL speaking proficiency at the Functional level (close to B1) in secondary and tertiary education not only in the Czech Republic.

Promoting Speaking in Czech Education

The interest in the development of communicative competence in Czech education is declared by the Ministry of Education, Youth and Sports and is demonstrated, for example, by an increasing number of theses examining how communicative competence is taught and trained in primary and secondary education. They conclude that although more attention is paid to the theoretical basis of rhetoric and communication, pupils and students have problems applying the theory in practice (Khyrova, 2016; Potuckova, 2019). Moreover, there may still be some teachers who do not offer enough speaking opportunities in classes (Solcova, 2011). Some educators believe that rhetoric should become an inseparable part of all subjects. Methodology specialists recommend practicing speaking skills by using topics in which students are interested and which do not require deep previous knowledge. Students should be able to speak naturally and react adequately to real-life communication situations, as suggested by Krashen (1981) and others.

Another widely discussed issue is whether to include rhetoric in the curriculum of secondary schools in the Czech Republic. Communication competence is normally developed within the educational branch Language and language communication which covers Czech Language and Literature and the study of two foreign languages. Some educators propose splitting Czech Language and Literature into two separate subjects to gain more space to improve communicative competence in Czech. Some methodologists claim that communicative competences should be developed across all school subjects. In our opinion, all of these suggestions would contribute to improving speaking in native and foreign languages and should be implemented.

In addition to that, we believe that there is a great potential in sharing research and teaching practice among educators around the world. From the perspectives of native and foreign language teachers, we notice, for example, that language educators in English-speaking countries pay more attention to communication, rhetoric and writing compared to Czech language teachers. Therefore, it might be beneficial to compare curricula, coursebooks and teaching methods concerning the development of communicative competence between the countries and take lessons from the outcomes.

Limitations

No research is flawless, and we are aware of the limitations of this study. As it is common in research studies, we had to limit the variables in this study to a reasonable extent to give a comprehensible account of what we wanted to prove. For example, it is obvious that the participants experienced different conditions in their previous CNL and EFL study, and their command of both languages had been influenced by many factors that could not have been taken into consideration with regard to the scope of this paper. Nevertheless, we are planning to investigate other factors that influence the performance in speaking a foreign language in our future research.

With regard to the assessment of the speaking skills in Czech at the Functional level, there is no doubt that any rating scale is perfect. We created the rating scale based on the NATO 6001 STANAG and Maturita Examination scales. Obviously, the weight of individual speaking sub-skills in the total score could be a subject for discussion, as well as a broader topic of native language assessment.

In addition to that, we are aware of the fact that we were testing students at a certain period of their foreign language speaking skill development and that due to the intensive EL training, their speaking skills in English might be further developing faster than their Czech speaking skills, and the difference between their speaking skills in English and Czech might become larger. On the other hand, in line with other researchers, we believe that the development of speaking competencies is transferable (Kecskes & Papp, 2000; Van Hell & Dijkstra, 2002; Dörnyei, 2005; Kecskes, 2015; Belkina & Yaroslavova, 2018), and thus the differences between the levels of foreign and native languages in individuals might also decrease with more practice and training. In short, we have to keep in mind that the results of comparing foreign and native speaking skills in individual participants might vary in time.

Comments on Extreme Scores

To illustrate the last point, let us take a closer look at a student who outperformed her peers in G1. In Figure 1, the 50th student in G1 reached 99% for her Czech speaking skill. However, within a year after her speaking competence in Czech was tested, she reached SLP 2222 in English. We believe that her strong motivation and well-developed speaking skill in Czech contributed the most to her success in developing speaking in English. Thus, even this exception allows us to believe that NL speaking proficiency might be considered a predictor of speaking proficiency in an FL.

Another interesting case in Figure 1 concerns the first student in G2, who achieved the lowest score in his Czech speaking skill. It might be worth mentioning here that this student was not able to complete academic requirements, and therefore had to leave the University of Defence within a year after his speaking competence in Czech was tested. Examining the extent to which the poor Czech speaking skill contributed to his failure is beyond our research aim.

In general, we believe that our findings have indicated that the assessment of speaking sub-skills in an NL is meaningful and beneficial, since it may identify strong and weak points of learners' speaking competency, and thus prepare the ground for a tailored development in speaking in all stages of education. The rating scale we are offering here can be considered a suitable instrument for assessing NL speaking proficiency at the Functional level (close to B1) in secondary and tertiary education not only in the Czech Republic.

CONCLUSION

Speaking a foreign language is very difficult and takes a long time to develop. Many studies have been devoted to the search for factors that might influence this process. Our study aimed to investigate whether there is a relationship between the proficiency levels in foreign and native language speaking skills in 100 first- and second-year students at the University of Defence in the Czech Republic.

The results of the study have shown a significant relationship between the proficiency levels of the students' speaking skills in English and Czech. Students with less developed speaking skills in English (Group 1) showed less developed speaking skills in Czech at the Functional level compared to students with better results in both languages (Group 2). The most significant difference occurred in the amount and quality of the content in the communication, which confirmed the concern of some students that they would not be able to perform some tasks or confidently handle most normal, casual conversations on concrete topics, as required for the Functional level in the NATO STANAG 6001 Examination (see Appendix A), even in Czech. Thus, our research succeeded in addressing the need to examine the relationship between native and foreign language proficiency, and identified the weakest sub-skill in speaking in the native language which might hinder the progress in the development of speaking in a foreign language.

In light of these findings, not only FL teachers, but also NL teachers at primary and secondary schools must encourage students to use language for social interaction both inside and outside the classroom. Through interaction, students can build their own conversations and create the meaning that they understand and can develop. The topics or themes around which students learn language should capture their attention, expand their imagination, and encourage them to interact more with each other. The input for interaction could be facilitated through all four language skills.

The findings of our research are consistent with current studies that emphasize the need to view the first language as one of many factors that shape foreign language development. We believe that this study is meaningful in terms of the potential contribution it might make to language acquisition research by offering an additional piece of evidence suggesting the importance of the development of native language competence with respect to subsequent proficiency in a foreign language. Further research could focus on the identification and development of other native language sub-skills which are transferable across languages.

ACKNOWLEDGMENTS

This article presents a part of the Project for the Development of the Organization (DZRO – Language) that has been carried out at the Language Centre, University of Defence, Czech Republic. We express our gratitude to the JLE reviewers for their insightful comments.

DECLARATION OF COMPETING INTEREST

None declared ■

AUTHOR CONTRIBUTIONS

Eva Stankova: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper

Renata Chlumska: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper

Dana Zerzanova: conceived and designed the analysis, designed the method and its analysis, contributed data or analysis tools, performed the analysis, wrote the paper

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APPENDIX A

NATO STANAG 6001 Descriptors for SLP 1 and 2 according to NATO STANDARD A TrainP-5 (2016)

Level 1 – Survival

Ability to maintain simple face-to-face communication in typical everyday situations. Can create with the language by combining and recombining familiar, learned elements of speech. Can begin, maintain and close short conversations by asking and answering short simple questions. Can typically satisfy simple, predictable, personal and accommodation needs; meet minimum courtesy, introduction and identification requirements; exchange greetings; elicit and provide predictable, skeletal biographical information; communicate about simple routine tasks in the workplace; ask for goods, services and assistance; request information and clarification; express satisfaction, dissatisfaction and confirmation. Topics include basic needs such as ordering meals, obtaining lodging and transportation, and shopping. Native speakers used to speaking with non-natives must often strain, request repetition and use real-world knowledge to understand this speaker. Seldom does he speak with natural fluency and cannot produce continuous discourse, except for rehearsed material. Nevertheless, it can speak at the sentence level and may produce strings of two or more simple, short sentences joined by common linking words. Frequent errors in pronunciation, vocabulary and grammar often distort meaning. The concepts of time are vague. May often use only one tense or tend to avoid certain structures. Speech is often characterized by hesitations, erratic word order, frequent pauses, straining and groping for words (except for routine expressions), ineffective reformulation and self-corrections. (p. A-3)

Level 2 – Functional

Ability to communicate in everyday social and routine workplace situations. In these situations the speaker can describe people, places and things; narrate current, past and future activities in complete but simple paragraphs; state facts; compare and contrast; give straightforward instructions and directions; ask and answer predictable questions. Can confidently handle most normal, casual conversations on concrete topics such as job procedures, family, personal background, interests, travel and current events. Can often elaborate in common daily communicative situations, such as personal and accommodation-related interactions; for example, can give complicated, detailed and extensive directions and make non-routine changes in travel and other arrangements. Can interact with native speakers not used to speaking with non-natives, although natives may have to adjust to some limitations. Can combine and link sentences into paragraph-length discourse. Simple structures and basic grammatical relations are typically controlled, while more complex structures are used inaccurately or avoided. Vocabulary use is appropriate for high-frequency utterances, but unusual or imprecise at other times. Errors in pronunciation, vocabulary and grammar may sometimes distort meaning. However, the individual generally speaks in a way that is appropriate for the situation, although the command of the spoken language is not always firm. (pp. A-3–A4)

APPENDIX B

Scores for Speaking Sub-skills and the Total in Czech for Groups 1 and 2

Order	Group 1					Group 2				
	Accuracy	Discourse	Content.	Paral.	Total	Accuracy	Discourse	Content.	Paral.	Total
1	13	18	11	6	48	15	11	12	4	42
2	17	18	14	6	55	21	19	18	7	65
3	18	19	15	6	58	18	22	20	7	67
4	18	19	15	6	58	21	21	18	7	67
5	20	17	17	5	59	20	21	21	6	68
6	17	18	19	8	62	18	22	21	7	68
7	16	19	21	6	62	16	21	24	7	68
8	20	19	18	6	63	20	22	21	8	71
9	19	18	20	7	64	18	23	23	8	72
10	19	18	21	6	64	20	23	27	4	74
11	18	19	21	6	64	22	23	23	7	75
12	18	20	21	6	65	19	24	25	8	76
13	17	21	20	7	65	23	22	23	8	76
14	17	19	23	6	65	24	25	21	8	78
15	19	20	20	7	66	22	25	25	8	80
16	19	21	20	7	67	23	25	25	8	81
17	20	21	19	7	67	20	24	28	9	81
18	20	20	21	7	68	23	25	26	8	82
19	20	20	20	8	68	20	27	28	8	83
20	21	20	22	6	69	23	27	25	8	83
21	20	21	21	7	69	24	26	26	7	83
22	19	23	21	7	70	20	27	29	8	84
23	21	20	22	7	70	25	25	27	7	84
24	20	22	21	8	71	29	26	21	9	85
25	21	22	21	7	71	25	25	27	8	85
26	20	23	22	7	72	28	26	25	8	87
27	21	25	20	6	72	22	28	30	8	88
28	21	24	21	7	73	27	25	28	8	88
29	21	23	22	7	73	26	27	27	8	88
30	23	23	22	7	75	23	27	29	10	89
31	21	25	21	8	75	24	28	29	8	89
32	24	22	21	8	75	27	28	29	5	89
33	23	22	23	8	76	25	28	27	10	90
34	15	25	28	8	76	28	25	28	9	90
35	20	23	25	8	76	27	28	27	8	90

Order	Group 1					Group 2				
	Accuracy	Discourse	Content.	Paral.	Total	Accuracy	Discourse	Content.	Paral.	Total
36	24	22	23	8	77	28	28	27	7	90
37	22	23	24	8	77	26	26	29	9	90
38	21	24	25	8	78	27	26	29	9	91
39	23	24	23	8	78	25	27	30	10	92
40	22	24	25	7	78	25	29	30	9	93
41	23	22	25	8	78	23	30	30	10	93
42	24	23	25	8	80	27	29	28	10	94
43	22	24	25	9	80	29	28	30	7	94
44	27	27	26	5	85	28	29	30	8	95
45	27	26	25	7	85	28	29	29	9	95
46	27	27	27	6	87	27	30	30	10	97
47	28	26	26	8	88	29	30	30	10	99
48	25	27	28	8	88	29	30	30	10	99
49	28	29	25	7	89	29	30	30	10	99
50	29	30	30	10	99	30	30	30	10	100

Note. The scores for each group are arranged in order according to the Total score from the worst to the best one.

https://doi.org/10.17323/jle.2022.12537

Exploring the Impact of Process-Genre Approach on Learners' Academic Writing and Higher Order Thinking Skills

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ABSTRACT

Background. The study of using process-genre approach that was used to increase the writing competence had been conducted by many researchers. However, the contirbution of this learning approach for HOTs aspects has not been done by many researchers, especially on learning writing Indonesian

Purpose. Many studies only focused on one research approach, consequently, the finding was not quite comprehensive. Besides, to examine the effect of process-genre approach on academic writing competence and HOTs, this research also aimed to explore attitude and students' expectation on their learning experience by using this approach.

Methods. The research used a sequential, mixed-method explanatory approach. Two grades were randomly chosen to enroll in the experimental class and a monitoring class of up to 52 students. The individual is a member of the Indonesian language education department who is currently taking the writing 1 course at the Bengkulu University, Indonesia. There are two instruments used in this analysis, the writing test & HOTs test for Quantitative statistics and semi-structured qualitative data interviews. The data from the writing test and the HOTs were quantitatively analysed for the paired sample t-test, the stand-alone sample t-test and the MANOVA, while the interview data were analysed using thematic analysis techniques.

Results and Implications. The results have found that process-genre approach had a substantial positive effect on scholarly writing and student HOTs. Besides, thematic research also reveals that there are favorable views and expectations of students regarding the influence of the process-genre approach towards academic writing and student HOTs. This finding is iexpected to enrich knowledge about how students could enhance their writing ability and HOTs by using process-genre approach.

KEYWORDS:

academic writing, higher-order thinking skills, mixed methods, process-genre approach

Citation: Wardhana, D. E. C. (2022). Exploring the impact of process-genre approach on learners' academic writing and higher order thinking skills. *Journal of Language and Education, 8*(2), 140-153. https://doi.org/10.17323/jle.2022.12537

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Received: June 08, 2021
Accepted: June 23, 2022
Published: June 30, 2022

INTRODUCTION

The Higher Order Thinking Skills (HOTs) are basic skills that students must possess in addition to their academic achievement (Marshall & Horton, 2011; Tajudin & Chinnappan, 2016). In other words, these skills can assist students in constructing knowledge and various information. HOTs are also considered an important aspect of education and teaching because these skills The ability, speed, and efficacy of student learning can be impaired (Alrawili et al., 2020). The HOTs in the continuum of education and learning are therefore required in response to the demands of evolution. of education (Ramadhan et al., 2019) and produces qualified human resources that following the demand of the industrial world. (Heong et al., 2012; Misrom et al., 2020).

One way to develop HOTs for students is through learning academic writing. This is based on the fact that by using thinking skills a person can generate ideas critically and analytically in writing activities (Singh et al., 2018). Besides, with writing activities, students are invited to be creative which can encourage them to a higher taxonomic level of thinking ap-

plying, analyzing, synthesizing, and evaluating (Singh et al., 2020). Besides, with writing activities, students able to express their ideas and then organize the information through the writing they produce (Helaluddin et al., 2020).

Various studies on HOTs through the infusion approach in learning to write have been carried out by many researchers. Studies on student perspectives in learning writing to improve HOTs were carried out by Ganapathy & Kaur (2014). The results of this study stated that students felt involved in active learning, experienced independence in learning, developing writing skills, and personal skills. The study of the instructor's perspective states that they have used various strategies that can help learners increase HOTs through real-life situations and problem-solving skills (Singh et al., 2020). Research & development in learning to write by integrating HOTs was also carried out by several researchers to create valid, practical, and effective learning products in the form of syllabus, modules, and textbooks (Lustyantie et al., 2019; Singh et al., 2018). Besides, another study revealed that HOTs questions were able to improve the descriptive text writing skills of grade 8 junior high school students (Sianturi et al., 2020).

From these studies, there is one thing that has been missed by researchers/teachers an in-depth exploration effort of learning to write using the best approach in maximizing student HOTs the process-genre approach. This approach is the most advanced of several existing approaches. The genre method approach includes an understanding of vocabulary, meaning & aims, and language skills (Badger & White, 2000; Tesfie, 2017; Yanghee & Jiyoung, 2005) that can be used to improve student HOTs. The purpose of this thesis is therefore to fill in previous study gaps by using the following research querys: (1) How successful is the genre approach in improving student writing skills and HOTs relative to the traditional approach? (2) What attitudes and expectations do students have of the process genre approach to learning to write?

LITERATURE REVIEW

Higher-Order Thinking Skill

The word higher-order thinking skills (HOTs) has been commonly used in numerous paper papers, but it is not a straightforward term to describe (Schraw et al., 2011). It should be remembered, though, that while the definition is difficult to describe, it is reasonably straightforward to list some of its features (Resnick, 1987). HOTs are non-algorithmic, appear to be dynamic, and often include problems of complexity. Simply put, HOTs are characterized as the willingness of students to think at a higher level so that they can assess, examine and develop inventions to solve current problems (Ichsan et al., 2019)

Based on Bloom's taxonomy and the updated model (Krathwohl, 2002; Leighton, 2011), the implementation, review, assessment, and improvement of skills are core elements at the HOTs stage. Brookhart (2010) suggests that HOTs include logical thought skills, reflective logic, and metacognitive skills. And the imaginative thought. In line with Brokhart, Martinez & McGrath (2014) claimed that thinking skills are closely linked to HOTs and deeper learning. Moreover, the topic of HOTs usually gives preference to the insertion of triggers in contextual contexts (Abdurahman et al., 2019; Tiruneh et al., 2017).

Concerning the current knowledge age, HOTs can be defined as the highest level in the cognitive process hierarchy. With HOTs, students will face problems dominated by multiple types of information and with comparatively small processing time (Nourdad et al., 2018)In other words, HOTs concentrate on improving students' knowledge to be able to interpret accurately, assess current knowledge and construct something different (Chinedu & Kamin, 2015). HOTs will appear when students receive new information, store it in memory, relate existing awareness and product details to accomplish priorities or overcome difficult problems (Nourdad et al., 2018).

Academic Writing

Based on its name, academic writing is of course related to writing activities carried out in an academic environment. There are several criteria used in classifying types of writing into groups of academic writing. Zainurrahman (2011) describes several criteria for academic writing: (1) academic writing is written by components of the academic community, (2) scientifically, and (3) conventional in nature or restrained by various rules. In addition to these four criteria, there are other criteria used in categorizing academic writing containing definition, description, classification, causality, comparison, contrast, and argument (Murray & Hughes, 2008).

Oshima & Hogue (2006) describes that academic writing is the type of writing required at the college level which is different from personal writing, literature, journalism, and business. These differences are identified in the specific audience, the tone or tones, and the purpose of the writing. Several types of academic writing are differentiated into several genres, narrative, procedure, hortatory, expository, observation, and implantation (Mahsun, 2014). Indrawati & Subadiyono (2018) added that academic writing can be divided into several forms, such as books & book reports, translations, essays, research articles, conference papers, academic journal articles, theses & dissertations, and abstracts.

Process-Genre Approach

In general, there are three approaches used to learn how to write a product based approach, a process-based approach, and a genre-based approach. All three approaches are judged by experts to have their respective drawbacks, so

it is important to merge the three approaches. The term for combining the three approaches is the process-genre approach. This approach is a writing activity that adopts a process model and genre theory which is intended as a solution to the various limitations of the three approaches (Agibuay, 2017; Babalola & Litinin, 2012).

Several stages must be passed in the process of learning to write using the process- genre approach. Jarunthawatchai (2010) mentions several stages in this approach: (1) Construction of the context, (2) examination of the text of the model, (3) collective construction of the text, (4) individual construction of the text, and (5) contemplation on prose. Another stage model in the process-genre approach is also proposed by Zhao (2017)) by simplifying the stages into just four parts analysis of model texts, independent writing, revising, and editing or proofreading. On the other hand, there is a stage model that includes six stages: (1) exploration of intent and functions, (2) language scaffolding, (3) modeling, (4) mutual/ joint text construction, (5) individual text construction, and (6) description, free conversation, Q&A, & assignment (Du, 2015). In this study, the design of the writing learning approach used was the Jarunthawatchai process genre-based approach which included five stages as mentioned above.

METHODS

Research Design

This thesis employs a sequential mix-method approach to data collection and interpretation to address a variety of research questions (Ebadi & Rahimi, 2017; Riazi & Candlin, 2014). The goal of this approach is to test the feasibility of a genre-based approach to developing student writing skills & HOTs and to examine their expectations and attitudes towards learning. The use of mixed-method methodology helps researchers to carry out in-depth experiments utilising two or three stages of study or data collection at the same sample (Bakla, 2020; Greene et al., 2005; Kamalodeen & Jameson-Charles, 2016; Kazazoglu, 2020). Moreover, mixing approaches are useful for exploring inconsistencies and increasing efficiency by cultivating a holistic viewpoint (Creswell, 1994; Creswell & Plano-Clark, 2007; Luo & Dappen, 2005). In other words, this study uses qualitative findings to help explain, elaborate, and clarify quantitative findings (Creswell et al., 2003).

The use of mixed-method methodology helps researchers to carry out in-depth experiments using two or three steps to evaluate or extract data from the same sample (Bakla, 2020; Greene et al., 2005; Kamalodeen & Jameson-Charles, 2016; Kazazoglu, 2020).

Participants

Two classes from the first semester of the Indonesian Language Education Program at the University of Bengkulu, Indonesia, were chosen as participants in this research. One class was randomly chosen to act as an experimental group and as a monitoring group. Both of the participants are students aged 19 n.d. 52 students are taking composition lessons (26 experimental group & 26 control group).

Data Collection

The dataset was grouped into two aspects of the collection of quantitative and qualitative data. Quantitative data collection was carried out using active evaluations in the form of essay writing tests (pretest & post-test) and HOTs tests in the form of multiple open-ended questions. In addition, qualitative data collection used approaches in the form of semi-structured interviews. More in-depth, the instruments in data collection were described in the following section.

Instruments

Performance Test

The type of test used in data collection to see students' academic writing skills is a writing test using Indonesian. This writing test is carried out at the beginning before the learning treatment (pretest) and also afterward (post-testing) granted to experimental and control groups. Student writing results. These are then assessed using the academic writing assessment rubric using assessment rubric developed by Oshima & Hogue (2006). Some of the aspects assessed are: (a) format aspect/maximum score of 5, (b) mechanics/maximum score of 5, (c) content/maximum score of 20, (d) organization/maximum score of 45, and (e) sentence structure & grammar/maximum score 25.

To reduce subjectivity and assessment bias, the researchers measured the consistency of the rubric score, known as inter-rater reliability. That is, it is not only researchers who are in charge of assessing student writing but also involving one of the experienced Indonesian language course teachers (Landis & Koch, 1977; Panou, 2013). Measurement of inter-rater reliability is done by selecting 10 writings randomly from both pretest and post-test (Alwaleedi, 2018). The measurement results show that the acceptable consistency of the two assessors is 0.90 which is obtained using the Pearson product-moment correlation coefficient with the SPSS version 23 application.

Higher-Order Thinking Skill Test

Another instrument used in this study is the HOTs performance test. This test measures three levels of student HOTs which include the ability to analyze, evaluate, and create open-ended questions (Salem, 2018). This test consists of three main parts: (1) the first part measures the level of student performance in the analysis task, (2) the second part measures the level of students' ability to evaluate and assess evidence and arguments in their writing, and (3) the third part measures the level of the ability of students to create something new or unusual in supporting their writ-

ing. The overall score on the HOTs performance test is 75 points with 25 points each.

Semi-Structured Interview

Subsequent data collection was carried out using semi-structured interviewing methods to examine student expectations and perspectives towards the process-genre approach to develop their academic writing skills and HOTs. Half-structured interviews were chosen by researchers because they have the potential to explore deeper and allow researchers to add several questions as a process of clarification and elaboration (Guthrie, 2019). Besides, the questions in the interview were obtained from the interview instruments used by Ebadi & Rahimi(2017) dan Pham & Usaha (2016). Twenty six students were willing to be interviewed were asked by the researcher to fill out the willingness sheet. Interviews were conducted directly for approximately 30-45 minutes for each student. All conversations in the interview were recorded using a digital recorder by asking for participant consent. The language used for the interview was Indonesian to make easy the process of getting the information from students. Interview was conducted in a closed room to avoid distractions during the interview process (Lee et al., 2019).

Data Analysis

Quantitative Analysis

The data obtained from the pre-test and post-test were then quantitatively evaluated using the SPSS 23 application. In this analysis, the researcher estimated the mean value, the standard deviation, the t-test, and the one-way MANOVA Multivariate Analysis. Paired-t samples were run to see whether there was a substantial improvement in HOTs and student academic writing using the process-generic methodology in the experimental community and traditional approaches in the control group. Besides, the examiner also conducted a one-way MANOVA test to monitor the effect of covariates on the post-test of both classes.

Qualitative Analysis

The data collected from the interviews were analysed using a thematic approach. This study was used to identify the most influential trends in student attitudes and activities regarding the impact of the genre approach on the production of academic writing skills and HOTs. Some experts suggest that thematic research often helps to analyse the viewpoints of different students, highlight parallels and differences, and produce surprising insights (Braun & Clarke, 2006; King, 2004; Nowell et al., 2017). Thus, the interviews were transcribed and coded based on open thematic coding to find the most crucial key variables on student impressions (Liu & Sadler, 2003).

Besides, in determining the accuracy of student responses to interview questions (credibility), researchers used the member checking technique (Morse et al., 2002). This technique is an opportunity for participants to examine and agree on certain aspects of the interpretation of the data they have provided. During the interview process, participants were given a transcript of the interview and then asked to verify it by editing, clarifying, elaborating, and even if possible, they deleted their words from the transcript (Carlson, 2010).

Procedure

As previously reviewed, this report incorporates Quantitative and contextual approaches to data analysis and analysis. For this cause, in general procedures for this study can be illustrated in the following chart.

In the early stages, the researcher carried out a writing test (pretest) for all participants, both the experimental class and the governing class. This is the researcher/lecturer presented pictures/photos on written themes such as education, health, law, and other recent issues. In this pretest, the lecturer allocates 60 minutes for students to write essays with a minimum number of 500 words.

Furthermore, the intervention phase was carried out by the researcher by applying the genre process approach in learning to write to the experimental group. On the other hand, the control group was approached using a traditional approach that involved multiple steps to clarify the definition of the text, to present illustrations, to identify examples of essay texts and to write separately. On the other hand, referring to the opinion of Jarunatawatchai (2010) there are five stages in the genre process approach, (1) building context, (2) analyzing sample texts, (3) writing texts together, (4) writing essays independently, and (5) reflection.

After the intervention process in learning academic writing is complete, the researcher conducts a writing test which is commonly called a post-test. Similar to the pretest, this post-test was given to both groups with duration of 60 minutes with a minimum of 500 words. Finally, the interview phase was carried out by a special researcher on group participants who were superior to the HOTs level they achieved by seeing the increase in HOTs scores from pretest to post-test. This interview was conducted to help describe and explain known quantitative research findings in the pretest and post-test processes.

RESULTS

Quantitative Analysis

Academic Writing

The first results to be quantitatively analysed were student pre-test and post-test scores in all schools. The researcher performed two paired t-test experiments to determine the impact of the process-genre approach on the development of writing skills. Table 1 below displays the overall disparity

Figure 1
Research flow

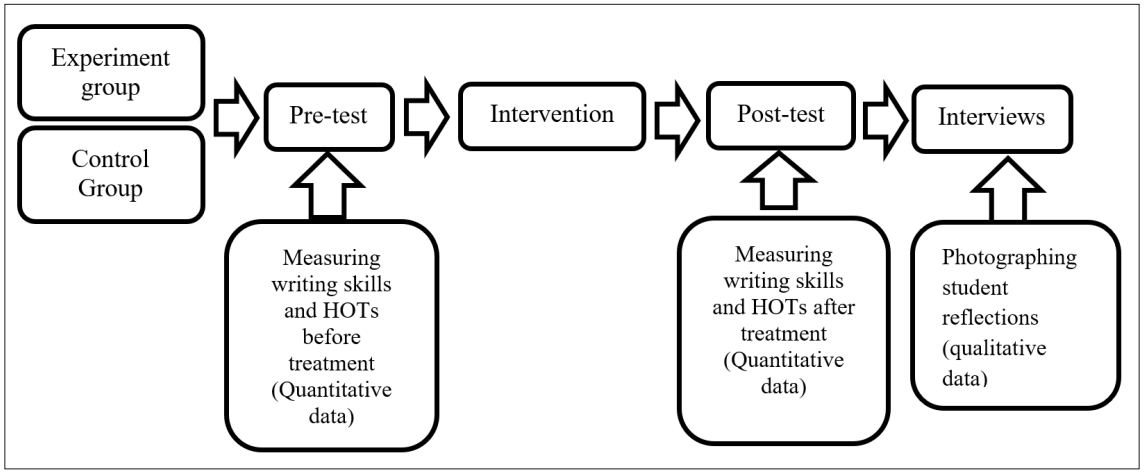
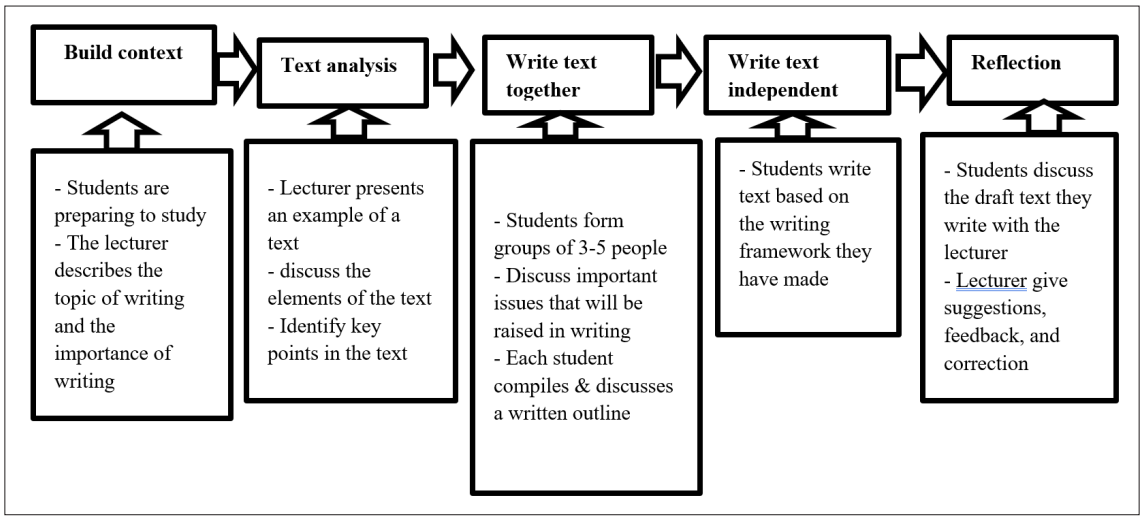


Figure 2
Learning steps with the genre process approach



between the experimental community's pre-test and post-test scholarly writing and the control class. From the data seen in the table, it can be observed that the overall post-test score of the two groups is higher than the pre-test average.

Table 2 is also the outcome of the study using the t-test matched samples to determine the discrepancy between the pre-test and the post-test in both grades. The table indicates that there is a difference in the pre-test and post-test academic writing of the two groups. In other words, there

Table 1
Descriptive statistics, analyzing the number of differences in the average score of academic writing between the pretest & post-test for the two classes

	Mean	N	Std. Deviation	Std. Error mean
Writing Ex-pre	56.5000	26	7.28972	1.42963
Writing Ex-post	73.5000	26	9.68401	1.89919
Writing Co-pre	57.5769	26	8.09530	1.58762
Writing Co-post	64.6923	26	8.26931	1.62175

Table 2

Paired samples t-test, investigating the differences between the pretest and post-test, wrote over the academics of the two groups

Paired Differences								
	Mean	Std. deviation	Std. Error mean	95% confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Exp	-17.00000	5.97997	1.17277	-19.41536	-14.58464	-14.496	25	.000
Con	-7.11538	4.01325	.78706	-8.73637	-5.49440	-9.040	25	.000

was a wide difference between the pre-test and post-test academic writing of the two schools. This difference is the consequence of the use of a solution for the process-genre in the experimental class and of conventional methods in the control class.

Table 3 below indicates the amount of mean gaps between the two classes of pre-tested students in their academic writing results. From this table, it can be seen that the pre-test scores of student academic writing in the control and experimental classes are nearly equal. In comparison, the variations between the scholarly writing pretests in the two classes are still related to Table 4 below. Table 4 indicates that there is no substantial difference in the original evaluation in the trial and control classes. In other words, the pre-test outcomes of student academic writing in both classes were identical before being approached with a process-genre approach and traditional approaches.

Table 3

Descriptive figures, investigating the number of mean variations between the two classes.

Groups	N	Mean	Std. deviation	Std. error mean
Experimental (pre)	26	56.5000	7.28972	1.42963
Control (pre)	26	57.5769	8.09530	1.58762

Table 4

Independent samples t-test, analysing the discrepancies between the pre-test classes.

	t-test for equality of means								
	Levene's test for equality of variances		t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
	f	Sig.						Lower	Upper
Writing (pre)	.663	.419	.504	50	.616	1.07692	2.13644	-3.21424	5.36809

In comparison, the following table 5 identifies the number of differences in the post-test performance in student academic writing in experimental and control institutions. From this table it can be concluded that the average student writing score in the experimental category is greater than the average student writing score in the control group.

Table 6 displays the outcome of the discrepancy between the two groups' post-test evaluations, which turned out to be better than the management group score. The findings of the data analysis found that there were substantial variations between the two groups. This means that the genre-based approach to academic writing outcomes of

Table 5

Descriptive data, investigating the amount of variations in the average post-test between the two classes

Groups	N	Mean	Std. deviation	Std. error mean
Experimental (post)	26	73.5000	9.68401	1.89919
Control (post)	26	64.6923	8.26931	1.62175

Table 6

Independent samples of t-test, discrepancies between post-tests of the two classes

	t-test for equality of means								
	Levene's test for equality of variances		t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
	F	Sig.						Lower	Upper
Writing (post)	.252	.618	-3.527	50	.001	-8.80769	2.49740	-13.82386	-3.79153

students outperforms academic writing results using traditional approaches. Thus, the use of the genre-based approach is more successful in improving student scholarly writing than the traditional approach in the control class.

Higher-Order Thinking Skills

Apart from studying the impact of the process-genre approach on students' academic writing, this study also explores the influence of this approach on their HOTs. For this second target, the researcher ran a paired-samples t-test on the HOTs test outcome findings using open-ended questions in both groups. Findings of the evaluation can be found in Tables 7 and 8 below.

Table 7 displays the results of the pre-test and post-test analysis of the average discrepancy between student HOTs in both grades. The table indicates that the average student HOT score in the post-test is higher than the pre-test score, both in the experimental class and in the control class. Table 8 reveals the difference between pre-test and post-test student HOTs in both schools, showing that there is a major contrast between

Table 7

Descriptive numbers, the amount of mean variations between the pre-test and the post-test of the two classes

	Mean	N	Std. deviation	Std. error mean
Eva-Pre-Ex	16.4615	26	2.55433	.50095
Eva-Post-Ex	21.9231	26	2.34810	.46051
Eva-Pre-Cont	17.2692	26	1.88108	.36891
Eva-Post-Cont	20.5769	26	2.87295	.56343
Ana-Pre-Ex	16.7308	26	1.21845	.23896
Ana-Post-Ex	22.1154	26	1.63284	.33741
Ana-Pre-Cont	16.0000	26	1.72047	.32023
Ana-Post-Cont	19.5000	26	3.02324	.59291
Cre-Pre-Ex	16.9615	26	2.47355	.48510
Cre-Post-Ex	21.5385	26	2.37033	.46486
Cre-Pre-Cont	17.4615	26	1.88108	.36891
Cre-Post-Cont	17.7692	26	1.98611	.38951

Table 8

Paired samples t-test, differences between the pretest and post-test of the two groups

	Paired differences							
	Mean	Std. deviation	Std. Error mean	95% confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Eva (Ex)	-4.65385	3.28563	.64437	-5.98094	-3.32675	-7.222	25	.000
Ana (Ex)	-5.38462	1.57675	.30923	-6.02148	-4.74775	-17.413	25	.000
Cre (Ex)	-4.57692	1.17211	.22987	-5.05035	-4.10350	-19.911	25	.000
Eva (Con)	-4.11538	3.20408	.62837	-5.40954	-2.82123	-6.549	25	.000
Ana (Con)	-3.50000	3.04959	.59807	-4.73176	-2.26824	-5.852	25	.000
Cre (Con)	-.30769	2.70953	.53138	-1.40209	.78671	-.579	25	.568

the pre-test and the post-test. This indicates that both tables suggest that the solution to the genre mechanism and the traditional method will substantially develop student HOTs.

In comparison, Table 9 above is the research outcome of the one-way MANOVA test, which seeks to assess the disparity in student post-test scores on three dimensions of HOTs in both classes (experiment & control). The inter-subject impact test in the table above indicates that the relationship between the genre processes approaching HOTs gave a score of 7,334 with a significance of 0,001. This shows that the unvariate approach to the process-genre affects student HOTs in all three aspects.

Table 9

Tests of Between-subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[b]
Corrected Model	Post_control	104.333[a]	2	52.167	7.334	.001	14.668	.930
	Post_ex	4.487[c]	2	2.244	.488	.616	.976	.127
Intercept	Post_control	29000.205	1	29000.205	4.077E3	.000	4077.174	1.000
	Post_ex	37269.55	1	37269.551	8.103E3	.000	8102.980	1.000
HOTs	Post_control	104.333	2	52.167	7.334	.001	14.668	.930
	Post_ex	4.487	2	2.244	.488	.616	.976	.127
Error	Post_control	533.462	75	7.113				
	Post_ex	344.962	75	4.599				
Total	Post_control	29638.000	78					
	Post_ex	37619.000	78					
Correct Total	Post_control	637.795	77					
	Post_ex	349.449	77					

Table 10.

Categories of students' perceptions and behavior towards the influence of the genre process approach on their HOTs

No	Categories	Themes
1.	Benefits of the genre process approach	Writing skills HOTS upgrade
2.	Excess steps in the process genre approach	Text analysis phase Collaborative writing phase Reflective phase
3.	New insights in writing	Text structure Current issues
4.	Positive attitude towards the genre process approach	

Qualitative Analysis

Centered on the second research question, the goal of this review, is to explore student perceptions and attitudes towards the process-genre approach in order to improve their academic writing skills & HOTs. Data derived from interviews is qualitatively analysed using a thematic analysis. Generally speaking, the findings of the analysis can be found in the table below.

All students interviewed from the experimental group showed positive responses about learning to write with the process-genre approach. The students felt that the process-genre approach provided benefits not only in terms of improving academic writing skills but also for increasing their HOTs. The process-genre approach that applies several phases is considered to provide knowledge that can then be applied in writing activities. RP-01 states that:

> *For me, this approach provides tips in writing such as how to compose interesting writing.*

In addition to writing skills, students also feel that their HOTs are honed and developed in learning activities using this process-genre approach. Efforts to find valid and credible sources of information, provide solutions to problems, and analyze a phenomenon are activities that hone student HOTs. This is supported by the RP-21 and RP-10 statements which state:

> *When I write about the problem of unemployment, the solutions that I will offer in my writing must be relevant. So I have to read various sources so that my writing is more interesting.*

I think writing trains me to come up with different creative ideas. For example when I write about the learning method using video as the best method then I have to describe its advantages over other methods in my essay.

Regarding the phases in the process-genre approach, the students gave a positive response and found this approach much more effective. One activity phase that was appreciated was the writing phase together. According to them, the discussion and brainstorming is able to generate new ideas about the theme of writing. The RP-07 & RP-22 claim that:

I feel that many ideas come up when discussing with friends. In fact, when my friends share their opinions, other ideas automatically pop into my head.
When discussing with friends, I am able to provide their opinions and suggestions. I think this appro0ach is the best way of developing writing themes.

In addition to the collaborative writing phase, students also gave positive responses to other phases the text analysis and reflective phases. Students assessed the text analysis phase to help them recognize the structure of the essay text that they had not known so far. According to their view, the writing was just an activity of describing ideas from thought to written form without understanding that a text also has a systematic.

Like RP-14 which reported:

I thought a free essay text without any ties was like writing a short story or a novel. Now, I just found out that an essay text has a standard structure such as the opening paragraph, the body of the essay, and the closing paragraph.

Students also appreciated the last phase in the process-genre approach which was considered to have provided an opportunity for them to perfect the text they produced. The reflective phase is the final phase in writing by discussing the results of the writing with the lecturer. In this phase, students get corrections and suggestions in the form of using word choices (diction), sub-themes that must be developed or which must be ignored, punctuation, and so on. For example, the RP-12 says:

I really like discussing with the lecturer y. I feel that my writing is more perfect after receiving feedback and suggestions from my lecturer.

Besides, students considered that the process-genre approach was also able to help them master various current issues. When they choose an issue that they raise as the theme of their writing, of course, they need more accurate information about that issue. For that reason, students try to find various references on the issue, both searching through the internet and reading books, newspapers, magazines, and others. One of them is the RP-6 which claims that:

I feel like learning to write will make me accustomed to finding the right source of writing. Example when I write about the practice of bullying then I have to look for literature on that theme.

Finally, based on the findings of the student interviews, it can be inferred that there are optimistic attitudes towards the introduction of the genre solution. Any students felt that their writing was stronger in terms of consistency for this approach. The standard of the writing meant was not only limited error in the linguistic element, but also in the choice of ideas and the organisation of the writing process. RP-26 reported the following:

I feel confident in my writing after receiving suggestions and corrections from friends and lecturers. I find it helpful to use the right words choice according to the context.

DISCUSSION

HOTs becomes one of the educational objectives besides academic achievement. The integration of HOTs into learning writing has a essential role for teachers or lecturers in higher education. The goal of this research is to examine the effects of the process-genre approach on the production of writing and higher-level thinking skills for students. Selain itu, penelitian kali ini juga bertujuan untuk mengeksplorasi bagaimana persepektif mahasiswa terhadap pembelajaran menulis tersebut.

The results of this study indicate that the process-genre approach has a positive effect on the development of HOTs and student writing skills. It can be indicated by improvement of HOTS and students' writing with comparing pretest and posttest scores. This is consistent with the conclusions of the report published by Ganapathy & Kaur (2014) which states that HOTs-based writing learning can facilitate students' writing skills and interests. For this reason, learning to write like this must be implanted explicitly in classroom learning.

In relation to writing competence, several researchers have conducted studies relating to the use of a process-genre approach to writing instruction. Several researches suggest that this approach has a substantial influence on the learning success of students in order to improve the standard of the writing they produce (Huang & Zhang, 2019; Janenoppakarn & Thongrin, 2020). On the other hand, research findings also reinforce that this combination approach can improve writing skills, both writing essays, reports, and other academic writing (Assaggaf, 2016; Alabere & Shapii, 2019; Maolida & Salsabila, 2019; Sarala et al., 2015).

Based on the findings of the quantitative and qualitative analysis, the HOTs required for writing activities. This is focused on the idea that students would go beyond their comprehension of certain content to apply their critical reasoning as well (Singh et al., 2020). The learning of writing process also supports students' desire to think critically and creatively differently (Lustyantie et al., 2019). This means

that students can provide various possible responses or views on a problem or the same theme. Based on facts, academic writing has strong relation with HOTs' ability.

In general, this finding proved that the process-genre approach gave positive impact on improvement of students' writing ability and HOTs. The process-genre approach as a hybrid approach is considered capable by experts in developing students' writing skills. Learning to write is the most difficult stage of language learning which requires effective methods, one of which is by combining several approaches (Bin-Hady et al., 2020; Kondal, 2020; Rusinovci, 2022). That is, the process-genre approach is a synthesis of two approaches that help students master writing skills from various aspects, including aspects of organization, vocabulary, grammar, and mechanics (Agesta & Cahyono, 2017; Hoa, 2022; Xu & Li, 2018).

One of the phases appreciated by the students in the process-genre approach was the writing phase together. This phase is considered capable of generating higher-order thinking skills by providing input and views to each other. This kind of social interaction contributes to the formation of a learning community, maintaining space to encourage HOTs through the creation of a shared knowledge process (Wang, 2020). In other words, teacher and peer interactions have a positive impact on activities that encourage student HOTs (Gailea et al., 2021).

The role of the teacher in the process-genre process approach must indeed be a priority. When students can write their ideas into writing, the task of the lecturer is how to provide input and directions to the writing without the tendency to change or divert to other ideas. In other words, the function of teacher as facilitator would have an effect on students' independence in learning (Ramon-Casas et al. 2018; Toprak & Yucel, 2020). The process-genre approach has advantages for the teaching role which includes various roles, such as assistant, evaluator, and examiner (Yuniar et al., 2019). Feedback during learning also helps provide a clear picture of the process, context, and goals of writing (Winarti et al., 2021).

For further research, I recommend to enrich the scope of language competence and not only focus on writing ability. Besides, the next research could emphasize on learning outcome and examine the effectiveness of critical thinking, creative thinking, self-efficacy and so on. The limitation of the research namely the participants of interview section were only limited to experiment group. It meant that this research just focused on exploring students' perception about learning the process-genre approach and ignore traditional approach. To achieve comprehensible qualitative finding, the researcher needed to involve participant from control group.

Based on background elaboration, this research was tried to fill the gap about incomprehensible learning writing. The Majority of previous studies only used one research design, thus the finding was limited. This research employed mixed method design to gain real research finding that can be viewed from many perspectives. By using this design, the quantitative finding that is generalizing can be supported by using proofs from qualitative data. It means that the different data analysis could strengthen and support valid and reliable of the research finding.

CONCLUSION

HOTs is one of the competences in education. One of the ways to enhances students' GOTS ability is to integrate it into learning, especially in academic writing course. In gaining the target, the lecturer or teacher could use the process-genre approach that is special method in learning writing by combining process approach and process-genre approach. This study gives emperical evidence about the use of the process-genre approach which has positive impact on students' writing ability ehancement and HOTs. Moreover, another finding showed that students had positive attitude on the process-genre approach. It means that the qualitative finding supports the previous emperical evidence.

The use of the process-genre approach in learning writing was appropriate. This form of hybrid approach is a blend of the process and genre approaches aimed at mitigating the limitations of both approaches. The characteristic of this approach dould stimulate students' ability in thinking that produces good writing. Besides, the various stages of learning in this approach are considered capable of encouraging and stimulating student HOTs such as analyzing, evaluating, and creative skills.

Concerning writing activities, of course, students need a level of thinking that is more than just putting ideas into writing. There needs to be an understanding of the problems that they raise as writing topics. Students must also be able to analyse and evaluate the various evidence and arguments put forward in writing. In the end, the highest level thinking ability is the ability to create which must be expressed by students in providing solutions, the best alternative options, and creating something new in overcoming the problems discussed in their writing.

The further research about using the process-genre approach in improving students writing ability or HOTS needs to be done comprehensively. This will be used to generalize the finding and get more deep description about this topic. The next research must consider other aspects: (1) participants; (2) Target of language skills; (3) learning of other language skills. Furthermore, it is recommended that the research involves all participants in interview session to obtain accurate data, enlarges the target, such as creative thinking, critical thinking and self-efficacy, and considers language aspects, such as reading, listening and speaking.

DECLARATION OF COMPETING INTEREST

None declared ■

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https://doi.org/10.17323/jle.2022.13420

Academic Vocabulary in Applied Linguistics Research Articles: A Corpus-Based Study

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ABSTRACT

Background. Generally operationalized as the words used more frequently in academic discourse for describing abstract ideas and processes, academic vocabulary poses a major learning burden for native and non-native speakers of English. Recent developments in corpus-based technologies and tools have made it possible to analyze large bodies of texts for profiling vocabulary items, and a growing number of studies investigated such vocabulary in research articles published in different disciplines.

Purpose. Despite significant progress in academic word list development, research focusing on the contribution of the newly developed word lists in academic texts remained largely limited. Accordingly, the majority of studies used outdated lists for general and academic vocabulary as the starting points in their studies.

Methods. The current study investigated a large corpus of applied linguistics research articles (2000 RAs, 15.5 million words, 20 journals) to identify frequently used academic words based on New Academic Word List (NAWL). In analyzing the data, predefined criteria were used and the study used flemma for counting and defining words.

Results. The findings indicated that 310 out of 960 academic words in NAWL were used frequently in the corpus and provided 4.19% coverage. This coverage differs considerably with the previous studies that investigated similar corpora using the Academic Word List (AWL) and reported around and more than 10% coverage for academic vocabulary. Since the base lists used for profiling the corpus in this study were different from those employed by the previous studies, such differences mainly arise as a result of improvements in operationalizing general service and academic vocabulary.

Implications. In light of these findings and recent calls for more replication research in vocabulary studies, the study draws some implications for researching and teaching academic vocabulary. Additionally, in order to facilitate academic vocabulary learning in applied linguistics, the study presents a list of frequently used NAWL items divided into six bands based on their frequency in the corpus.

KEYWORDS:

vocabulary, academic vocabulary, research articles, applied linguistics, corpus-based word lists, NAWL

Citation: Xodabande, I., Torabzadeh, S., Ghafouri, M., & Emadi, A. (2022). Academic vocabulary in applied linguistics research articles: A corpus-based study. *Journal of Language and Education, 8*(2), 154-164. https://doi.org/10.17323/jle.2022.13420

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Received: November 24, 2021

Accepted: June 14, 2022

Published: June 30, 2022

INTRODUCTION

Nowadays, with the establishment of the English as the academic lingua franca (Hyland, 2013), a considerable number of university students and researchers around the world are required to read and publish in English (Flowerdew, 2015; Li & Flowerdew, 2020). Nevertheless, it has been argued that non-native speakers of English constantly face serious linguistic barriers in research publication (Corcoran, 2017; Li & Flowerdew, 2020). Insufficient vocabulary knowledge is among the crucial factors that adds to non-native English users' inability to successfully participate in discursive practices of their scientific communities (Bazerman et al., 2012; Laufer, 1996), which is deemed essential for their professional

identity development (Hyland, 2013). In this regard, focusing on the vocabulary learning needs of university students and researchers in specialized areas remained an important research agenda. In line with emphasizing disciplinary literacy (Airey et al., 2017), the study of vocabulary in established genres such as research articles can inform material development for instructional purposes, and also helps students and teachers in identifying the most important vocabulary related to their disciplines. Moreover, developing subject specific vocabulary lists helps university students in self-directed and autonomous learning of those items, and English for academic purposes (EAP) teachers can make their instruction more aligned with the learning needs of their students with prioritizing such vocabulary (Webb & Nation, 2017).

Over the past years, the study of vocabulary in academic discourse attracted considerable attention, and the field of applied linguistics has long been interested in identifying specialized lexis across different domains of language use. In this regard, in a paradigmatic classification of vocabulary in English, Coxhead and Nation (2001) made distinctions among (1) general service (high frequency), (2) academic, (3) technical, and (4) low frequency words (for different and more recent views on pedagogical description of vocabulary see Beck et al., (2013), Nation (2013), and Schmitt and Schmitt (2014)). General service vocabulary refers to the most commonly used function and content words that encompass the majority of running words used in all types of writings. These pragmatically neutral words (Stubbs, 1986) cover almost 80% of spoken and written texts in general. Given their importance, it has been argued that this vocabulary should be the first step in developing the lexical knowledge of English language learners, and a number of corpus-based word lists have been developed to guide such endeavors (Brezina & Gablasova, 2015; Browne, 2014, 2021; West, 1953). Unlike general service words, the low frequency vocabulary refers to those rarely used terms that occur very infrequently in academic texts, and they are not crucial for comprehension of the discourse (Laufer, 2005). Technical words constitute subject specific terms that are common in a specialized field (e.g. chemistry), and their meaning and usage are considerably different from one subject area to the next. Those working in a particular profession or studying within a specific field are usually well familiar with their domain specific technical terms, and in academic contexts these words are defined in glossaries and field specific dictionaries (Coxhead, 2018). Nonetheless, occurring between general and technical words are the academic vocabulary that are neither specific to a specialized area of study, nor they are general in being used across various text types. In the literature, these medium frequency words are referred with different labels such as 'sub-technical' or 'semi-technical', and 'academic' vocabulary (Coxhead, 2018; Paquot, 2010), and corpus-based studies revealed a range of 10% to 14% coverage for them in most academic texts (Coxhead, 2000; Gardner & Davies, 2014). Given that academic vocabulary is used for describing abstract ideas and processes in academic discourse (Paquot, 2010), they pose a major challenge for both English as second/foreign language and native English speaking students in academic writing (Coxhead, 2019; Evans & Green, 2007; Evans & Morrison, 2010, 2011; Spencer et al., 2017).

Recognizing the importance of academic vocabulary, a number of general academic word lists have been developed to be incorporated into wide angle EAP programs, and also for setting principled vocabulary learning goals (Coxhead, 2000; Gardner & Davies, 2014; Xue & Nation, 1984). Since its development more than two decades ago, the Academic Word List (AWL) (Coxhead, 2000) that contains 570 word families remained as a predominant source for EAP instruction, materials development, and vocabulary assessment (Coxhead, 2011; Huntley, 2006; McLean & Kramer, 2015; Wells, 2007). However, a number of recent corpus-based studies investigating various academic corpora started to challenge the status of the AWL as the best list of academic vocabulary (Gardner & Davies, 2014; Hyland & Tse, 2007; Masrai & Milton, 2018). In this regard, the AWL has been criticized for using the old and outdated GSL (West, 1953) for representing general service vocabulary in English (Gardner & Davies, 2014), presence of some general rather than academic words in the list (Masrai & Milton, 2018), and the variation in the coverage provided by the list in different disciplines (Chen & Ge, 2007; Liu & Han, 2015; Martínez et al., 2009; Xodabande & Xodabande, 2020). More seriously, the AWL has been also criticized for using level six word families defined as the base word plus its inflected forms and transparent derivations (Bauer & Nation, 1993; Nation, 2016) as the unit of vocabulary analysis, the choice which limits the pedagogical applications of the list (Gardner & Davies, 2014). In light of the new developments in corpus linguistics and associated technologies for analyzing vocabulary in much larger corpora, two general academic word lists namely the New Academic Word List (NAWL) , and the Academic Vocabulary List (AVL) (Gardner & Davies, 2014) have been developed. Although these new lists show significant improvements over the AWL, both in terms of text coverage and pedagogical applicability by using lemma (a headword plus its inflected forms) and flemma (a headword plus inflected forms of different parts of speech) for counting words (Brown et al., 2020), research investigating their contributions to academic discourse remained very limited (Coxhead, 2018, 2019; Durrant, 2016). In this regard, the dominant status of the AWL has resulted in giving far less attention to the newly developed core academic word lists. The current study aimed to fill part of this gap, and set out to investigate the use of the NAWL items in applied linguistics research articles. It should be noted that although the AVL (Gardner & Davies, 2014) is more empirically grounded based on being published in a peer reviewed study, the NAWL also meets the essential requirements of a systematically developed core academic word list, and the availability of base lists, resources, and corpus information in the project's website makes it an easily accessible resource for language teachers and university students. The findings add to our understanding

with respect to the use of academic vocabulary in this field, and the results can guide applied linguistics students and researchers in setting sound vocabulary learning goals.

Academic Vocabulary in Research Articles

The study of academic vocabulary in research articles as the preeminent genre in academy (Hyland, 2009) is an expanding and fast growing area of inquiry (Chen & Ge, 2007; Khani & Tazik, 2013; Martínez et al., 2009; Valipouri & Nassaji, 2013; Vongpumivitch et al., 2009; Wang et al., 2008; Yang, 2015). Within this line research, a good number of studies investigated the contribution of the AWL (Coxhead, 2000) in research articles and developed corpus based academic word lists for a number of subject areas (Dang, 2019). Overall, the studies provided evidence for the significant coverage of the AWL in research articles, and the list consistently provided around 10% coverage in most investigated corpora (Coxhead, 2000, 2011; Coxhead & Byrd, 2007). Nonetheless, these studies also highlighted some of the shortcomings and limitations associated with the AWL as a general academic word list, which is intended to serve a wide variety of disciplines. This section lays out a general overview of such studies, and situates the current study within the existing body of knowledge.

Analyzing a multi-genre and multi-disciplinary corpus with around 3.3 million words, Hyland and Tse (2007) examined the use of the AWL in university textbooks, research articles, lectures, laboratory manuals, thesis and dissertations. The findings of the study revealed that the AWL covers around 10.6% of the corpus which was balanced among different disciplines. Nevertheless, further analysis showed that individual academic vocabulary items on the list occurred and behaved differently in terms of range, frequency, collocation, and meaning across the investigated disciplines. This study was among the first studies that systematically investigated academic vocabulary across a number disciplines, and the findings provided strong evidence for the specificity of vocabulary in academic discourse. Moreover, the study was a pioneer in an ongoing attempt to develop discipline-based and more narrow academic vocabulary list to be used in specific disciplines.

Chen and Ge (2007) studied the use of AWL in 50 medical research articles with around 190000 running words. The study found that 292 words in the AWL were frequently used in medical research articles. Furthermore, the findings revealed that 111 AWL items were used very infrequently in the corpus. The cumulative coverage of the AWL items in the corpus was around 10% percent, and the use of the high-frequent academic vocabulary in the medical research articles were different compared to the original sub lists developed by Coxhead (2000). In another study, using both qualitative and quantitative analysis, Martínez et al. (2009) investigated the use of the AWL in a corpus of agriculture research articles that contained 826416 running words. The findings indicated that the GSL and AWL items accounted for 76.59% of the tokens in the corpus, while the AWL provided around 9.06% coverage. Data analysis also revealed that about 37.50% items in the AWL were not used in agriculture research articles. Although these early studies supported the findings reported by Hyland and Tse (2007) regarding the specificity of academic vocabulary and disciplinary variation, the small sizes of the investigated corpora pose some limitations on the generalizability of the reported findings (Nation, 2016; Sorell, 2013). Moreover, in a study with a focus on research articles in chemistry, Valipouri and Nassaji (2013) examined a corpus with around four million running words for frequency and distribution of the AWL items. Data analysis indicated that 327 AWL word families that accounted for 9.60% of tokens have been used frequently in the corpus. The study also found that 25% of the words in chemistry research articles were beyond general service and academic vocabulary.

Two studies in the literature examined the use of the AWL in applied linguistics research articles. in this regard, Vongpumivitch et al. (2009) investigated a corpus of 200 research articles collected from five journals with 1.5 million running words. The findings of the study showed that the AWL accounted for about 11.17% of the corpus. Furthermore, 475 AWL items (out of 570) have been identified as being frequent in the applied linguistics research articles. Given the cumulative coverage of the GSL/AWL, the study concluded that the academic vocabulary "play a more important role in academic writing than the non-AWL content word forms in the field of applied linguistics" (p. 37). In a similar study, Khani and Tazik (2013) randomly collected 240 research articles (with 1,553,450 running words) from 12 journals published between 2000 and 2009 and developed an academic word list for the applied linguistics field. The findings attained by this study also showed that the AWL accounted for 11.96% of the words in the corpus. General service and the AWL words together provided a total coverage of 88%. In order to create a pedagogical word list, the authors identified 773 words types (defined as orthographic forms) (573 AWL, 200 non-GSL/AWL) that provided 12.48% coverage in the corpus. These two studies concluded that the academic vocabulary plays an important role in the research articles written in the field of applied linguistics. Additionally, Gholaminejad and Anani Sarab (2020) investigated a large corpus of widely used textbooks in applied linguistics with 10.7 million running words. However, unlike previous studies that used the GSL and AWL for creating their field specific word lists, Gholaminejad and Anani Sarab (2020) employed the New-GSL (Brezina & Gablasova, 2015) as the base list for high frequency vocabulary in English, and established a lemma-based academic word list for applied linguistics. More specifically, the study identified 336 lemmas each occurring with a minimum frequency of 45.7 per million words, and accounting for 7.1% of the words in the corpus. Together with the New-GSL words, these academic lemmas provided 61% coverage in the entire corpus. Furthermore, the study revealed that only 67.85% of the academic lemmas used in the corpus overlapped with AVL items (Gardner & Davies, 2014),

with a considerable number of AVL words (i.e. 2679 lemmas) not being frequently used in applied linguistics textbooks.

In sum, the findings reported by earlier studies investigating the AWL in research articles generally indicate that (1) academic vocabulary as defined based on the AWL accounts for a significant proportion of words in research articles across disciplines, (2) despite around 10% coverage of the AWL in different subject areas, the use of such vocabulary also shows significant disciplinary variation (Hyland & Tse, 2007; Martínez et al., 2009), and (3) the AWL provides higher coverage in humanities than hard sciences (Khani & Tazik, 2013). These observations are in agreement with a firmly grounded view on academic literacy that emphasizes the close link between the content knowledge of a given discipline, and the associated uses of specific vocabulary in the discursive practices (Hyland, 2002, 2006, 2013; Woodward-Kron, 2008). In this regard, there is a need to first investigate specialized texts in academic discourse to identify terminological choices in different subject areas, and then make such resources available for those who need them in their professional practices. Such undertakings can result in better outcomes if newly developed words lists with enhanced pedagogical potential incorporated into corpus-based studies of academic texts such as research articles. Following this line of inquiry, the current study aimed to investigate the coverage of the NAWL in the applied linguistics research articles, and to identify highly relevant and pedagogically useful academic words for university students and researchers within the field. In doing so, the following research questions were addressed: (1) What is the coverage of the NAWL in applied linguistics research articles? (2) What are the frequently used academic words in applied linguistics research articles?

METHODS

Corpus

The corpus analyzed in the current study was compiled by systematic selection of 2000 research articles published in 20 well-known journals in the field of applied linguistics. In order to ensure the balance and representativeness of the corpus, principled procedures were followed in selecting journals and research articles. In this regard, first, after searching the SCImago[1] journal ranking data-base, the 50 top ranking journals in the field of applied linguistics were identified. The list then was given to 10 university professors with extensive experience in the field, and they were asked to select 20 journals that best represent the field. After finalizing the list of the journals based on expert recommendations, all published articles between 2011 and 2020 in these journals were collected and classified based on journal name and publication year. In order to create a manageable corpus, stratified random sampling was used in which 10 articles per year were randomly selected for each of the journals. The PDF documents were then converted into text files, and the text files were cleaned in order to be analyzed by computer using corpus analysis software. In the process of cleaning, to reduce the noise in the corpus, all extra data including journal names, running heads, author names and affiliations, page numbers, DOIs, tables, and references were deleted from the text files. Given the large number of files, additional cleaning of the corpus for proper names used in the text was not undertaken. The resulted corpus contained 15569031 running words. The principled collection of the data and systematic selection of the research articles aimed at enhancing the representativeness of the corpus. The list of the selected journals is provided in Table 1.

Software and Base Lists for Analysis

The present study used AntWordProfiler (Anthony, 2014) for analyzing the applied linguistics research articles for the use of academic vocabulary. AntWordProfiler is designed for profiling the vocabulary level and the complexity of the texts. More specifically, the software compares the loaded corpora against available vocabulary lists. The General Service List (GSL) (West, 1953) (1000/2000) and the Academic Word List (570) (Coxhead, 2000) are the default word lists pre-loaded into the program, nonetheless it is possible to remove them and add other vocabulary lists such as BNC/COCA base lists . After analyzing the corpus, the software generates complete statistic and detailed frequency information that could be used in further analysis of vocabulary items. The base lists used in this study for analyzing the corpus included the NGSL (Browne, 2021) and NAWL lists that are created for vocabulary profiling using AntWordProfiler. To be used in AntWordProfiler program, the NGSL is divided into three sub-lists which is based on frequency and the coverage of vocabulary items. The first two sublists in the NGSL each contain 1000 words (i.e. flemmas) and the third sub-list contains 801 words. A supplementary list containing words for days, months, and numbers is also available. The NAWL also contains 963 words and has been created based on the same principles as the AWL (Coxhead, 2000) which means that the list contains items beyond the NGSL.

Vocabulary Selection Criteria

Previous corpus-based studies investigating vocabulary use in different subject areas employed a variety of units for counting words that include types (orthographic forms), lemmas (defined as the base word plus its inflected forms in the same part of speech, for example the verb walk is considered a different lemma than the walk as a noun), flemmas (headword and inflected forms of different parts of speech, for example the flemma for the headword walk includes walk, walks (third person and plural noun), walking (in all parts of speech), and walked (past and past participle tenses)) and word families (base word plus its inflected forms and transparent deriva-

[1] SCImago. (n.d.). SCImago Journal & Country Rank. Retrieved April 19, 2021, from https://www.scimagojr.com/journalrank.php

Table 1
Selected journals for compiling the corpus

	Journal	No. of words
1	Modern Language Journal	955281
2	Studies in Second Language Acquisition	794531
3	Applied Linguistics	483062
4	System	520677
5	Language Testing	824622
6	TESOL Quarterly	632505
7	Language Learning	1298987
8	Language Teaching	948607
9	Language Teaching Research	882740
10	English for Specific Purposes	790603
11	English for Academic Purposes	695244
12	RELC	651656
13	ReCALL	842031
14	Computer Assisted Language Learning	572302
15	International Journal of Applied Linguistics	821755
16	Second Language Research	1015795
17	Journal of Second Language Writing	679206
18	Innovation in Language Learning and Teaching	733304
19	ELT Journal	505922
20	Annual Review of Applied Linguistics	920201
	Total	**15569031**

tions) (Bauer & Nation, 1993; Nation, 2016). The majority of the studies within this line of research employed level six word family (Nation, 2016) which is grounded in the assumption that the knowledge of the base word facilitates the understanding of its derived and inflected forms (Coxhead, 2000; Xue & Nation, 1984). Nevertheless, a growing number of studies started to question this approach, and the use of lemma and flemma are gaining more attention in word list development as these units contain information on parts of speech, and hence regarded to be more appropriate for creating pedagogically useful lists (Brezina & Gablasova, 2015; Brown et al., 2020; Gardner & Davies, 2014; Lei & Liu, 2016). Responding to this debate, Nation (2016) argued that all employed units are indeed different levels of word families scale as delineated by Bauer and Nation (1993) where word types represent level 1, and widely used word families are in level 6. It is now well established that determining the unit of counting from different levels should be in line with the goals for list development. In this regard, lower levels including word types and lemmas are appropriate for productive uses of language (Dang, 2019; Durrant, 2014), and flemmas and word families are more suitable for receptive uses (Dang et al., 2017; Nation, 2016). In light of these considerations, the current study employed flemmas as the unit for counting academic vocabulary.

In order to further analyze the data and identify frequently used academic vocabulary in applied linguistics research articles, output from AntWordProfiler software was copied into a Microsoft Excel spreadsheet. Data analysis followed by using three criteria including specialized occurrence, range, and frequency employed by Coxhead (2000) in developing the academic word list (AWL). Moreover, given the variation in the number of running words in each of the 20 journals, a forth criterion namely dispersion was also used (Brezina, 2018). Based on the first criterion, academic vocabulary is operationalized as being beyond the general service or core vocabulary in English based on the New General Service List(Browne, 2021). As for range, words that occurred in all 20 journals and at least in 500 research articles were selected for further investigation. With respect to frequency, selected flemmas had to occur at least 28.5 times per million words as suggested by Coxhead (2000), which amounted to

440 times in the corpus with around 15.5 million running words. Finally, for the dispersion criteria, the flemmas that met the frequency threshold had to occur with a similar ratio (i.e. 28.5 per million words) in each of the journals.

RESULTS AND DISCUSSION

The results of lexical profile of the corpus are represented in the Table 2. As it is represented below, 10453140 tokens were in the first NGSL list that accounted for 67.1% of the corpus. Next, 1180431tokens were identified in the second NGSL list. The coverage provided by these items was around 7.58% that indicates a considerable decrease in the coverage of the second base list. The third list provided 3.28% coverage and accounted for 510362 tokens. There were also 2977, 2656, and 1941 types in the corpus occurring in the three lists respectively. Regarding the academic vocabulary, the analysis revealed that 653192 tokens were identified in the New Academic Word List (NAWL). These items provided 4.19% coverage in the corpus, accounting for 2000 word types, and 955 flemmas. Around 0.52% of the corpus that included 81108 tokens was in the supplementary list containing the words for numbers, week days, and months. Finally, 2700798 tokens accounting for around 17.33% of the corpus were beyond the lists of general service and academic vocabulary and contained proper nouns, in text used numbers, and low frequency vocabulary.

After applying the criteria for selecting the words (i.e. specialized occurrence, range, and frequency), 310 flemmas were selected as the academic vocabulary occurring frequently in the research articles published in the field of applied linguistics (Appendix A). These flemmas that were beyond NGSL items accounted for 587361 tokens, and provided 3.77% coverage in the corpus. The top 10 frequently occurring academic vocabulary included repertoire, classroom, linguistic, vocabulary, discourse, linguistics, feedback, lexical, none, and corpus. These flemmas provided around 1.1% coverage by accounting for 168890 tokens in the corpus. Moreover, further data analysis also revealed that 645 flemmas in the NAWL occurred infrequently in the corpus, and these items accounted for 65831 tokens, and only 0.42% of the entire corpus.

Comparing the findings to the earlier studies that investigated the academic vocabulary in research articles published in different subject areas, the current study found different results with respect to coverage of academic vocabulary. These differences mainly stem from using a different and improved core academic word list for profiling the corpus. In this regard, although the earlier studies reported around and more than 10% coverage for the AWL in medical (Chen & Ge, 2007), agriculture (Martínez et al., 2009), chemistry (Valipouri & Nassaji, 2013), and applied linguistics (Khani & Tazik, 2013; Vongpumivitch et al., 2009) research articles, the current study found just above 4% coverage for the academic words based on the NAWL. Nevertheless, since the base lists used for profiling the corpus in this study were different from those employed by the previous studies, these findings need to be interpreted in light of the differences and improvements in operationalizing general service words and academic vocabulary. As stated before, the NGSL and the NAWL are developed based on much larger and contemporary corpora compared to the old GSL (West, 1953) and the AWL (Coxhead, 2000). Additionally, the old age of the GSL has resulted in classifying some currently in use and high frequent words (Nation, 2012) as academic vocabulary, and some items in the final list have also more general nature and are only marginally academic (Masrai & Milton, 2018). As a result, although the studies that employed the GSL and the AWL in profiling the research articles for academic vocabulary reported higher coverages, it should be noted that their final lists contained a considerable number of high-frequency vocabulary.

In order to further illuminate on the observed differences, and hence to better interpret the results obtained in the current study, a detailed comparison of the findings was conducted with Khani and Tazik (2013) and Gholaminejad and

Table 2
Statistics

FILE	TOKEN	TOKEN%	CUMTOKEN%	TYPE	GROUP
NGSL1	10453140	67.1	67.1	2977	1000
NGSL2	1180431	7.58	74.68	2656	1000
NGSL3	510362	3.28	77.96	1941	801
NAWL	653192	4.19	82.15	2000	955
Supplements	81108	0.52	82.67	98	48
-	2700798	17.33	100	127075	127075
TOTAL:	**15569031**				

Anani Sarab (2020) that also investigated academic vocabulary in applied linguistics research articles and textbooks. As mentioned earlier, Khani and Tazik (2013) identified 773 words types (573 AWL, 200 non-GSL/AWL) that occurred frequently in the corpus, and provided 12.48% coverage. First, the list of 773 word types was analyzed against the NGSL (with three levels) and NAWL base lists. The results revealed that 22.44% of the words in the list occurred in the first NGSL, 30.8% in the second, and 14.96% in the third base lists. Totally, 68.2% of the academic vocabulary identified by Khani and Tazik (2013) were in fact general service and high frequent words based on New General Service List (NGSL) (Browne, 2021). Only 18.8% of the items in the list were identified as academic words based on the NAWL, and 13.72% of the items were beyond the base lists. Further analysis also indicated that almost 80% of the 537 frequently used AWL items in applied linguistics research articles belonged to the NGSL. Regarding the 200 non-GSL/AWL word types, it was found that 33% of these items were also general service words based on NGSL, and 31.44% were academic based on NAWL. Around 35.57% of these non-GSL/AWL items were beyond the base lists. By excluding the NGSL items from the list of 773 word types, the remaining words provided a coverage of 4% in the corpus, which is very similar to the results obtained in the current study for the new academic vocabulary. The findings are also in line with the previous studies that criticized the AWL for containing general words rather than academic vocabulary (Masrai & Milton, 2018).

Moreover, the comparison of the word list created in this study with Gholaminejad and Anani Sarab (2020) revealed that the two wordlists had only 66 similar words and around 20% overlap. Moreover, it was found that 195 (around 58%) of lemmas identified by Gholaminejad and Anani Sarab (2020) as academic words in applied linguistics belong to NGSL words, although it should be highlighted that these words have special meanings in the field. Finally, 75 lemmas (22%) were beyond the NGSL and NAWL items. One reason for the differences in the findings stems from using different word lists for representing high frequency vocabulary in English. In this regard, since Khani and Tazik (2013) used the GSL (West, 1953), and Gholaminejad and Anani Sarab (2020) used the New-GSL (Brezina & Gablasova, 2015) for excluding high-frequency vocabulary items, their final lists contain different items compared to the present study that used the NGSL (Browne, 2021). Another factor contributing to the observed variation is related to the size and composition of the investigated corpora in the three studies. These findings underscore the need for more replication research in corpus-based wordlist development with a focus on investigating the contribution of the newly developed academic word lists in research articles (Coxhead, 2018).

The findings of the study have implications for vocabulary learning and teaching in EAP programs, and also for corpus-based studies of academic vocabulary. First, the results of the current study indicated that the use of academic vocabulary is highly affected by the nature of subject areas, and only 310 out of 960 flemmas in the NAWL were employed frequently by the researchers in the field of applied linguistics. This means that a common core view on academic vocabulary is problematic and has serious limitations (Hyland, 2013; Hyland & Tse, 2007). This is the case even with the newly developed and improved versions of the old academic vocabulary lists, as they cannot serve the needs of university students and researchers in different disciplines (Durrant, 2016). In this regard, there is a need to develop more restricted and disciplinary oriented academic vocabulary lists. Given the short span of most EAP courses, such endeavors can bring positive outcomes by aligning the courses with the learning needs of the students and more efficient use of time. In order to facilitate the setting of a vocabulary learning component in an EAP program in applied linguistics, the frequently used academic vocabulary in the field is divided into 6 bands based on their frequency. Unlike the majority of corpus-based studies that produced long lists of academic terminologies, the list of 310 flemmas presented in appendix A is both short and pedagogically useful, and might be covered during an academic semester. This might be best realized via integrating digital technologies into EAP courses for learning vocabulary (Xodabande & Atai, 2020; Zakian et al., 2022). Second, in light of the limitations associated with the old versions of the general service and academic vocabulary, there is a need to revisit earlier findings and test their results against the newly developed lists. The need for more replication studies in corpus-based word list development has been emphasized in the literature (Miller & Biber, 2015; Schmitt et al., 2017), nevertheless, it received far less attention in this line of research and remained a missing component in specialized vocabulary research (Coxhead, 2018). In this regard, by acknowledging the contributions of the earlier studies that enhanced our understanding with respect to the use of academic vocabulary in research articles, more research investigating larger corpora and new lists across various subject areas can provide the field with new insights and references for improving vocabulary learning and teaching.

CONCLUSION

The current study investigated the use of academic vocabulary in a large corpus of applied linguistics research articles. The findings revealed that the academic words provided around 4.19% coverage in the corpus, and that 310 out of 960 flemmas in NAWL were used frequently (Appendix A). These findings provided a different picture with respect to the contribution of academic vocabulary in research articles, as 4.19% percent coverage is significantly lower than the general coverage of 10% reported in the literature for a different list of academic vocabulary. In this regard, the study highlighted the need for more research focusing on the contribution of the recently developed academic word lists in research articles and other academic genres. The study had some limitations that should be acknowledged. One limitation relates to the represent-

ativeness of the analyzed corpus. Given the broad scope of the applied linguistics field and the various domains of language related courses and topics within this discipline, creating a well-balanced corpus is a daunting task for the researchers. Obtaining expert opinions for selecting journals, systematic sampling of a 2000 articles for creating a large corpus with around 15.5 million words, and extended time span of 10 years, all aimed at creating a well-compiled data-base for the analysis. Nevertheless, the broad scope of the field necessitates taking such limitations into account in interpreting the findings. Another limitation stems from the operationalizing academic vocabulary as those vocabulary items that are beyond general service and core vocabulary in English. Recently this view has been challenged, and it has been argued that academic vocabulary cuts across high-, mid-, and low-frequency words. In this regard, EAP teachers, researchers, and university students in applied linguistics should bear in mind that the boundaries between general service, academic, and technical vocabulary is not clear cut and as neatly defined by vocabulary researchers. With all these limitations, the findings of the current study contribute to the existing body of knowledge in vocabulary studies for educational purposes, and highlights the importance of replication research in light of the recent developments in corpus-based pedagogy in EAP. Considering the significant role of academic vocabulary, future studies might consider investigating the use of such words in the writings of university students and not only expert users and established researchers. This research direction can shed more light on processes involved in learning and using academic words.

ACKNOWLEDGEMENTS

We would like to convey our special thanks to the editor and the four anonymous reviewers of the Journal of Language and Education for their insightful comments on earlier versions of the manuscript.

DECLARATION OF COMPETING INTEREST

None declared ■

AUTHOR CONTRIBUTIONS

Ismail Xodabande: conceived and designed the analysis, contributed data or analysis tools, wrote the paper.

Shima Torabzadeh: contributed data or analysis tools, performed the analysis.

Mohammad Ghafouri: collected the data.

Azadeh Emadi: contributed data or analysis tools, performed the analysis.

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APPENDIX

Academic Vocabulary in AL

Band 1: repertoire, classroom, linguistic, vocabulary, discourse, linguistics, feedback, lexical, none, corpus, cognitive, bilingual, comprehension, aspect, grammatical, oral, pre, explicit, semantic, publish, accuracy, impact, competence, pragmatic, syntactic, curriculum, communicative, translation, questionnaire, psychology, textbook, implicit, domain, usage, verbal, empirical, dynamic, statistical, mediate, appendix, correlation, qualitative, facilitate, intermediate, methodology, dictionary, phonological, accent, utterance, assignment.

Band 2: conference, tutor, autonomy, obtain, orient, criteria, thesis, vowel, distribution, tense, sub, stimulus, retrieve, validity, cue, reliability, semester, effectiveness, conceptual, interact, quantitative, statistics, marker, bundle, undergraduate, orientation, variance, syntax, metaphor, audio, correction, dissertation, morphological, stance, media, developmental, novice, norm, occurrence, similarity, embed, longitudinal, syllable, interface, candidate, diverse, statistically, explicitly, integration, correlate.

Band 3: faculty, regression, meaningful, multi, variability, productive, ideology, overview, dominant, plural, lecturer, morphology, namely, parameter, prediction, informal, overlap, elementary, paradigm, chunk, systematic, initiate, commonly, partial, ex, syllabus, standardize, comparative, manuscript, utilize, gram, sensitivity, practitioner, linear, deviation, span, problematic, behavioral, correctly, complement, elaborate, temporal, indicator, workshop, inclusion, evident, strategic, null, onset, precede.

Band 4: expertise, mid, duration, trajectory, par, scenario, conscious, click, importantly, positively, transcription, encode, transcribe, comparable, protocol, synthesis, discrimination, differential, semi, forum, accurately, mentor, generalize, inference, consonant, classify, generalization, consciousness, singular, logical, intensive, transformation, constrain, activate, emergence, interval, threshold, valid, simultaneously, adolescent, indirect, correspondence, portfolio, independently, thereby, particle, minimal, strand, socially, replication.

Band 5: clarify, identical, entity, critique, actively, authority, spontaneous, reinforce, separately, neutral, node, nominal, descriptor, preliminary, nonetheless, randomly, articulate, conception, junior, simulation, likelihood, matrix, indigenous, hedge, dialect, diagnostic, likewise, spatial, individually, interestingly, differentiate, bound, manual, vocabulary, dominance, rhetoric, lab, partially, consent, micro, proposition , ecological, pi, coefficient, critically, coordinate, disadvantage, graph, trait, facet.

Band 6: artifact, consensus, broadly, depict, admission, prominent, manipulate, pronounce, availability, hierarchy, classification, integral, identification, collective, conditional, optimal, seminar, globalization, adaptation, disability, competent, ethical, sophisticate, replicate, legitimate, contrary, slot, essentially, neural, formulation, subset, induce, superior, selective, ultimate, subjective, scholarship, postgraduate, exploit, congruent, motive, trans, ecology, progression, adaptive, detection, maximize, symbolic, minimize, render, readily, probe, stereotype, assert, marginal, campus, coherent, denote, interviewer, manipulation.

https://doi.org/10.17323/jle.2022.13395

Review of Research on the Use of Information and Communication Technologies (ICTs) in ELT-Related Academic Writing Classrooms

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ABSTRACT

Background. The emergence of information and communication technology and the resulting technological devices have influenced the nature and process of composition and the level of students' engagement and participation in writing activities.

Purpose. The present study reviews 50 studies published in peer-reviewed applied linguistics journals from 2000 to 2020 which have investigated the use and implications of technology for teaching and assessing writing in academic contexts.

Methods. The PRIZMA model was applied for records screening and selection and systematic qualitative content analysis was used to explore the content of these studies and identify the most relevant themes. The most relevant sections of these studies (especially, designs and findings) were selected for further analysis and synthesis.

Results and Implications. Results of this systematic thematic review are mainly categorized and discussed based on three main themes: (1) Technology Use in Teaching and Learning Academic Writing, (2) Some Technological Tools for Teaching and Assessing Academic Writing, and (3) Practical Implications of Using Technology in Academic Writing Classrooms. Results of this systematic review indicated that growth in the use of technological resources such as computers, applications, and web-based learning environments in teaching and assessing ELT-related writing in academic contexts can enhance the quality of instruction provided. Despite some practical limitations for applying these technologies in writing courses, most of the reviewed studies pointed to the fact that technology-mediated writing instruction and assessment can enhance the students' knowledge and use of new digital literacies and, in turn, can lead to improvements in their composing processes and writing competence while working on various genres.

KEYWORDS:

information and communication technology, technology-mediated writing instruction and assessment, systematic review, qualitative content analysis

Citation: Mallahi, O. (2022). Review of research on the use of Information and Communication Technologies (ICTs) in ELT-related academic writing classrooms. *Journal of Language and Education, 8*(2), 165-178. https://doi.org/10.17323/jle.2022.13395

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Received: November 21, 2021
Accepted: April 18, 2022
Published: June 30, 2022

INTRODUCTION

Learning to write and gaining competency in this skill is highly essential in academic contexts and students need to receive deliberate instruction to become competent in this skill while working on various genres (Raban & Scull, 2013). Currently, many educational contexts have highlighted the need for learners to be equipped with "an array of academic writing skills that are a prerequisite for successful careers in the industry and academia, which has been evidenced in recent curriculum requirements across various higher education institutions worldwide" (Dugartsyrenova, 2020, p. 2). Previously, many students in most EFL/L2 classrooms used paper and pencil and dealt solely with print texts, but currently using multimedia frameworks and digital tools is becoming an integral part of many writing programs (Black, 2009; Mills et al., 2018). In fact, the advent of digital technologies have made drastic changes in the domain of education, in general, and teaching language skills and components, in particular. The emergence of information and communication technology and the resulting

technological devices have influenced the nature and process of composition and the level of students' engagement and participation in writing activities. In the same regard, it is maintained that in light of the resources provided by information and communication technology for teaching writing, "the definition of "writing" and the nature of writing instruction need to be reconsidered" (Williams & Beam, 2018, p. 4).

Hyland (2016) also believes that the new computer-mediated technologies have influenced "the ways we write, the genres we create, the authorial identities we assume, the form of our finished products, and the ways we engage with readers" (p. 40). Written language, by itself, has been considered as a powerful technology that can record and regulate communicative endeavors and "a means of enacting influence, control, and exclusion as well as emancipation, enrichment, and enjoyment" (Snaza, 2019, p. 56). In fact, the "emerging digital technologies facilitate expanded communicative repertoires and multiple forms of participation, collaboration, and civic engagement" (Mills & Stornaiuolo, 2018, p. 1).Technological resources have also enhanced these possibilities and, consequently, the nature of such affordances must be further scrutinized.

In the same regard, many teacher educators and educational researchers are concerned about how digital technology can be used in writing instruction and assessment and how it can support the students' writing development. As the technology has advanced, many educators and researchers are concerned about how the rapid expansion and application of technological tools can affect the leaners' writing process and outcomes (see e.g., Bikowski & Vithanage, 2016; Elola & Oskoz, 2017; Kessler, 2020; Levy & Moore, 2018; Vetter et al., 2019; Zhang et al., 2021; Zhang & Plonsky, 2020; Zheng & Warschauer, 2017). In the same vein, the present study explored and synthesized the findings of a number of scholarly articles, published in the last 20 years (2000-2020), which have targeted the use of technology in writing instruction and assessment. More specifically, the present study intended to answer the following main research question: What are the issues and implications of using technology for teaching and assessing academic writing?

METHODS

Design

The present study intended to provide a systematic review of the information and communication technology (ICT) use in teaching writing by conducting a rather comprehensive and constructive investigation of the existing scholarships in the field of academic writing from 2000 to 2020. Denyer and Tranfield (2009) maintain that systematic review "is a specific methodology that locates existing studies, selects and evaluates contributions, analyses and synthesizes data, and reports the evidence in such a way that allows reasonably clear conclusions to be reached about what is and is not known" (p. 671). According to Kohnke and Moorhouse (2020), technology reviews should cover a large and growing number of resources and media such as apps, websites, digital media, digital online resources, downloadable software, and other technology tools. They further maintain that instead of describing the affordances and functionalities of these technological devices, the reviews should focus on how they can be used to enhance teaching and learning of a particular subject area or language skills and components.

Bibliographic Database and Search Strategy

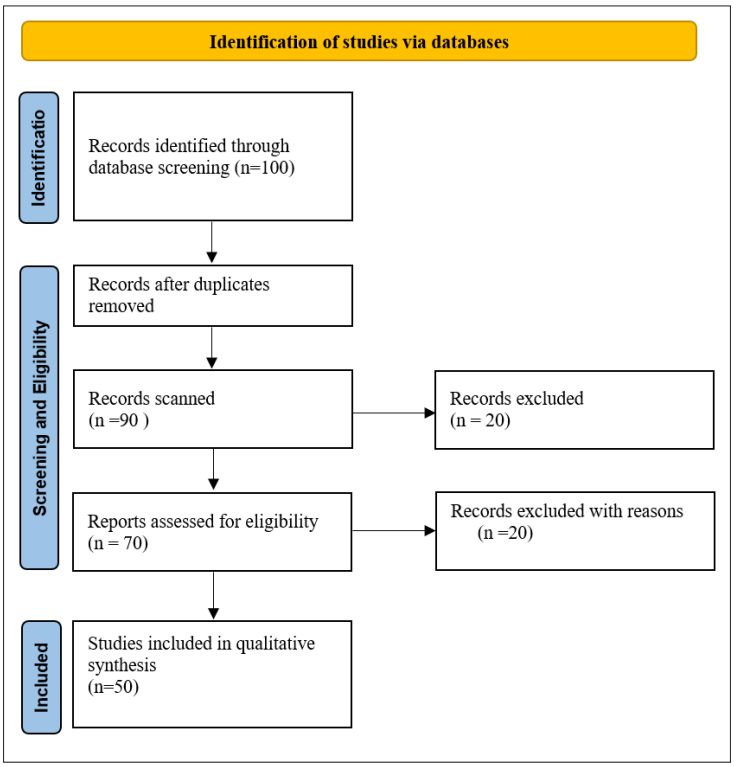
In order to identify the most relevant studies for the purpose of the present thematic review, the researcher searched for some main content terms and key words such as *technology, information and communication technology, ICT, computer-assisted language learning, CALL, writing, writing instruction, composition* and *writing assessment and evaluation* in the published peer-reviewed applied linguistics journals from 2000-2020 in electronic databases such as Google Scholar, Elsevier (most specifically *Science Direct* database) and Sage publication. As for the methodology of the present systematic review, the researcher went through the stages of literature identification, screening for inclusion, quality and eligibility assessment, and data extraction, analysis and synthesis (Xiao & Watson, 2019). The PRISMA flow diagram visually summarizes the screening process:

Inclusion and Exclusion Criteria

After finding the most relevant studies, by using a snowball search strategy, the reference list of each article was further examined to find the additional relevant studies. A total of 100 studies were found that after doing a precise screening, 50 relevant articles which have targeted the use of technology in context of academic writing instruction and assessment were selected for further inclusion and exploration. In fact, the abstract and some relevant parts in the body (especially the method and findings sections) were consulted for this selection. The main criteria for inclusion of the papers in the present review had been the use of technological resources and devices in their design and applied interventions and those which have explored the practical implications of technology use for teaching and learning of writing in academic contexts. More specifically, the designs and outcomes of these studies have been the determining factors for their inclusion and exclusion. In order to ensure the qualitative eligibility of the review, only the papers published in the peer-reviewed journals (especially those indexed in Scopus and JCR databases) having clear scholarly designs and targeting the use of ICT-based resources in teaching and assessing writing in educational settings were used in the final analyses. In addition, only the studies were included that were published form 2000-2020 and their full texts were freely available in English. The studies with weak research designs and unclear practical implications with re-

Figure 1

PRISMA 2020 Flow Diagram for New Systematic Reviews



*Note: f*rom "The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews," by Page, M. J.,McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T, Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J, Tricco, A.C., Welch, V. A., Whiting, P. & Moher, D., 2021, British Medical Journal, 89(10), p. 1-12. https://doi.org/10.1186/s13643-021-01626-4. Copyright 2021 by Creative Commons Attribution 4.0 International License.

gard to the purpose of present review were excluded from the initially-selected sample.

Data Analysis

In order to explore the use and implications of technology for instruction and assessment purposes in the context of academic writing, the selected papers were inductively analyzed by using conventional content analysis procedures. Content analysis encompasses "a family of analytic approaches ranging from impressionistic, intuitive, interpretive analyses to systematic, strict textual analyses" (Rosengren, 1981, as cited in Hsieh & Shannon, 2005, p. 1277). Qualitative content analysis is an inductive technique that attempts to analyze, identify and verify patterns occurring in a corpus of texts (Williamson et al., 2017). For the purpose of current study, the selected studies were read in their entirety to gain an overall conceptualization of the study: its purpose, procedures and key findings and implications. Subsequently, the most relevant parts which could provide the answer for the research question were identified and highlighted. More especially, the method section, which elucidated upon the technological resources/tools investigated or used for conducting the study; the key findings, and some parts of discussion and conclusion sections, which provided some insights about their significance and practical implications in teaching and learning of writing, were consulted. Finally, some significant themes emphasized in these studies were driven for further analysis and synthesis. In fact, the results of this systematic review are mainly categorized and discussed based on three main themes: (1) Technology use in teaching and learning academic writing, (2) Some technological tools for teaching and assessing academic writing, and (3) Practical implications of using technology in academic writing classrooms. These main themes are further subdivided into some sub-themes which are further elucidated in the following sections (see Table 1).

RESULTS

Technology Use in Teaching and Learning Academic Writing

The present theme intends to discuss the theoretical issues and present some key scholarly ideas regarding the application of technology in the teaching and learning of academic writing in ELT-related educational settings. This theme is further subdivided into two sub-themes: (a) Significance of Technology use in teaching and learning academic writing,

and (b) Research on the use of technology in teaching and learning academic writing.

Significance of Technology Use in Teaching and Learning Academic Writing

It is mainly conceptualized that the use of technology and interactive media in educational setting is in line with principles and implications of several educational theories including constructivist learning, situated learning, inquiry-based learning, game-based learning, and engagement theory (see e.g., Chen et al., 2019; Rahimi & Pourshahbaz, 2019). Being literate today involves knowing how to read, write, and communicate with others using digital technologies (Leu, 2002; Warschauer, 1999). Digital technologies have dramatically transformed the forms, genres and purposes of writing (Chun et al., 2016). The use of technology in teaching of writing has evolved into three directions: "as a tool for helping with traditional forms of literacy, as a rhetorical space for new forms of digital literacy, and as a new approach to teaching and learning to be literate" (Bloch, 2018, p. 1). In fact, students are continuously engaged in a variety of technology-mediated literacy practices such as text messages, emails, and chat in social network sites or even online (video) games which use various channels and modalities. These practices can also be considered as avenues for consolidating the acquired knowledge in the classrooms and facilitating the learners' meaning-making process through social and cultural practices (Zheng & Warschauer, 2017).

The introduction of technology, and more specifically personal computers, has dramatically affected the processes of planning, drafting, transcribing and revising writing. The emergence of information technology has facilitated social interaction (that is, collecting, remixing, transforming, and sharing the ideas across the Internet using multimedia resources) in forums like blogs and wikis and file-sharing programs such as Google Docs. The affordances of technology have also facilitated the instruction, scaffolding, assessment and provision of feedback for instructors. In order to learn effectively and perform with greater efficiency on the learning tasks such as writing in the increasingly complex multimedia contexts, the learners have to exert much greater efforts and try to be more self-regulated (Qin & Zhang, 2019). For doing so, the learners must be taught strategies and receive proper scaffolding and guided practice with feedback which assist them in resolving their difficulties and performing effectively in such environments.

In order to maximize students' engagement in blended writing courses, it is suggested that technology should not be used as a novelty but rather to help teachers fulfill important objectives (Gleason, 2014). Taylor (2002) presents three principles for the application of instructional technologies in blended learning environments including (a) considering and prioritizing students, (b) initiating the process in a simple manner, and (c) identifying and constructing from program principles and requirements. It is believed that the use of technology-based resources in academic contexts can facilitate the improvement of students' writing skills (McKenney & Voogt, 2009). This engagement can also improve other aspects of students' learning such as problem solving and generative skills while composing their texts (Kervin & Mantei, 2016); comprehension, interpretation, analysis and synthesis skills while researching, reading, selecting and integrating information from various ICT-based resources to compose their own research (Lawrence et al., 2009). This engagement can also mediate different processes of writing (e.g., planning, drafting, revising and editing) which in turn can lead to greater accuracy and fluency in writing (Yamac & Ulusoy, 2016).

Research on the Use of Technology in Teaching and Learning Academic Writing

In the current decades, we have observed a proliferation of research presenting ideas about how the technology can be applied for designing and developing online and blended writing courses (Gleason, 2014). Composition scholars have examined writing as it is mediated by word processing, e-mails, chat and discussion platforms, instant text-messaging, social network software and applications through visual, aural, video, performative and three-dimensional environments (Takayoshi, 2015). This body of research has studied

Table 1

Identified Themes for Systematic Review of ICT Use in Writing

Key Themes	Subthemes
(1)Technology use in teaching and learning academic writing	(A) Significance of Technology use in teaching and learning academic writing
	(B) Research on the use of technology in teaching and learning academic writing
(2) Some technological tools for teaching and assessing academic writing	(A) Tools and platforms used for teaching and learning academic writing
	(B) Tools and platforms used for assessing the writing samples in academic settings.
(3) Practical implications of using technology in academic writing classrooms	(A) Practical implications of technology use for writing instructors
	(B) Practical implications of technology use for student writers

issues such the differences between online and face-to-face writing courses (e.g., Mehlenbacher et al., 1999), students' perceptions of online and hybrid courses for their writing development (Webb Boyd, 2008), the role of collaborative writing activities in the composition classrooms and the tools used for such purposes like blogs, wikis, online word processors and social networking tools (e.g., Anderson-Inman et al., 1996; Myazoe & Anderson, 2010), the role of feedback and interactive conversation for review (e.g., Krych-Appelbaum & Musial, 2007), research and assessment issues (Matsuda et al., 2003; Wolsey, 2008), and incorporation of technology for literacy development (Lotherington & Ronda, 2014). The use of technology can create an online community of inquiry (see e.g., Hilliard & Stewart, 2019) that facilitates the orchestration of online collaborative writing tasks and various interactive practices such as search and exchange of ideas, provision of scaffolding and instructional feedback and application of various multimedia resources that can increase the learners' cognitive, behavioral, emotional and social engagement.

Prior empirical studies and systematic/meta-analytic reviews on the use of technology in writing have indicated that several online tools are being used in writing classrooms that have a positive impact on one or more process or outcome variables indicative of better writing (e.g., Little et al., 2018; Strobl et al., 2019). On the whole, this body of research has confirmed the positive effects of technological resources in enriching both the instructional programs and improving the learners' writing performance. However, a point worth-mentioning is that there might be some impediments like socio-economic status of families, students' motivation and attitudes, extent of multimedia literacy, infrastructures, internet connection, etc., that might hold back the implementation of ICT in classes (traditional or blended). In fact, the proper implementation and use of technology in the classrooms might impose extra financial expenses on the learners, their families and school/university officials and also requires extra trainings for the effective use and maintenance of technological devices. Despite these issues, due to the significance of incorporating technology in classrooms in improving the existing education systems and educating future generations, the key stakeholders (that is, learners, parents, teachers/educators, schools/universities, educational authorities, technology developers and researchers) must work together to make the implementation of technology a reality to improve the quality of teaching and learning processes.

Furthermore, Matsuda et al. (2003) call for qualitative methodologies for conducting research on L2 writing to shed more lights on the nature of computer-mediated writing: "ethnographies, longitudinal case studies, and other forms of interpretive qualitative research are thus likely to emerge as principal means of exploring the relationship of technology to second language writing" (p. 166). In the same regard, the emergence of new unobtrusive and more sophisticated data gathering techniques like keystroke logging and eye-tracking (complementing traditional methods like direct observation, observation via videotaping, and think-aloud protocols) have provided further insights into students' writing behavior, multimodal composition processes, writing strategies, self-regulatory practices and so on (Anson & Schewegler, 2012).

Technological Tools for Teaching and Assessing Writing

The present theme intends to introduce the tools and devices which are being used in academic contexts and is further subdivided into three subthemes: (a) Tools and platforms used for teaching and learning academic writing, and (b) Tools and platforms used for assessing the writing samples in academic settings.

Tools and Platforms Used for Teaching and Learning Academic Writing

In the last years, there has been a fast and impressive increase in the development of technology in the field of writing (Limpo et al., 2020). Chapelle and Sauro (2017) divided the technologies for L2 writing into three general categories: (1) Web 2.0 tools which include a variety of social media cites such as Facebook and Twitter and other synchronous and asynchronous tools such as email, course management systems, blog websites, online forums, real-time communication software, and Microsoft Word allowing for authorship and contribution of multiple users in such platforms; (2) Automated writing evaluation systems which are designed based on sophisticated natural language processing (NLP, simulating how human beings understand and manipulate language based on the principles of artificial intelligence) techniques and machine learning principles intending to analyze learners' written texts in terms of some pre-established criteria and provide them with feedback regarding the quality of their works; (3) Corpus-based tools which serve as a reference for writers interested in the strategic examination of language used for real communicative purposes (covering language productions such as spoken, fiction, popular magazines, newspapers, and academic text genres).

Technology-based platforms and assets are being used for a variety of purposes in academic contexts. The most obvious use is related to the use of Microsoft office by students for composing informational and expository texts (Doan & Bloomfield, 2014; Kervin & Mantei, 2016), creating the drafts of their paragraphs, essays and other reports and assignments (Hitchcock, Other platforms are less commonly used, 2016), preparing a range of multimodal products to present their ideas and results of their inquiry/research projects (Howell et al., 2017) and many other real-purpose social usages. They also conduct research on the Internet and related databases to find relevant ideas to organize their presentations and enrich the content they present (Doan & Bloomfield, 2014). They also receive feedback both through

in-built facilities of word processing and outside sources like their peers and instructors.

Strobl et al., (2019), in their review of digital support for academic writing, highlighted the introduction of word processors and its complementary innovations such as "formatting devices, pagination, spelling and grammar checkers, thesauri and synonym finders, search and replace, tracking and commentary functions, outline tools, and index generators as the most sustainable part of digitization of writing" (p. 2). These researchers also commented that the emergence of network and internet technologies also allowed for more communication, feedback and collaboration among writers. Corpus-based resources (e.g., Natural Language Programming Analysis) have also provided opportunities for individualized instruction and intelligent tutoring, linguistic support, automated feedback, and guidance in various genres. There are also technological tools which provide skills and strategies-based instruction and support the learners in *prewriting, planning, drafting, revising, and editing* stages of writing and help them develop their conceptual, procedural, metacognitive knowledge, and affective and social skills. Some tools are also used to offer additional visual representations or graphic elements to scaffold writing or interactions (*e.g., CohVis, C-SAW, Rationale, Open Essayist*).

A popular tool in language teaching classrooms is Google Docs; it is a free online word processor within Google Drive with an easy-to-use text editing interface which provides a unique platform for real-time collaboration for the purpose of commenting and editing the shared file by multiple users. It can also automatically save the entire composing and revising history which can further enlighten the composing behavior of individuals. There are some other platforms whose introduction and applications have enriched the quality of teaching and learning of writing: *Writing Pal* (or *W-Pal)* is an automated intelligent tutoring system (ITS) developed by the Science of Learning and Educational Technology (SoLET) Lab at Arizona State University. *W-Pal* has been developed as an online tool for teaching writing strategies, providing opportunity for extended writing practice, modularity and formative feedback (Roscoe & McNamara, 2013). It also presents some learning modules focusing upon the writing strategies learners use in planning, execution and monitoring stages of writing complemented with interactive game-based and essay-based practices to increase the level of students' motivation and engagement. This writing strategy tool also has the capacity to automatically score and evaluate students' written pieces and provide them with formative feedback by using text analysis tools such as *Coh-Metrix* which explores the cohesive features of a text. *Mi-Writer* is another learning analytic tool that has the potential to capture data in the recursive process of writing (planning, composing, reviewing, editing), plus giving feedback and recording the students' writing performance, behavior and interaction with peers and teachers in real-time which can open the possibility of facilitating automated real-time feedback that is tailored to the individual learners' performances and abilities (Clemens et al., 2013). *Criterion*, a commercial writing evaluation tool developed by Educational Testing Service (ETS), also provides holistic scores and detailed diagnostic trait feedback on the students' written texts based on level-specific models considering both the age and proficiency levels of the learners as well as some essay planning tools and reference handbooks to assist the learners in understanding and evaluating the feedback provided, which is an invaluable asset for ESL/EFL learners.

Furthermore, Flipped classrooms, as a blended learning format in which students learn content online or based on multimedia sources like videos before attending the classes and subsequently engage in more practice-oriented and problem-solving activities in the classrooms, have the potential to improve students' writing (Sarani et al., 2021). Artificial intelligence and context-aware (ubiquitous) technologies (more technically known as Internet of Things) such as augmented and virtual reality, wireless networks, mobile devices, and sensing technologies like QR codes, positioning techniques, which allow for constructive learner interactions with objects in the surrounding environments, can also create opportunities for authentic writing instruction by making academic writing closer to real-life and possibly leading to affective, linguistic, socio-cultural, and cognitive development (Lee, 2019; Lin et al., 2020).

Tools Used for Assessing the Writing Samples in Academic Settings

Another related field is development of automated essay correction softwares in the 1960s and automated writing evaluation commercial products such as Criterion (from ETS) or My Access! (from Vantage Learning) (Warschauer & Ware, 2006). They have been developed based on their potential for cost savings, providing reliable and accurate scoring mechanisms and reducing the working loads of writing instructors for having time for other activities. These programs have incorporated features such as reference materials, handbooks, template structures, editing devices, word banks and thesauri, and other beneficial tools for both writers and teachers (Cotos, 2014). Automated writing evaluation (AWE) systems by leveraging automated feedback and scoring capabilities and various learning-management functions have been associated with improvements in students' engagement and time on task, writing attitudes, motivation and self-efficacy beliefs. The scaffolding provided can also positively influence the amount of revising students completed, the content and quality of students' writing across successive drafts and their performance on exams and independent writing tasks, and thereby increasing instructional efficacy (Palermo & Wilson, 2020). Another writing strategy tool having educational models and games for teaching writing is Writing-Pal or W-Pal, which provides a platform for students' engagement and practice in various phases of the writing process from planning to the provision of feedback (Goodwin-Jones, 2018). The Online Annotator for ESL Writing is another tool incorporating a database

and an error annotation analyzer and editor that keeps track of learners' performance on various tasks (Yeh & Lo, 2009). On the whole, such software and text mining tools provide the possibility for processing large sets of written texts by using powerful analytical tools that employ sophisticated resources of artificial intelligence and thus offer valuable information and archival analyses of writing activities (Godwin-Jones, 2018). There are some other computer-based assessment tools like Vantage Learning's "My Access" incorporating "Intellimetric™," a writing technology portfolio; Pearson Knowledge Technologies' writing assessment tool "*Intelligent Essay Assessor*™"; EMO Solution's "Writer's Workbench" and "Criterion™", a web-based computer writing assessment program (produced by the Educational Testing Service (ETS)), which grades and evaluates essays, prompts students with suggestions for improving their writing, includes a pre-writing-diagramming tool for developing a writing plan, and provides feedback on various aspects and dimensions of each submitted draft (Reardon, 2015). Another technological development in the computer-based assessment of writing is taking advantage of computer adaptive testing and, more specifically, computerized dynamic assessment potentials which compared to ordinary assessment procedures "… can be simultaneously administered to large numbers of learners; individuals may be reassessed as frequently as needed; and reports of learners' performances are automatically generated' (Poehner, 2008, p. 177).

A domain related to writing assessment is the provision of feedback on the students' writing. In fact, there are some online learning environments and tools which are designed to support and improve the students' writing skills by providing them with some feedback regarding the quality of their written outputs. In the form of online tutoring, these platforms can provide feedback on the structure of sentences, choice of vocabulary and mechanics of writing such as spelling and punctuation. They can also assist the students in revising and editing the manuscripts in terms of content, layout and structure. Research has indicated that giving and receiving feedback in technology-facilitated writing environments could enhance the interaction between writers and readers, strengthen learners' awareness of audience and authorship, and also provoke learners' deep thinking and thoughtful construction in writing (e.g., Downes, 2004; Law & Bare, 2020; Zheng et al., 2015). Computer-based corrective feedback with its electronic options has considerably extended the traditional possibilities such as direct correction, metalinguistic explanation, repletion, translation, clarification, referral to reference materials and practice exercises. This avenue has provided some innovative procedures like recorded audio feedback; reference to corpus or learner corpora; electronically-delivered peer feedback and making use of tools and environments such as word processor with the comment or review function, font formatting, voice annotation, and hyperlinks, wikis, Google Docs, Moodle, web sharing services like Dropbox and so on. The provided feedback focuses on both written products (e.g., language use and appropriateness of content and structure) and provision of guidance on managing the writing process and self-monitoring skills which provide tutoring with regard to writing strategies and techniques and demands/conventions of various genres (e.g., *Research Writing Tutor*). In addition to the tools which offer previously-established feedback codes and comments on the written samples, some tools provide immediate and relevant links to other sources of information such as websites or course management systems (Strobl et al., 2019). In order to have positive effects, the provided feedback must be in line with the learner's preferences and needs and they must be willing and able to use it.

Vojak et al., (2011) studied various technology-based writing assessment programs and concluded that they have some attractive features: "quick feedback, reliability, plagiarism detection, the capacity to connect with state standards and assessment rubrics" (p. 108). They also pointed to negative aspects as well: "formulaic approaches, non-specific feedback, incorrect identification of errors, a strong emphasis on writing mechanics, such as grammar and punctuation, and a tendency to value length over content" (p.108). Nevertheless, Wang (2013) cautioned that instructor interactions with students and their pedagogical approaches are critical in the students' perceptions and their performances: writing is a social experience and without instructor feedback and critique of the quality of written samples the benefits of the technology use may be overshadowed by the negatives.

Practical Implications of Using Technology in Academic Writing Classrooms

The present theme intends to highlights the practical implications of technology use in teaching writing in academic settings and is further subdivided into two main sub-themes: (a) Practical implications of technology use for writing instructors, and (b) Practical implications of technology use for student writers.

Practical Implication of Technology Use for Writing Instructors

The discussions in scholarly journals generally believe that incorporating technology into the curriculum and pedagogical practices is both desirable and necessary (Rodrigo & Romberger, 2017). Currently, much of the students' writing in their personal and professional lives is conducted through online forums and in order to have an acceptable level of performance, they need to be equipped with writing skills and genre knowledge to apply the appropriate language register and content, and ensure the use of correct grammatical structures. Consequently, L2 teachers must assist the learners in learning the conventions of writing and teach them various writing techniques and strategies to be able to write appropriately and critically in all modalities (Chun et al., 2016). Elola and Oskoz (2017) call for a "reevaluation of literacy, writing genres, and associated instructional practices in the L2 classroom" (p. 5). In fact, recent scholarship in computer-based L2 writing advocates rethinking how L2

writing is taught and a shift away from assigning only tasks that require structured, teacher-directed writing (Zheng & Warschauer, 2017) towards incorporating informal online writing opportunities and practices in which students can express their own unique authorial voice and ideas (Smith et al., 2017). The introduction of online collaborative writing is an important avenue since it is both an essential real-world skill and is in line with principles of SLA theories that emphasize the importance of social constructivism in language learning which considers writing as a socially situated action (Godwin-Jones, 2018).

An important point here is that teachers must be competent enough in integrating technology in their classrooms and must be aware of their nuances and affordances. In fact, successful implementation of technology-based resources in writing classrooms requires increasing the teachers' competency and skills in integrating and using these resources through in-service courses. Teachers need training opportunities to enhance and build upon their knowledge of digital design and multimodality using a range of media including linguistic, visual, audio, and spatial elements, to more effectively engage in their pedagogical practices online (Dalton et al., 2011). Institutional support must also ensure the availability of technological devices such as computers and access to ICT-based resources in the classrooms. In addition, teachers must be given sufficient time and institutional support to plan and develop their technology-mediated courses and implement the activities that exploit the affordances of technology to improve their students' writing skills and meet the objectives of writing curriculum. Students must also receive practical instruction in how to integrate and use technological resources in receiving knowledge/information and producing their texts. L2 writing practitioners and researchers must also engage in investigations to identify the most effective techniques and strategies for incorporating these technological resources in the writing instruction programs to meet the specific needs of their contexts. In fact, L2 writing teachers need to critically evaluate these technologies, gain experience in using them and train their learners in how to make the most out of these assets. Chun et al., (2016) specifically listed four guidelines to support L2 teachers in integrating technology in their instructional practices: (a) learning goals for students; (b) available language, culture, and instructional resources; (c) strategies to use these resources to support the learning goals; and (d) assessment of students' effective use of these resources (p. 70). Considering these issues while designing technology-based writing programs can assist the teachers in creating fruitful learning environments.

Practical Implication of Technology Use for Student Writers

The ICT-based environments and technological tools have the potential to mediate students' leaning of new literacies (Merrill & Rodriguez, 2005) and improve the quality of their written outputs both in academic and social contexts. For example, writing with wikis encourages learners to engage in preplanning activities and pay attention to structure and organization of their texts (Yim & Warschauer, 2017); blogging cultivates a strong authorial voice while tending to maintain hierarchical identities and encourages extensive writing (Li & Storch, 2017); SMS or synchronous chat emphasizes informal language use and greater visual salience of forms (Sauro, 2009); email demands reflection and more attention to form (Schenker, 2016); digital storytelling emphasizes a personal and engaged writing style while integrating multimedia affordances (Elola & Oskaz, 2017); Facebook and Skype facilitates sharing of texts and use of voice and text chat to plan and discuss written texts (Cho, 2017) and collaborative writing environments such as Google Docs can facilitate dynamic interaction for negotiating meaning among the learners, benefiting from each other's complementary skills and knowledge and can enhance their contribution in in-process planning, rephrasing and restructuring, sharing strategies, providing feedback and making revisions, and discussing organization of the written passages (Kessler et al., 2012). Furthermore, Zheng et al., (2018) maintain that the use of computer-mediated communication (CMC) in L2 learning can provide an "apprenticeship of students into collaborative research and writing discourse communities, which are typical in most professional and academic settings" (p. 4). This possibility of building learner identities as authentic writers tends to make learners "highly motivated, deeply engaged and more thoughtful when constructing texts" (Zheng & Warschauer, 2017, p. 62).

A point worth-mentioning is that the success of technology-mediated writing instruction depends on the level of learners' engagement that it cultivates. In fact, due to learners' daily exposure to Web 2.0 technology, media tools, games and mobile apps, the technology-assisted writing instruction needs to reflect upon these experiences and be truly-learner centered. Technological experts and practitioners need to provide a delightful and fun experience by designing user-friendly interfaces and functionalities and allow the learners to be self-directed and take charge of their online actions by using customized processes and thus enhance the quality of learning and their sense of competence (Greer & Harris, 2018).The research has also demonstrated that the use of technology during writing instruction and writing-related activities had been motivating for students to be cognitively and affectively engaged and participate in writing instruction and do the related assignments. This practice had encouraged interaction and collaboration with others around text construction which could enhance their performance in organizing how they would work together and share responsibility for specific tasks and, in turn, could improve their collaborative knowledge construction, learning experience and quality of their final output. These environments can also be supportive for reluctant writers and students who struggle with literacy learning since technology inherently presents some assistive supports and scaffolds that could increase their self-confidence while facing

challenges in the composing process (see Williams & Beam, 2018). This point is in line with the ideas of sociocultural theory of learning that emphasizes the mediating role of technologies in diagnosing students' problems and providing a ZPD-sensitive assistance that can empower them to resolve their problems and reach higher levels of learning.

On the whole, the emergence of online writing environments and tools have provided some valuable opportunities for learners "to access and manipulate enhanced input, receive immediate feedback on their efforts, and engage in collaborative, reflexive, and exploratory writing practices as integral to writing skill development" (Dugartsyrenova, 2020, p. 2). Moreover, students can have the opportunity to have practice in extended writing while performing on authentic tasks for real purposes, receive explicit instructional support on writing process and strategies, engage in collaborative writing endeavors, and benefit from teacher and peer-feedback through mini-lessons and conferencing that can enhance the quality of their writings in academic and social contexts (see e.g., Applebee & Langer, 2011; Pritchard & Honeycutt, 2006). Despite of growth and improvements in technology-based environments, students' success while performing on these assignments requires the consideration of issues like writing topics and genres, task types and complexity levels, learners' L2 proficiency levels, group dynamism and so on (Chapelle & Sauro, 2017).

DISCUSSION

The findings of present study confirmed the positive contribution of ICT-based resources to the teaching and learning of academic writing. Digital technologies have drastically transformed and reshaped the forms, purposes and genres of writing and the types of literacy practices the individuals engage in their academic and social lives (Chun et al., 2016; Zheng & Warschauer, 2017). Even though traditional writing courses can be highly effective in enabling the students master the conventions and competencies required for writing, the existing research also highlights and confirms the significance of principled, meaningful, well-designed and engaging online learning activities to facilitate the process of learning to write in various real social and pedagogical tasks (Bernard et al., 2014; Means et al., 2010). The investigated literature also revealed that echnology mediated instruction can provide more authentic learning experiences and materials, can facilitate higher level thinking skills and content area learning, can increase the chances of dialogue and communication between the teacher and student writers by reducing the 'transactional distance' and providing dialogic feedback, can support strategies-based instruction for various stages of writing process, can increase the students' level of engagement in the learning process by offering a more learner-centered teaching approach, can enhance quality of self-directed learning opportunities and, thus, can lead to learner autonomy by encouraging learners to take responsibility for their own learning and reach higher levels of writing development (Strobl et al., 2019; Vetter et al., 2019; Zhang et al., 2021). Writing instructors are currently benefiting from online platforms and social media tools because they think that such environments have the potential to provide more opportunities for reflective writing, writing for an audience using various genres, writing collaboratively, and engaging in other interactive activities like (a-) synchronous discussions in web-authoring platforms that provide ideal environments for students' learning because of providing the students with more time to analyze and respond to each other's outputs and comments than the time-bound, face-to-face classroom contexts (Hilliard & Stewart, 2019; Warnock, 2015).

The present study also introduced some tools which have been applied for teaching and assessing writing and maintained that the availability of these technologies has the potential to improve the quality of teaching and learning of L2 writing processes and outcomes because they provide platforms for the effective teaching of writing in multimedia environments, can enhance the opportunities for scaffolding and provision of feedback for the students, can ease the meaning-making process by integrating various design features and modalities, can improve the students' new literacies skills by making academic writing closer to their real-life experiences, can facilitate interaction and collaboration in writing and so on (Chun et al., 2016; Elola & Oskoz, 2017; Godwin-Jones, 2018; Strobl, 2015; Zheng & Warschauer, 2017). In fact, It is maintained that "there are many potentials in incorporating these technologies into language learning and teaching, such as enhanced motivation and engagement as well as contextualized learning" (Alizadeh, 2019, p. 29). In addition, the documented positive effects of technology on text quality, learner attitudes and self-regulation, greater consciousness of the writing process and writing conventions, and learners' motivation and engagement had urged L2 writing practitioners to restructure their pedagogical practices by integrating available digital tools into their writing development programs (Elola & Oskoz, 2017). Consequently, their integration in the educational settings is a favorable addition and can enrich the quality of learning experiences provided for learners. On the whole, technological tools and resources are considered fundamental to the writing process and calls are made for incorporating multimodal writing in educational settings, which demands the appropriate use of digital infrastructure and financial resources to support it (Ball & Kalmbach, 2010; Rodrigo & Romberger, 2017).

Despite these assets, use of technology in classrooms is overshadowed by three main factors: (1) teacher beliefs about negative impact of technology on the teaching-learning process, (2) the need for relevant professional development to acquire the necessary knowledge and skills to implement technology-based courses, and (3) limited access to technology (e.g., Internet, instructional software and IT support) for instructional purposes (Williams &

Beam, 2018). In addition, teachers' expertise in developing such platforms, students' knowledge of how to work with technological devices (i.e., their digital literacy skills) and perform in such environments, the addition of workload in some cases for the instructors and requirement for a support team should not be ignored because working with technologies naturally requires technical expertise and support in maintaining and operating such devices. In fact, besides the needs for teachers' professional development on pedagogical uses of technology (i.e., multimedia and digital tools) in the classrooms and building students' digital literacy skills, institutional support is needed to ensure the availability of computers and appropriate applications in every classroom.

On the whole, the key message that can be driven from this review is that technology is an asset which can facilitate the students and their instructors' engagement in the process approach of writing which can be improved by the use of multimedia and digital tools. The prominence of online writing in CALL research is a welcome development given the central role that digital texts play in our everyday lives. If learners invest in their online writing and are motivated to engage more fully and more frequently in writing texts of various lengths and complexities and in various genres, it can result in gaining more confidence in holistic writing ability and appreciating styles, conventions and affordances of various genres (Elosa & Oskoz, 2017). The integration of multimedia resources into writing assignments can be productive, innovative, transformational and motivating for the learners since it is applicable to the future job skills students might feel they need (Darrington & Dousay, 2015).

Despite being a highly challenging issue to the world's health and economy, Covid-19, being a blessing in disguise, has provided some avenues for the integration of information and communication technology resources into instructional programs throughout the world. Currently, many institutions have prepared infrastructures to present their instruction and materials freely online, teachers have been urged to design instructional programs and multi-media materials online and enrich the content of their teaching in order to improve the students' learning, and students have been required to attend such classes, try to learn the content presented, do their assignments and even be assessed on such platforms. This trend can also be further continued and exploited towards creation of higher quality curricula and instructional programs for teaching various aspects of students' learning.

CONCLUSION

The present study has used the principles of systematic reviews (more specifically PRIZMA model in records screening and selection and content analysis for the in-depth analysis of the identified articles) to investigate the use and implications of technological resources in teaching academic writing. Results of this systematic review indicated that growth in the use of technological resources such as computers, applications, and web-based learning environments in teaching and assessing ELT-related writing in academic contexts can enhance the quality of instruction provided. Currently, there are many technological platforms and devices available that might overwhelm the writing teachers; consequently, they must develop frameworks that assist them in selecting appropriate tools for their instructional practices and resolving the problems they encounter in the classrooms. New technologies not only have supported the teaching of writing by providing new spaces and resources but also have transformed the nature of writing process and the way this skill is being taught and learned. The most beneficial aspects of technology for teaching writing can be the provision of opportunities for individualized instruction and independent learning inside and outside classrooms, engagement in real and extended writing practices and increased opportunities for offering strategies-based instruction on various stages of writing and provision of high quality timely feedback on the students' performance.

Despite some practical limitations for applying these technologies in writing courses, most of the reviewed studies confirmed the positive effects of technology integration in enhancing the effectiveness of teachers' pedagogical practices, and learners' knowledge and use of new digital literacies and writing development provided that the adequate facilities and institutional supports are available. Despite of attempting to provide a comprehensive coverage of the theory and practice of technology use in writing classroom, the present descriptive research synthesis has only presented the topical results with a pedagogical focus in mind without doing a critical evaluation of the findings of the papers or exploring the methodologies adopted for highlighting the positive aspects or possible biases, lack of methodological rigor or weak evidence in the articles, which can be attended by future research studies. In addition, future researchers need to explore teachers' and students' actual experimentation and engagement in the multimedia environments, techniques and strategies while using ICT-based tools, and the affordances and liabilities of various technological resources for the teaching and learning of various academic subjects and skills.

ACKNOWLEDGMENTS

I would like to offer my sincere gratitude to the anonymous reviewers of the manuscript whose comments and recommendations made me improve the quality of the paper.

DECLARATION OF COMPETING INTEREST

None declared ■

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https://doi.org/10.17323/jle.2022.13572

Relationships Between Language-Related Variations in Text Tasks, Reading Comprehension, and Students' Motivation and Emotions: A Systematic Review

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ABSTRACT

Background. There is consensus in research that students' motivation and emotions are important for learning and achievement processes in the educational context, as are language competencies that, related to the demands of academic language, enable participation in education. However, the interrelationships between these aspects have hardly been empirically investigated in depth.

Purpose and Methods. This systematic review addresses this research need, and aims to synthesise the existing evidence on the interrelationship between motivational/emotional and language-related variables. First, the relationship between learners' motivation and emotions, and their language competencies is considered. Second, findings on how motivation and emotion depend on language-related factors are compiled.

Results. A systematic data search conducted for this purpose yields seven studies. Five studies relate to the first concern, and confirm the effects of motivational and emotional variables on reading comprehension. Emotions, in particular, emerge as strong predictors. Two studies relate to the second concern, and report significant effects of language-related variations in text tasks on students' motivation; however, neither study considers emotions.

Implications. The findings are used to derive implications for language design in the educational context and identify important research gaps.

KEYWORDS:

motivation, emotions, language-related variations, reading comprehension, language competencies, students

Citation: Wirth, L., Kuhl, P., & Ehmke, T. (2022). Relationships between language-related variations in text tasks, reading comprehension, and students' motivation and emotions: A systematic review. *Journal of Language and Education, 8*(2), 179-191. https://doi.org/10.17323/jle.2022.13572

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Received: December 22, 2021
Accepted: June 15, 2022
Published: Jun 30, 2022

INTRODUCTION

In this systematic review, two factors are brought together: motivational and emotional processes, and language, which refers to both the language used in the academic context and learners' individual language competencies. Both are relevant factors for learning and achievement; however, the two have been hardly empirically studied together in depth.

Empirical studies show a high correlation between learning success and interest (e.g. Ryan, Connell, & Plant, 1990; Jansen, Lüdtke & Schroeders, 2016; Renninger & Hidi, 2020). Interest, as an indicator of intrinsic motivation, influences how intensively one engages with certain learning materials and how deeply one processes them accordingly (Schiefele, 2001). Intrinsic motivation itself is seen as an important source of profound learning processes because it is based on self-determined intentions regarding the learning actions themselves. Extrinsic motivation, in turn, relates to the outcomes of learning actions (e.g. achieving good grades), and is considered to have both positive and negative effects on learning and achievement processes (Deci & Ryan, 1993; Ryan & Deci, 2000; Pekrun, 2018; Schiefele & Schaffner, 2020). Emotions are significant in that they are ubiquitous in all areas of learning and performance; they can relate to specific learning items,

dealing with challenges, social interactions with peers or teachers, and so on, and can profoundly influence cognitive processes central to learning (Pekrun & Linnenbrink-Garcia, 2014; Pekrun, 2018). Numerous empirical studies have investigated anxiety (e.g. Pekrun & Perry, 2014; Barosso, Ganley, McGraw, Geer, Hart & Daucourt, 2021; D'Agostino, Schirripa Spagnolo & Salvati, 2022). For example, they show that anxiety in exam situations limits task-related attention because worries, such as about possible failure, strain the resources of working memory (Pekrun & Perry, 2014).

The relevance of language in the educational context refers to both the use of academic language and learners' individual language competencies. An essential function of academic language is oral and written communication of learning content across all subject domains (Morek & Heller, 2012). In this context, academic language is accompanied by specific lexical and grammatical features that differ from everyday language use and become more complex as education progresses, thus placing higher demands on users (Cummins, 2006; Riebling, 2013). To cope with these language demands, participate in education, and engage receptively and productively with learning content, learners need specific language competencies that are appropriate to the academic contexts which involve going beyond everyday language skills (Cummins, 2006; Morek & Heller, 2012; Heller & Morek, 2015). Large-scale international educational assessments show that language demands translate into different levels of academic achievement depending on the extent to which students' academic language competencies are developed (e.g. Weis et al., 2019; Tarelli, Schwippert, & Stubbe, 2012).

Although learners' motivation and emotions as well as their academic language competencies are considered significant for individual educational success (Götz, Frenzel, & Pekrun, 2009; Heller & Morek, 2015), the relationships between these aspects have not been empirically investigated in depth. To the best of the authors knowledge, no literature reviews have summarised the available evidence on this topic. Here, the aim is to do this through a systematic review. First, indications are synthesised on the extent to which motivation and emotions can influence language competencies.

Moreover, in motivation and emotion theories, motivation and emotion are usually presented as independent variables. Nonetheless, one can assume that both constructs are much more complex and can also be considered as dependent variables. Therefore, this article's second concern is to reveal findings on how learners' motivation and emotions depend on language characteristics in the academic context. In terms of language characteristics, the focus is on tasks that vary in language, as they represent a central element of knowledge transfer and acquisition (Reusser, 2013). The aim is to provide a more detailed overview of the findings on the aforementioned issues, in order to classify and discuss them regarding the significance of language design in the context of teaching and learning. Furthermore, research desiderata and corresponding research recommendations are derived.

Accordingly, the research questions are as follows: (1) What is the relationship between learners' motivation and emotions, and their language competencies? (2) What is the relationship between language-related variations in tasks, and learners' motivation and emotions?

METHODS

Databases and Search Framework

Five online databases (FIS Bildung, PubPsy, Scopus, Google Scholar, and Web of Science) were searched using a prespecified framework with search criteria according to the topic. The criteria initially referred to the underlying constructs, that is, motivational and emotional processes, language-related variations of tasks and explanations (as two essential elements in knowledge transfer (Reusser, 2013; Morek, 2013)), and language competencies. In addition, the criteria required an empirical study design and a population with an age between 6 to 99 years. Studies which were either in English or German and published from 1980 onwards were considered. The search framework is presented in Table 1.

Table 1
Search Framework

Feature	Present study
Constructs	Motivational and emotional processes; language-related variations in tasks and explanations; language competencies
Population/Participants	People from six to 99 years
Comparison group	Not required
Study Design	Empirical
Geographic area	No limitations
Time	From 1980
Language	German and English

Search Criteria

As shown in Table 2, various motivational and emotional terms such as motivation, interest, effort, emotion, affect, joy, or anxiety; terms for explanations and tasks; and language-related terms such as language, understandability, readability, or comprehension were used as search terms in both English and in German. The search strings were composed such that at least one motivational or emotional term occurred in each article, as well as at least one task- or explanation-related term and at least one language-related term. Searching for such search strings was not possible in Google Scholar; therefore, the search in this database was only supplementary, using various combinations of the presented search terms to roughly search for individual articles not yet covered in the other databases.

Data Analysis

The database search yielded 2,768 hits. Most articles were found in PubPsy (1,217 hits) and Web of Science (1,139 hits). Scopus, FIS Bildung, and Google Scholar yielded 317, 65, and 30 hits, respectively. The 2,768 articles were then screened in several steps. As a first step, the authors reviewed each article at the title and abstract levels in three substeps: 1) using AbstrackR, resulting in a reduction to 287 articles; 2) using Mendeley, resulting in 121 articles; and 3) reviewing for relevance and suitability with this systematic review, resulting in 37 articles. Out of these, 33 articles were then subjected to full-text analysis, including coding, excluding 4 articles without accessible full texts. The coding included categories of the underlying questions and hypotheses of the studies, the respective samples, the study design includ-

Table 2

Research Protocol

Database	Search strings	Hits
PubPsy	(*Motivation* OR Anstrengung* OR Leistung* OR Interesse OR Lern* OR Emotion OR Affekt OR Gefühl OR Langeweile OR Angst OR Freude OR Furcht) AND (Instruktion OR Erklär*) AND (*sprach* OR *verstehen* OR Fachsprach* OR Fachwort* OR Readability)	1217
	(motivation OR effort OR interest OR determination OR emotion OR affect OR affective OR emotional* OR mood OR humor OR feelings OR boredom OR fear OR anxiety OR tension OR nervousness OR agitation OR joy OR happiness) AND (explanation OR instruction OR briefing OR teaching) AND (terminology OR technical terms OR technical language OR language OR linguistic complexity OR understanding OR understandability OR comprehension OR comprehensibility OR readability OR legibility)	
Web of Science	TS=((motivationOR interestOR determinationOR emotionOR affectOR affectiveOR emotional*OR moodOR humorOR feelingsOR boredomOR fearOR anxietyOR tensionOR nervousnessOR agitationOR joyOR happiness)) AND TS=((explanationOR instructionOR briefingOR exemplificationOR illustration)) AND TS=((language OR terminologyOR technical terms OR understandabilityOR comprehension OR comprehensibilityOR readabilityOR legibility))	1139
	TS=((*Motivation* OR Anstrengung* OR Leistung* OR Interesse OR Emotion OR Affekt OR Gefühl OR Langeweile OR Angst OR Freude OR Furcht)) AND TS=((Instruktion OR Erklär*)) AND TS=((Sprache OR *sprach* OR *verstehen* OR Fachsprach* OR Bildungssprach* OR sprachliche* OR Verstehen OR Fachwort* OR Readability OR Sprachkompetenz))	
Scopus	(Motivation OR Anstrengung* OR Leistung OR Interesse OR Emotion OR Affekt OR Gefühl OR Langeweile OR Angst OR Freude OR Furcht) AND (Instruktion OR Erklärung OR Erklären) AND (Linguistik OR Verstehen OR Verständlichkeit OR Nachvollziehbarkeit OR Zugänglichkeit OR Readability OR Lesbarkeit))	317
	(motivation OR effort OR interest OR determination OR emotion OR affect OR affective OR emotional* OR mood OR humor OR feelings OR boredom OR fear OR anxiety OR tension OR nervousness OR agitation OR joy OR happiness) AND (explanation OR instruction OR briefing OR teaching) AND (terminology OR technical terms OR technical language OR language OR linguistic complexity OR understanding OR understandability OR comprehension OR comprehensibility OR readability OR legibility)	
FIS Bildung	„(*Motivation* Anstrengung* Leistung* Interesse Lern* Emotion Affekt Gefühl Langeweile Angst Freude Furcht) (Instruktion Erklär*) (*sprach* *verstehen* Fachsprach* Fachwort* Readability)“	65
	“(motivation effort interest determination emotion affect mood humor feelings boredom fear anxiety tension nervousness agitation joy happiness) (explanation instruction briefing teaching) (terminology technical terms technical language OR language linguistic complexity understanding understandability comprehension comprehensibility readability legibility)”	
Google Scholar		30

Table 3
Coding Scheme

Authors	Year	Title	Form of Publication	Published in	Abstract	Origin	Language

Aim of the study	Sample			Research Question	Hypotheses	Research Design	Intervention
	Sample size	Population	Age	Gender			

Survey Instruments	Implementation	Method of Analysis	Results
			Motivation and emotions as dependent variables
			Effects of text consistency on motivation / Effects of different text difficulties on motivation / Effects of reading comprehension on emotions / Effects of personalized texts on motivation

Results (continued)				Research gaps
Motivation and emotions as independent variables		Moderated (indirect) effects	Further results and conclusions	
Effects of motivation on reading comprehension	Effects of emotions on reading comprehension			

ing interventions and survey instruments, and finally the results obtained in the studies. Figure 1 shows the PRISMA flow diagram (adapted from Page et al. (2021)) depicting the individual steps and respective hits with the reduction of the articles. Table 3 shows the complete coding scheme according to which the full texts were categorised.

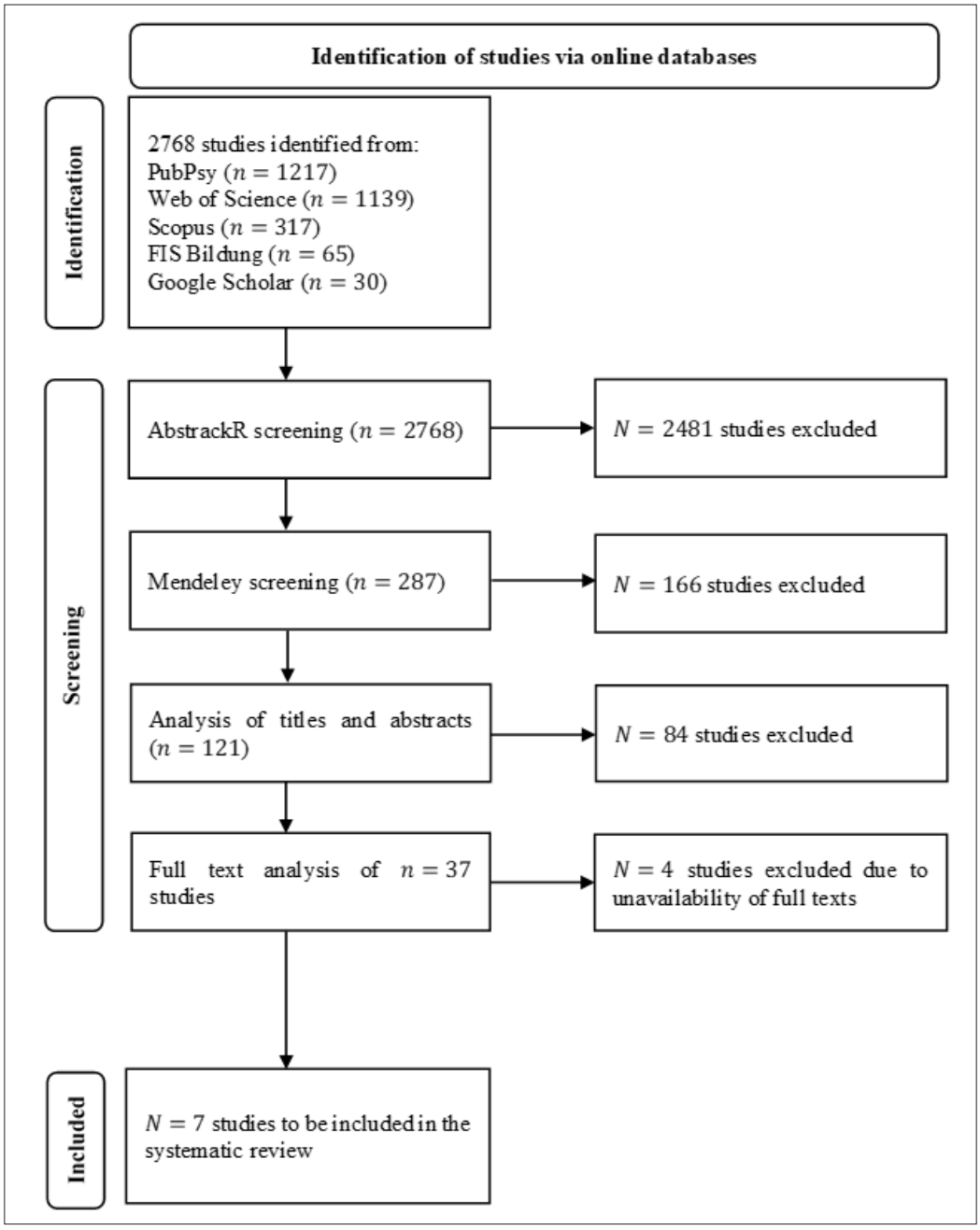
Based on the coding of the full texts, seven studies were identified that fully met the search criteria and served to answer the research questions. Table 4 provides an overview of these studies, including the samples, dependent and independent variables, and a summary of the effects. Because no study included explanations for their interventions, the focus was only on tasks.

Table 4
Included studies

Authors	Year	Title	Sample	Design	Independent Variables	Dependent Variables	Results
Braten, Ivar; Ferguson, Leila E.; Anmarkrud, Oistein; Stromso, Helge I.	2013	Prediction of learning and comprehension when adolescents read multiple texts: the roles of word-level processing, strategic approach, and reading motivation	*N=65* school students	Quantitative pre- and post-test design	Word recognition, reading pattern and motivation	Reading comprehension	The independent variables contributed to a 33% variance explanation in reading comprehension.
Chen, Po-Hsuan	2019	The joint effects of reading motivation and reading anxiety on English reading comprehension: a case of Taiwanese EFL university learners	*N=140* EFL-students	Quantitative crosssectional design	Reading motivation and reading anxiety	(Foreign language) reading comprehension	"Significant positive correlation between extrin-sic reading motivation and reading comprehension; Significant negative correlation between reading anxiety and reading comprehension"

Authors	Year	Title	Sample	Design	Independent Variables	Dependent Variables	Results
Hamedi, Seyyedeh Mina; Pishghadam, Reza; Fadardi, Javad Salehi	2020	The contribution of reading emotions to reading comprehension: the mediating effect of reading engagement using a structural equation modeling approach	*N=220* EFL-students	Quantitative cross-sectional design	Anxiety, enjoyment and boredom	(Foreign language) reading comprehension	"Positive correlation between enjoyment and reading comprehension; Negative correlation between anx-iety and boredom and reading comprehension"
Niazifar, Alireza; Shakibaei, Goodarz	2019	Effects of different text difficulty levels on Iranian EFL learners' foreign language Reading motivation and Reading comprehension	*N=40* all-male EFL-students	Quantitative pre- and posttest design	Different levels of text difficulty (vocabulary and syntactic structures below vs. beyond the learner's current English language level)	Motivation	Higher ratings in motivation after the intervention for students who worked with material beyond their current language level
Reichelt, Maria	2015	"Ansprechend Ansprechen ": Das Personalisierung-sprinzip als Designempfehlung für die Gestaltung multimedialer Lernangebote. Zwei Mixed-Methods-Studien über potenzielle Einflussfaktoren und mehrdimensionale Erklärungsmodelle	N_1=*210* school and university students; N_2= *265* university students"	Mixed-methods-design	Different degrees of personalization of texts (formal vs. personalized vs. named personalized); thematic stimuli as moderating variable	Motivation	"Higher motivation for university students who worked with personalized texts and for school students who worked with named personalized texts; No moderating effects of the thematic stimuli"
Rogiers, Amelie; Van Keer, Hilde; Merchie, Emmelien	2020	The profile of the skilled reader: An investigation into the role of reading enjoyment and student characteristics	*N=4269* secondary school students	Secondary analysis	Reading enjoyment	Reading comprehension	Significant positive correlation between reading enjoyment and reading comprehension
Welie, Camille; Schoonen, Rob; Kuiken, Folkert	2019	Eighth graders' expository text comprehension Do motivational aspects add to cognitive skills?	*N=152* secondary school students	Quantitative cross-sectional design	Ten motivational variables	Reading comprehension	No direct or indirect effects were found for any of the ten motivational variables

Figure 1
PRISMA Flowchart



RESULTS

The reviewed studies are from Europe (*n* = 4) and Asia (*n* = 3). Their sample sizes varied from *n* = 40 to *n* = 4269 participants, and consisted exclusively of school and university students. While one study included only male participants, female participants were slightly overrepresented in four studies (62.93% female participants overall). One study did not provide information on the sex ratio, while another had a balanced sex ratio (49.14% female participants). Six studies used quantitative research methods for their surveys, with one study based on a secondary analysis of quantitively collected data. Finally, one study used a mixed-methods approach by conducting qualitative interviews, in addition to quantitative data collection.

The results of this review are presented for the two research questions. In each case, the designs of the respective studies are presented first and then the respective results. The studies were then compared.

Relationship between Learners' Motivation and Emotions, and Their Language Competencies

First, the studies that answer the first research question on the relationship between learners' motivation and emotions, and their language competencies are presented. Five of the seven studies are classified for this research question.

General Study Characteristics: Sample, Setting, and Research Design

The five studies assigned to the first research question aimed to examine the relationship of motivational and/or emotional aspects with reading comprehension. Reading comprehension is a receptive sub-competency of language competency, whereby *receptive* refers to understanding language, e.g., comprehending facts or texts. In comparison, productive language competencies refer to the production of language, e.g., explaining facts or writing texts (Paetsch et al., 2016).

Using a sample of *n* = 65 tenth graders, Bråten, Ferguson, Anmarkrud, and Strømsø (2013) examined how motivation, word recognition skills, and individual reading patterns individually contributed to variance in reading comprehension while reading different science texts. Data were collected in a quantitative pretest and posttest design, in which the students were asked to read five different texts about sun exposure and health. This analysis was conducted in two steps: First, only prior knowledge was considered a predictor of reading comprehension. Second, motivation, word recognition, and reading patterns were included in the analysis.

Welie, Schoonen, and Kuiken (2019) also focused on motivation. Using a sample of *n* = 152 school students, they examined the moderating influences of ten different motivational variables on the effect of cognitive skills on reading comprehension. The ten motivational variables were selected because they were thought to be relevant for the development of reading comprehension. The variables included: intrinsic motivation, avoidance, value, devalue, self-efficacy, perceived difficulty, peer value, preference for challenge, and mastery goal. In addition, the authors compared the effects between monolingual and bilingual students as well as between poor and strong readers.

Meanwhile, both Chen (2019) and Hamedi, Pishghadam, and Fadardi (2020) were in a bilingual context. Chen (2019) examined the joint effects of reading motivation and reading anxiety on comprehension of English-language texts; the sample included *n* = 140 university students who were learning English as a foreign language for an average of seven years. Hamedi, Pishghadam, and Fadardi (2020) investigated the effects of three emotions—anxiety, enjoyment, and boredom—on comprehension of English-language texts among *n* = 220 university students who were also learning English as a foreign language. Both studies used a quantitative, cross-sectional design.

Rogiers, Van Keer, and Merchie (2020) investigated the relationship between reading enjoyment and reading comprehension. The authors conducted a secondary analysis of the 2009 Program for International Student Assessment (PISA) data on *n* = 4269 15-year-old Flemish students.

Research Results

Regarding the relationship between motivation and reading comprehension, Bråten, Ferguson, Anmarkrud, and Strømsø (2013) showed a statistically significant contribution of prior knowledge to reading comprehension. Including motivation, word recognition skills, and reading pattern as predictors helped explain an additional variance of 33%. Moreover, both word recognition skills and reading patterns as well as reading self-efficacy as a proxy of motivation were statistically significant and positive predictors of reading comprehension.

However, Welie, Schoonen, and Kuiken (2019) found only weak direct effects for all ten motivational variables on reading comprehension, and no moderating influences of any motivational variables on the effect of cognitive skills on reading comprehension. The comparison between monolingual and bilingual students as well as poor and strong readers also showed no significant direct or indirect effects of motivational variables.

Meanwhile, Chen (2019) showed a significant positive correlation between extrinsic reading motivation and reading comprehension. Intrinsic motivation had no direct effect, but an indirect effect on reading comprehension via extrinsic motivation: students with higher intrinsic reading motivation have higher extrinsic motivation, which in turn leads to better reading comprehension. Regarding the role of emotions, Chen (2019) showed a significant negative correlation between reading anxiety and reading comprehension. Reading anxiety proved to be the strongest predictor of reading comprehension compared to extrinsic motivation. The author further analysed the interaction effects of motivation and anxiety. Students with high motivation and low anxiety showed the highest reading comprehension, followed by students with high motivation and high anxiety, and low motivation and low anxiety. Students with low motivation and high anxiety had the lowest reading comprehension scores. The author argues for additional compensatory effects: high reading motivation seems to compensate for high reading anxiety, whereas low reading anxiety seems to compensate for low reading motivation.

Hamedi, Pishghadam, and Fadardi (2020) revealed a positive correlation between enjoyment and reading comprehension, while both anxiety and boredom were negatively correlated with reading comprehension. Anxiety and boredom were both stronger predictors of reading comprehension than enjoyment.

Rogiers, Van Keer, and Merchie's (2020) secondary analysis of the 2009 PISA data also showed a significant positive cor-

relation between reading enjoyment and reading comprehension; students with higher scores in reading enjoyment also scored higher in reading comprehension. Students from high socioeconomic backgrounds scored significantly higher in reading enjoyment and comprehension than those from low socioeconomic backgrounds, as did students with Dutch as the first language than those with Dutch as the second language for reading enjoyment.

Comparison of the Studies

While the basic goal of the aforementioned five studies was to examine the effects of motivational and/or emotional variables on reading comprehension, the main commonality among these studies was their quantitative research design. However, a closer look reveals some differences between these studies. First, motivation and emotions, as independent variables, were not captured in the same way in the five studies. While two studies each only considered motivation and only emotions, the remaining study analysed both motivational and emotional variables.

Comparing the results of the motivational effects on reading comprehension, a mixed picture emerges at the first glance. While Bråten et al. (2013) found a positive correlation with reading comprehension for the motivational variable self-efficacy, Welie, Schoonen, and Kuiken (2019) found no evidence. Moreover, the latter found no significant direct or indirect effects on reading comprehension for the other motivational variables they considered. This contradiction becomes particularly clear considering that both studies collected their data from school students. Nevertheless, Welie, Schoonen, and Kuiken (2019) themselves questioned the validity of their findings, noting a discrepancy between pre-test motivation and students' actual motivation during the intervention. The authors assumed that this discrepancy was because the population comprised students of different educational levels who, when their motivation was surveyed before the test, expected that the test would contain tasks and texts that were already familiar with in their schooling context, that is, content which corresponded to their educational level. Accordingly, all students showed high motivation. However, all students were presented with the same texts, which presumably led the students with lower educational levels to perceive the test tasks as very challenging and to doubt their ability to solve them (low self-efficacy); that is, their motivation decreased. This is reflected in their significantly poorer performance on the test items compared with students with higher educational levels. Thus, while one can assume that Bråten et al.'s (2013) result—self-efficacy and reading comprehension are correlated—is more valid than the result of Welie, Schoonen, and Kuiken (2019)—self-efficacy and reading comprehension are not correlated—, Bråten et al. (2013) found no significant effect of the motivational variable 'task value' on reading comprehension. Based on expectancy-value theory (Wigfield & Eccles, 2000), they assume that this can hold because task value correlates more with the choice of certain tasks than with performance. The comparison of intrinsic and extrinsic motivation in Chen (2019) showed direct positive effects of extrinsic motivation on reading comprehension, but only an indirect effect of intrinsic motivation on reading comprehension via extrinsic motivation. However, note that Chen (2019) was in the context of English as a foreign language, and thus, captured the motivation to read and comprehend foreign language texts.

More agreement exists regarding the effects of students' emotions on their reading comprehension. Chen (2019) surveyed reading anxiety; Rogiers, Van Keer, and Merchie (2020) focused on reading enjoyment; and Hamedi, Pishghadam, and Fadardi (2020) examined anxiety, enjoyment, and boredom. All three studies postulated significant correlations between students' emotions and reading comprehension. The positive emotion of reading enjoyment consistently showed significant positive correlations with reading comprehension, while the two negative emotions—reading anxiety and boredom—showed significant negative correlations with reading comprehension. Notably, Hamedi, Pishghadam, and Fadardi (2020) found anxiety and boredom to be stronger predictors than reading enjoyment. Further, Chen (2019) found reading anxiety to be a stronger predictor of reading comprehension than (extrinsic) motivation. Thus, some negative emotions seem to be stronger predictors than some positive emotions and motivation. Chen (2019) further examined different combinations of motivational and emotional variables. The author found different effects on reading comprehension, and identified compensatory effects between motivational and emotional states. As noted earlier, in the context of motivation, both Chen (2019) and Hamedi, Pishghadam, and Fadardi (2010) measured emotions toward reading foreign language texts. Meanwhile, both Rogiers, Van Keer, and Merchie (2020) and Welie, Schoonen, and Kuiken (2019) additionally examined the effects of emotions and motivation on reading comprehension in relation to students' language background. However, the two sets of authors found differing results: Rogiers, Van Keer, and Merchie (2020) found that students with Dutch as their first language showed significantly higher scores in reading enjoyment than their peers with Dutch as their second language; by contrast, Welie, Schoonen, and Kuiken (2019) did not find any correlations due to the discrepancies noted earlier. Rogiers, Van Keer, and Merchie (2019) also found that students from high socioeconomic backgrounds scored higher on reading enjoyment and reading comprehension than students from low socioeconomic backgrounds.

Relationship Between Language-Related Variations of Tasks, and Learners' Motivation and Emotions

The remaining two studies focused on the relationship between language-related variations in tasks and learners' motivation, but not with emotions.

General Study Characteristics: Sample, Setting, and Research Design

Both studies considered language-related variations in texts related to tasks as a predictor, and students' motivation as a dependent variable. Niazifar and Shakibaei (2019) varied the level of *language demand* to determine how different degrees of lexical and grammatical demands of textual materials affect the reading motivation of $n = 40$ male students learning English as a second language. Participants were divided into two groups, one of which received text material one level above their current English language level, in terms of syntactical structure and vocabulary, over a ten-week period. The other group received text material for the same period, with requirements one level below their current English language level.

Reichelt (2015) examined the effects of varying *degrees of text personalisation* on students' motivation using two mixed-method surveys. In the first survey, three degrees of personalisation were compared: (1) formal texts using indefinite pronouns and impersonal articles, (2) personalised texts using possessive pronouns and direct address, and (3) named personalised texts using possessive pronouns and direct address by name. The effects of these different degrees of personalisation were then compared betwee $n = 105$ school and university students each. The second survey was conducted only among university students ($n = 265$) and examined the interaction of formal and personalised texts with an emotionally (child labour) and a cognitively (statistics) demanding topic.

While Niazifar and Shakibaei (2019) used a quantitative pre- and post-test survey to assess reading motivation before and after the intervention, Reichelt (2015) assessed motivation in both surveys before the intervention, and at two time points during and after the intervention.

Research Results

A comparison of the pre- and post-surveys in Niazifar and Shakibaei (2019) revealed significantly higher post-intervention motivation in the group that had received text material beyond their current language level than the group with the simplified text material. Notably, the latter group showed no significant increase in motivation after the intervention.

Meanwhile, Reichelt (2015) found the least motivation under formal text conditions during and after the intervention for all participants, and the highest motivation under personalised text. Notably, university students were significantly more motivated compared with school students when working with personalised texts than formal and named personalised texts. In contrast, school students were the most motivated while using named personalised texts. In the second survey, the author only considered formal and personalised texts, and examined the interaction effects with the topics 'child labour' and 'statistics'. Here, formal texts were associated with higher motivation for child labour than personalised texts. Regarding statistics, the pre-test measurement showed higher motivation when working with personalised texts compared to formal texts; however, during the state measurements, students reported higher motivation regarding formal than personalised texts. Finally, regarding child labour, the author expected a moderating influence of emotional load on the effect of the personalised text condition on motivation, but could not confirm the same. The same could not be assessed for statistics because of the lack of correlation between the personalised text condition and motivation.

Comparison of the Studies

According to the second research question, the aim of both studies was to investigate the relationship between language-related variation in tasks and motivation. Both studies did this by examining the effects of language-related variation in text tasks, although the variation occurred in different ways in both studies. While Niazifar and Shakibaei (2019) varied grammar and vocabulary to compare different linguistic demands, Reichelt (2015) varied pronouns and addresses for didactic purposes. Despite these different forms of language-related variation, both studies found significant effects on motivation. Thus, on the one hand, grammar and vocabulary at a slightly elevated level led to higher motivation; on the other hand, personalising texts (by name) promoted students' motivation when working with texts on a neutral topic.

Contrary to the initial research question, emotions were not included as a dependent variable in both studies. Only Reichelt (2015) investigated the moderating effect of emotional load, but could not confirm this.

In both studies, motivation was measured before and after intervention. Reichelt (2015) additionally took two state measurements of motivation during the intervention. These additional measurements showed that changes in motivation were already detectible at these time points: students who received personalised texts had the highest motivation before the test; however, during the intervention, students who worked with formal texts had significantly higher motivation.

Regarding the samples, Niazifar and Shakibaei's (2019) sample comprised students from a private language learning institute. Meanwhile, Reichelt's (2015) sample comprised both school and university students. The latter study revealed differences between school and university students in terms of the effects of different levels of personalisation on motivation. However, when both studies are considered together, no generalisable patterns emerge regarding whether certain effects are more likely for school or university students, female or male participants, or a particular topic area due to the different operationalisations used in each study.

DISCUSSION

This systematic review sought to identify and compare the findings on the relationships between language-related variations in tasks, language competencies, and motivation and emotions. All reviewed studies referred to school and university students. All five studies regarding the first research question considered reading comprehension to be language competency. Four of these studies stated that students' motivation and emotions can influence their reading comprehension. Specifically, Bråten et al. (2013) and Chen (2019) found significant effects of motivational variables on reading comprehension. Chen (2019) specifically identified extrinsic motivation as a significant predictor and having a direct effect, while intrinsic motivation had an indirect effect via extrinsic motivation. The author, along with Hamedi, Pishghadam, and Fadardi (2020) and Rogiers, Van Keer, and Merchie (2020), found significant effects of emotions on reading comprehension. Reading enjoyment, as a positive emotion, was significantly positively correlated with reading comprehension, while anxiety and boredom, which are negative emotions, were significantly negatively correlated with reading comprehension. Negative emotions, particularly anxiety, showed the highest predictive power compared with both enjoyment and extrinsic motivation. Welie, Schoonen, and Kuiken (2019) was an exception, finding no direct or indirect effects of motivational variables; that is, the authors did not consider emotions at all. However, as presented above, the authors noted the limitations on the validity of their findings, and rather argued more for the presence of a correlation between motivation and reading comprehension.

The remaining two studies were on the second research question on the relationships between language-related variations in tasks and learners' motivation; both studies reported a significant relationship. However, language-related variation was operationalised differently in the two studies: Niazifar and Shakibaei (2019) focused on *linguistic demands*, and varied the level of difficulty of grammar and lexis in the text material; meanwhile, Reichelt (2015) varied the text materials in a didactic sense by *personalising texts* to increase readers' motivation. Importantly, the extent to which emotions are also influenced by language-related variations remains unanswered, as neither study considered emotions as a dependent variable.

Significance of the Studies and Practical Implications

Overall, the reviewed studies state that students' emotions and motivation influence their reading comprehension, that is, their (receptive) language competencies, while motivation itself is influenced by language characteristics in the academic context. Thus, there are relationships between language-related variations in text tasks, reading comprehension, and students' motivation and emotions. Therefore, in terms of conducive language design in the context of teaching and learning, learners' motivation and emotions should be also considered. Despite the small number of studies, their findings have some initial indications and orientations for instructional practice regarding instructional language design that promotes high motivation and positive emotions. In particular, the studies assigned to the second research question are relevant here, as they provide concrete approaches to how language can be used in the educational context to promote motivation. In terms of students' academic language competencies, Niazifar and Shakibaei's (2019) findings are particularly noteworthy: the authors varied linguistic demands at the lexical and grammatical levels, and argued that instructional materials should be designed slightly beyond students' current language level in order to foster their motivation. The authors justified this by saying that under these conditions, their participants were curious about the meaning of unknown terms or phrases and wanted to understand them. However, note that the authors used a sample with a relatively homogeneous language level; moreover, the participants were selected according to the results of a language placement test.

Before concrete implications for language design in educational contexts can be developed, further differentiated studies are needed on how linguistic demands affect motivation. For example, one may question whether materials with simplified language are more likely to have a positive effect on the motivation of students with low language competencies; potential reasons may be that by doing this, their understanding can be improved, and they are more likely to experience learning success, which in turn motivates them toward future assessments. Large-scale assessments such as PISA (Weis et al., 2019) or Trends in International Mathematics and Science Study (TIMSS; Tarelli, Schwippert, & Stubbe, 2012) show that students' language competencies vary greatly depending on their language background, socioeconomic status, or cultural background, and that this is clearly reflected in their performance. In particular, students who do not learn their mother tongue have lower language competences, and thus, lower educational success (Tarelli, Schwippert, & Stubbe, 2012). One may assume that this is why three of the seven studies were conducted in the context of English as a foreign language. Furthermore, Rogiers, Van Keer, and Merchie (2020) also showed that students from different language and socioeconomic backgrounds scored differently on both reading enjoyment and reading comprehension; this reinforces the idea that students' academic language competencies are heterogeneous, and therefore, language demands may have different effects on them.

Research Recommendations and Outlook

This systemic review finds these heterogeneous language competencies of students as the first research gap. Crucially, future research should distinguish between students with strong and weak language skills.

Furthermore, the relationship between linguistic variations in (text) tasks and emotions was not considered. Both Chen

(2019) and Hamedi, Pishghadam, and Fadardi (2020) found emotions to be significant independent variables affecting reading comprehension. This underscores the high relevance of emotions to learning and achievement postulated in emotion theories (e.g. Pekrun, 2018). Therefore, future research should also consider emotions as dependent variables, assuming that they are not only relevant as predictors but also dependent on other variables, such as language-related variations.

In addition, the findings of this review provided evidence that surveying motivation and emotions not only before and after testing, but also at multiple measurement time points is important. Reichelt (2019) took such an approach, and found differences in students' motivation before the test and during the test. Welie, Schoonen, and Kuiken (2019) also assume a discrepancy in the students' motivation measurements before the test with their presumed actual motivation during the test. This suggest that motivation may be a dynamic construct. Therefore, future studies should consider collecting more than two measurement time points for insights into the change processes of the two variables.

As noted in the descriptions of methodology of the reviewed studies, explanations were not the subject of the intervention in any study. Moreover, all studies referred to written language: reading comprehension as a receptive language competence, on the one hand, and language in text tasks, on the other hand. However, in the search framework, we did not delineate whether language in written or oral form should be studied. Thus, there are two further research gaps: first, investigating explanations; and second, productive language skills and listening comprehension as well as language-related variations of oral language.

Furthermore, all reviewed studies referred exclusively to school and university students, although no restrictions were imposed regarding age or learning context in the search criteria. Thus, research is needed on other age groups or learning contexts, such as out-of-school learning.

Finally, the small database on which this systematic review was based indicates that further research is needed.

In conclusion, theories and studies on instructional design postulate that effective and conducive instructional design is characterised by the individual support of learners (Lipowsky, 2020). On the one hand, academic language in relation to learners' academic language competencies is important; on the other hand, motivation and emotion are also significant. Therefore, for learning and achievement, perhaps learners can also be individually supported if the language of instruction is designed to promote motivation and emotion according to their language competencies. Hence, in order to gain new insights into instruction design, more in-depth research on the discussed topics is required, with special attention to the effects of linguistic variations on learners' motivation and emotions.

CONCLUSION

In the present systematic review, two factors were brought together: motivational and emotional processes and language, both in terms of the language used in the academic context and the learners' individual language competencies.

As stated in the introduction, motivation and emotions as well as language are important for individual educational success. Following up on this, the aim of this systematic review was to find out what research findings already exist on the relationships between these factors. The systematic review process yielded five studies that investigated the effects of learners' motivation and emotions on reading comprehension, and two studies that investigated the effects of language-related variations in text tasks on learners' motivation. In summary, the results of these studies state that there are relationships between language-related variations in text tasks, learners' reading comprehension and their motivation and emotion. Significant positive effects on reading comprehension were found for high motivation and positive emotions (e.g., joy) and significant negative effects on reading comprehension were found for low motivation and negative emotions (e.g., anxiety, boredom). Conversely, motivation was found to be significantly affected by language-related variations in text tasks. Both the personalisation of texts and different grammatical and lexical demands were associated with significant differences in learners' motivation. Emotions, however, were not considered in this context, leaving one research concern of the present systematic review unanswered.

In conclusion, the results indicate that in the sense of conducive instructional design that enables individual support for learners, their language competences as well as their motivation and emotions should be considered together. In particular, the effects of language-related variations on motivation seem to be of great importance. It could be shown that learning and performance processes cannot only be directly promoted by an instructional language design oriented towards the learners' linguistic competencies. Rather, the language design also has a significant influence on learners' motivation and thus indirectly on learning processes and achievement. While the findings of this systematic review have provided initial indications and orientations for an instructional design that promotes motivation and emotions, further and more differentiated research is needed to deepen the previous findings and to develop concrete guidelines for educational practice.

DECLARATION OF COMPETING INTEREST

None declared ■

AUTHOR CONTRIBUTIONS

Lina Wirth: conceptualization, data curation, formal analysis, funding, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft, writing – review & editing.

Poldi Kuhl: conceptualization, data curation, formal analysis, funding, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft, writing – review & editing.

Timo Ehmke: conceptualization, data curation, formal analysis, funding, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft, writing – review & editing.

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RESEARCH ARTICLES

SYSTEMATIC REVIEWS