National Research University Higher School of Economics
Journal of Language & Education Volume 7, Issue 1, 2021

Lambovska, M., & Todorova, D. (2021). 'Publish and Flourish' instead of 'Publish or Perish': A Motivation Model for Top-quality Publications. *Journal of Language and Education, 7*(1), 141-155. https://doi.org/10.17323/jle.2021.11522

'Publish and Flourish' instead of 'Publish or Perish': A Motivation Model for Top-quality Publications

Maya Lambovska[1], Daniela Todorova[2]

[1] University of National and World Economy

[2] Todor Kableshkov University of Transport

Correspondence concerning this article should be addressed to Maya Lambovska, University of National and World Economy, complex Students' Town "Hristo Botev", 1700 Sofia, Bulgaria.
E-mails: *mlambovska@abv.bg*

Although the 'publish-or-perish' principle has spread globally, many authors believe that it is a negative reinforcer (motivator) and harmful. With this paper, we have tried to help overcome the growing pressure of negative reinforcers on researchers. The paper aimed to propose a model for factors influencing researchers to publish in WoS/Scopus journals, based mainly on positive reinforcement and a combination of concepts including theories of control, management, stakeholders, and psychology. The model was intended for Bulgarian universities. It covered 17 motivational drivers and 29 potential features of internal university stakeholders directly involved in the topic. Factor ranking was not incorporated in the model. The research methodology covered the methods of expert evaluation, analysis/synthesis, induction/deduction, and the toolkit consisted of a comprehensive survey and Kendall's rank concordance coefficient. The model was implemented at a Bulgarian state university. The empirical study was conducted among 120 researchers. It resulted in factor rankings by university internal stakeholders. The highest-ranked motivational driver was reputation, and the lowest-ranked was the publish-or-perish pressure reducing. The highest-ranked potential features were university prestige and potential and support for promotion. We believe that this model contributes to the theory of behaviour control. The model will also improve university research management by enriching its tools.

Keywords: higher education, research management, academic publishing, WoS & Scopus journals, publish-or-perish, motivation, potential, stakeholders

Introduction

Research plays a crucial role in social progress (Daumiller & Dresel, 2020). In turn, the fate of research depends on its quality and successfully being published (Bedeian, Van Fleet, & Hyman, 2009). "Research quality is considered a theoretical construct that encompasses a multitude of different facets" (Daumiller, Siegel, & Dresel, 2019, p. 4). In our view, one key criterion for the quality of research is publishing in prestigious academic journals. It contributes to the dissemination and practical application of the most valuable ideas, and, as a result, increases the public benefit of research. Additionally, the current approach to universities as stakeholder organizations (Osterloh & Frey, 2014) predetermines the importance of such publishing for all stakeholders. For researchers, there are influences on their tenure, career advancement, professional recognition, and rewards (Miller, Taylor, & Bedeian, 2011). For universities, it increases institutional rankings, their funding, and quality/accreditation scores (Blaginin, Volkova, & Strielkowski, 2019; Karimi & Asadnia, 2020). For society, "high-quality publications remain the primary tool for describing national and individual contributions to science and society" (Lambovska & Yordanov, 2020, p. 188). Thus, publishing in prestigious journals contributes to the prosperity of all stakeholders.

Two questions arise about publishing in prestigious journals: 1. Which academic journals are prestigious? 2. What motivates researches to publish in prestigious journals?

Concerning prestigious journals, most authors identify them with those indexed by Web of Science (WoS)/ Scopus (Blaginin et al., 2019; Raitskaya & Tikhonova, 2020a). We share this view, as these databases "offer

some objectivity" (Blaginin et al., 2019, p. 361) by evaluating journals "based on peer review, citations, h-index and impact factor" (Osterloh & Frey, 2014, p. 83).

Concerning the second question, a globally spread approach is one based on the 'publish-or-perish' principle as a negative motivator (reinforcer). Following it, researchers "are forced to publish as much as possible" (Binswanger, 2015, p. 19) "mainly in international journals" (Raitskaya & Tikhonova, 2020a, p. 4). In most cases, this principle is classified as a negative reinforcer due to its predominantly aggressive application, which puts strong pressure on researchers. Many authors consider it harmful, "even dangerous" (Blaginin et al., 2019, p. 357), due to its negative effects, including higher stress, nonsense research, intense competition among peers, an increased market for predatory journals, communication problems of non-native writing, wider national scientific communities communicating only in native languages, and the promotion of 'cartels' among scientific communities (Beavitt & Popova, 2020; Behl, Chavan, Dutta, & Sheorey, 2020; Hung & Baranovskaya, 2020; Miller et al., 2011; Raitskaya & Tikhonova, 2020b). Also, "the 'publish-or-perish' principle crowds out the intrinsic motivation of researchers, which is a necessary condition for true excellence" (Binswanger, 2015, p. 30). We fully support these views. We also consider the 'publish-or-perish' principle to be a negative reinforcer. It should not be neglected, as the literature brings it out as an important motivator for researchers.

Another approach to motivate researchers is by combining positive and negative reinforcers. It is applied in several of the models we found in the WoS/Scopus literature on this topic. Two models (Daumiller & Dresel, 2020; Karimi & Asadnia, 2020) are analytical. They cover motivational drivers derived from one or two theories. Results of their testing are country- and/or community-specific. The third model (Lambovska & Yordanov, 2020) is based on a systematic literature review. It is general and descriptive. None of the models classified the factors influencing researchers by stakeholders. Our literature review led us to three main conclusions. First, "few studies have explicitly examined researchers' motivations" (Daumiller & Dresel, 2020, p. 1). Second, this is a novel and relatively under-investigated topic. Third, there are no models in the scientific literature to influence researchers to publish in prestigious journals, which are comprehensive enough, theoretically sound due to an appropriate combination of concepts from social theories, and take into account stakeholder motivation and potential.

With this paper, we would attempt to bridge these gaps. Following reinforcement theory (Hamner, Luthans, & Krietner, 2015) and our belief in the higher efficiency of positive motivation (Stoyanov, 2014), we suggest an approach to influence researchers based primarily on positive reinforcers. Another novelty of this approach is that we look at the influence on researchers in a complex way - as a function of the stakeholder motivation and potential. In this regard, a set of concepts from theories of control, stakeholders, organizational behaviour, psychology, as well as general and performance management are at the core of our approach.

The *research aim* of this paper is to propose a model for factors influencing researchers to publish in WoS/Scopus journals, based mainly on positive reinforcement and a combination of concepts from social theories. It is intended for Bulgarian universities. The model covers only factors that apply to internal stakeholders. By factors, we mean motivational drivers and potential features.

We raise three research questions (RQs):

- RQ1: Which drivers and features typify, respectively, the motivation and potential of stakeholders to contribute to publications published in WoS/Scopus journals?
- RQ2: What are the features of the models for influencing researchers to publish in WoS/Scopus journals available in the scientific literature?
- RQ3: In the current Bulgarian context, what set of stakeholder motivational drivers and potential features can be proposed to increase publications in WoS/Scopus journals?

The *research methodology* we applied covers the methods of expert evaluations, analysis/synthesis, induction/deduction, as well as the comprehensive survey of the entire population and Kendall's rank concordance coefficient.

We believe that this model will contribute to the theory of behaviour control, in particular to the control of researchers' behaviour. It will enrich the tools of university research management and make it possible to

decrease the pressure and effects of negative reinforcers on researchers. By creating it, we try to support current efforts to encourage Bulgarian researchers to publish in prestigious journals. The model can also be used by other research communities working in a similar context including reputational systems (Vogel & Hattke, 2018), educational regulations (Vorontsova, Shvindina, Mayboroda, Mishenina, & Heiets, 2020), and publication, organizational, and national culture (Ghinea, Mihaylova, & Papazov, 2015; Raitskaya & Tikhonova, 2020c).

We pursue the following *strategy* to achieve our research aim. In the first part of the paper, we conduct a systematic review of the WoS & Scopus literature. Thus, we identify achievements and gaps in the scientific literature and systematize them, answering RQ1 and RQ2. These results are the starting point for substantiating and creating the model we are proposing. We chose the concepts underlying the model based on gaps in the literature. We also included some motivational drivers and potential features described in the answer to RQ1 (Figure 1). In the second part, we outline the theoretical framework and context of the proposed model. Then we clarify the nature and specifics of the model. Thus, we answer RQ3. In the third part, we present the results of the model after it was implemented at a Bulgarian university.

Literature Review

Papers found in WoS & Scopus before November 2020 are reviewed here, using a structured approach (Kitchenham et al., 2009), methods of content analysis, and deduction. We searched for papers through five combinations of keywords and derivatives, including 'stakeholder', 'influence', 'motivation', 'potential', 'publish-or-perish', 'academic', 'researcher', 'publication', 'journal', 'Scopus', and 'WoS'. Initially, 623 papers were found. Of these, only 15 papers, which we will refer to as the 'sample', were eligible for this study. Based on the sample analysis (Figure 1), we answered RQ1 and RQ2.

In response to RQ1, we discovered and systematized motivational drivers and potential features of stakeholders to contribute to publications published in WoS/Scopus journals (Figure 1). Then we ranked the drivers and features by frequency of occurrence. We did not classify them by stakeholders, as the papers lacked such a grouping.

Regarding motivational drivers, we found 14 main ones (Figure 1a). We grouped them as either extrinsic or intrinsic. The results showed that extrinsic drivers were cited more compared to intrinsic ones. The most cited drivers were collaboration/co-authorship (1st); promotion/tenure and job mobility (2nd); financial assets and publish-or-perishing pressure reducing (3rd); researcher's reputation (5th). Competition and university reputation were cited the least, 13th and 14th.

Regarding features of the stakeholder potential, we found 15 main ones (Figure 1b). According to the results, the most cited features were pressure (publish-or-perish and cultural) (1st); collaboration/co-authorship potential and material support (2nd); promotion/tenure (4th); research funding (5th). The least cited were autonomy (14th) and other types of publications (15th).

In response to RQ2, we discovered three models for influencing researchers available in the literature. We analysed them and systematized their features (Table 1).

The first model (Daumiller & Dresel, 2020) is based on achievement goal theory. Accordingly, Daumiller and Dresel (2020) developed a model of ten classes of achievement goals to describe the researchers' motivation, including task approach and avoidance, learning approach and avoidance, appearance approach and avoidance, normative approach and avoidance, work avoidance, and relational. It was tested among 824 German university researchers. They ranked mastery (task and learning standards) and performance (appearance and normative strivings) the highest. Relational and work avoidance goals were also mentioned. The highest-ranked results are of mixed nature (positive and negative drivers). They are integrated into row 7 of Figure 1. Our results partially confirmed those of Daumiller and Dresel. In Figure 1a, the researcher's reputation and personal development ranked 5th and 7th, respectively. We found five deficiencies of Daumiller's and Dresel's model. First, it does not literally cover our topic, as it addresses the researcher motivation to research but not specifically to publish in WoS/Scopus journals. Second, the model is based on a single theory. This one-sided approach does not allow a variety of motivational drivers to be taken into account. Third, the model does not classify

Figure 1

Results of the literature sample analysis on the factors influencing researchers

a) Motivational drivers to publish in WoS/Scopus journals

	Reference	Motivational drivers - type and frequency of occurrence (times)													
		Extrinctive									Intrinsic				
		Collaboration and co-authorship	Competition	Financial assets	Funding of research	Promotion/tenure, job mobility	Publish-or-perish pressure reducing	Researcher's reputation	Working conditions (incl. autonomy)	University reputation	Contribution to science and	Contribution to society	Challenging/creative work	Job satisfaction	Personal development
1	Alfonso (2019)			1											
2	Banks (2018)														
3	Barreto, Roa and Velasquez (2019)			1			1		1			1			
4	Behl, Chavan, Dutta, and Sheorey	1		1		1	1		1						
5	Binswanger (2015)						1								
6	Blaginin, Volkova and Strielkowski				1		1								
7	Daumiller and Dresel (2020)						1	1							1
8	Johnston (2016)										1				1
9	Karimi and Asadnia (2020)					1	1	1							
10	Lambovska and Yordanov (2020)	11	3	8	8	8	4	7	4	2	5	8	5	5	5
11	Miller, Taylor and Bedeian (2011)			1		1	1	1			1				
12	Raitskaya and Tikhonova (2020a)	1				1	1								1
13	Richard, Plimmer, Fam and Campbell							1	1					1	
14	Romani-Dias, Carneiro and Barbosa	1			1										
15	Vogel and Hattke (2018)	1				1			1						1
	Rank	1	13	3	6	2	3	5	9	14	10	7	12	11	7

b) Features of the stakeholder potential to influence researchers to publish in WoS/Scopus journals

	Reference	Potential features														
		Affinity for research/scientific	Authonomy	Colleboration, co-authorship potential	Command of foreign languages	Funding of research	Intangible support and awards	Intellectual abilities	Material support/incentives	Methodological training	Other types of publications	Pressure (cultural and publish-or-	Professionalization of scientific activity	Promotion, tenure, carier abroad	Time	University potential and prestige
1	Alfonso (2019)				1				1	1						1
2	Banks (2018)				1							1	1			
3	Barreto, Roa and Velasquez (2019)					1	1		1	1						
4	Behl, Chavan, Dutta, and Sheorey			1		1	1		1			1		1		
5	Binswanger (2015)								1			1		1		
6	Blaginin, Volkova and Strielkowski											1				
7	Daumiller and Dresel (2020)											1	1		1	
8	Johnston (2016)		1													
9	Karimi and Asadnia (2020)											1		1		
10	Lambovska and Yordanov (2020)	3		13	4	9	5	3	10	5	1	11		9	9	5
11	Miller, Taylor and Bedeian (2011)								1			1		1		
12	Raitskaya and Tikhonova (2020a)			1	1		1			1		1	1	1		
13	Richard, Plimmer, Fam and Campbell						1			1						
14	Romani-Dias, Carneiro and Barbosa			1	1				1	1			1		1	
15	Vogel and Hattke (2018)		1			1	1									
	Rank	12	14	2	9	5	7	12	2	7	15	1	11	4	6	10

motivational drivers by stakeholder. Fourth, the results of its testing are country-specific. Fifth, the model uses complex formulations of drivers and is difficult to apply in practice.

The second model (Karimi & Asadnia, 2020) is based on Dornyei's motivational self-system theory (2009) and Markus and Nurius's theory of possible selves (1986). It clarifies how researchers' possible selves (the ideal, the ought-to, and the feared) affect their productivity. It was tested for Iranian applied linguistic researchers. Empirically, four "main triggers to publish in top-tier journals were identified: desires to gain visibility in the research community, to become prolific researchers, to preserve their international researcher positions, fear of the publish-or-perish principle" (Karimi & Asadnia, 2020, p. 215). These results are included in the literature sample (row 9 in Figure 1). They are also of mixed nature and are close to ours. As shown in Figure 1a, promotion and publish-or-perish pressure reduction are ranked 2nd and 3rd, respectively. In our view, the model has three deficiencies. First, the main drawback is that researchers' motivation is examined in the context of a single psychological aspect. Second, the results of its testing are community- and country-specific. Third, the model refers to a single stakeholder - the researcher.

Table 1
Features of the models for influencing researchers found in WoS & Scopus

Model	Daumiller & Dresel, 2020	Karimi & Asadnia, 2020	Lambovska & Yordanov, 2020
Type	analytical	analytical	descriptive
Theory (number)	yes (1)	yes (2)	no (0)
Nature (general/specific)	general	specific	general
Nature of test results	specific	specific	-
Motivational drivers covered	10	14	14
Potential features covered	0	0	12
Type of highly ranked drivers (row in Figure 1)	mixed (7)	mixed (9)	positive (10)
Classification by stakeholders	no	no	no

The third model (Lambovska & Yordanov, 2020) is general and descriptive, as it is derived from a systematic literature review. The model covers two types of factors: motivational drivers of researchers and features of the potential to influence researchers. According to its results, the most cited motivational drivers were collaboration, research funding, financial assets, promotion, contribution to society, and researcher's reputation. The most cited potential features were collaboration, material support, research funding, promotion, and time. The results are integrated into our literature sample (row 10 in Figure 1). They largely determine our results. We found four deficiencies of this model. First, there is no theory at the core of the model. Second, it is not tested. Third, the drivers/features are not classified by stakeholders. Fourth, the 'publish-or-perish' principle is not a search term, and, thus, its representation is artificially restricted.

The main results of our literature review could be summarized as follows:

- Very few papers eligible for this study were found in the WoS & Scopus literature. Most of them identify motivational drivers and potential features in the context of other topics.
- Only three models for influencing researchers were found: two analytical and one descriptive.
- The analytical models are based on one or two theories and tested for a specific community/country. One analytical model is community- and country-specific.
- Only the descriptive model covers the features of the stakeholders' potential to influence researchers.
- The maximum number of motivational drivers covered by the models is 14.
- All models lack systematization by stakeholders.

Solution

Theoretical Framework

Concepts from theories of control, stakeholders, organizational behaviour, psychology, general and performance management are at the root of the proposed model.

The notion of influence on behaviour and its interpretation in various scientific theories is of paramount importance for this model. In *general management*, "the ability to influence behaviour is defined as power" (Yordanov, 1997, p. 32). In *control theory*, influence is known as control influence. It refers to the concept of control as a critical social attitude based on the 'domination-subordination' dependence. This attitude is "determined by the differences in the socio-economic potentials of the subjects of control (stakeholders) to influence" (Simeonov, 1997, p. 18). The control influence is embedded in the *concept of control relations*. In it (Simeonov, 1997), control influence (CI) is mathematically described (Formula 1) as a product of the stakeholder's motivation (M) and its potential to influence (PI). Control influences of the stakeholders on a target result form the so-called 'picture of control relations' of the organization at some point (Bourne & Walker, 2005). It shows the stakeholders who ultimately control the achievement of the target result at this point. This 'picture' is a starting point for redesigning the control relations of the organization, aimed at

achieving its goals. The concept of control relations underlies our model. The model also applies the *principle of self-control* to researchers as an object of control.

$$CI=M\times PI \quad (1)$$

The notion of human resource performance is also used here. *Performance management* establishes seven primary criteria of the organizations' performance (Kirova, 2010; Sink, 1986): effectiveness, efficiency, quality, profitability, productivity, quality of work-life, and innovation. Of these, effectiveness, "degree of goals-achieving" (Cizmas, Feder, Maticiuc, & Vlad-Anghel, 2020, p. 8), and productivity, "output/results per resource" (Sink, 1985, p. 20), directly address our topic. We are not interested in productivity, as it is based on effectiveness and is community/country-specific in this context. Thus, human resource performance refers primarily to *human resource effectiveness* here and it is subject matter of both psychology and organizational behaviour. In *psychology*, "human resource effectiveness is described mathematically as a product between motivation and ability" (Sink, 1985, p. 303). According to *Vroom's expectancy theory* (1985), the result of multiplying ability and motivation is performance. This wording is very close to the definition of control influence in control theory (Formula 1).

The idea of increasing effectiveness through behaviour control based on motivation leads us to apply *reinforcement theory*. This is a behavioural theory that uses "the principle of learning through reinforcement to influence and modify human behaviour to desired ends" (Hamner et al., 2015, p. 115). It identifies four types of strategies: positive and negative (avoidance learning) reinforcement, extinction, and punishment. "The first two serve to strengthen the desired behaviour, and the others to weaken undesired behaviour" (Hamner et al., 2015, p. 116). In our model, only behaviour-strengthening strategies are applied. "Reinforcement is conceptually related to motivation, but it is something different" (Luthans, Luthans, & Luthans, 2015, p. 133). Motivation is the internal explanation of behaviour, and reinforcement is external (Hamner et al., 2015).

Behaviourists view *motivation* as an important hypothetical construct to explain behaviour. Luthans et al. (2015, p. 132) define it as "a basic psychological process that starts with a need that activates a behaviour or a drive that is aimed at a goal or incentive". We share this opinion. Here we also apply the concepts of *Murray's personality theory, Vroom's expectancy theory,* and *Ryan and Deci's types of motivation*. We support Murray's (1936) idea of the lack of a single hierarchy of needs for all individuals. Therefore, we do not introduce a hierarchy of motivational drivers in the model and do not classify them into primary/secondary or physiological/psychological. We base our model on Vroom's concept of performance (here called 'control influence', Formula 1). By motivational drivers, we mean possible outcomes, following Vroom's terminology (1985). Depending on the way they are generated, motivational drivers are classified as either intrinsic ("internally generated, driven by internal rewards") or extrinsic ("externally generated, dependent on external rewards") (Luthans et al., 2015, p. 134). Ryan and Deci (2000, p. 54) define "intrinsic motives as reflections of the natural human propensity to learn and assimilate, based on the needs of competence, autonomy and relatedness". They believe that external motives reflect either external governance or true self-regulation (Ryan & Deci, 2000). We rooted these views in the model, also classifying motivational drivers as either intrinsic or extrinsic (Figure 2).

The control relations in this model are considered according to the context *of stakeholder theory*. Here, both the object and the subjects of control are stakeholders. Also, all of the factors influencing researchers are classified by the stakeholders in the model (Figure 2). According to this theory, "organizations must bear in mind the different perspectives and expectations of a variety of constituents, called stakeholders, who can influence the outcome of the organization" (Freeman, 2015, p. 32). The influence of the stakeholders depends to a large extent on their potential. *Stakeholder potential* is defined as "the strength and ability to influence others" (Simeonov, 1997, p. 16). It consists of three groups of elements (Simeonov, 1997; Stoyanov, 2012): personal strength (creativity, culture, expertise, intellect, material status, skills, etc.), position power (formal authority; control over rewards, punishments, information, etc.) and political power (coalitions, institutionalization, co-option, etc.). Stakeholders are usually divided into internal and external stakeholders. "Academic staff, non-academic staff and students are the main internal stakeholders at the university" (Turan, Cetinkaya, & Ustun, 2016, p. 745). Here we are interested in the academic staff divided into three stakeholders - researcher, academic department head, and top university management.

Methods

The methods of analysis/synthesis and induction/deduction were used to create this model.

The Bulgarian Context

The importance of the Bulgarian researchers’ publications in WoS/Scopus journals stems mainly from the current regulations in higher education. According to the requirements of the Bulgarian Ministry of Education and Science (MES RB, 2018), these publications are an indicator for calculating research grants for state universities. They are also a very important indicator of the Bulgarian University Ranking System (MES RB, 2010). This ranking is considered an official state assessment of the quality of university education and is, therefore, a key factor in student influx. Additionally, these publications are a key prerequisite for a high university accreditation score, which is another indicator of the Ranking System. Moreover, the per-student subsidy of state universities is based on their ranks and accreditation scores.

Other important features of the current context in which Bulgarian researchers work should also be noted. As for finances, their salaries are fixed and relatively low compared to researchers from other European countries. Publications in WoS/Scopus journals are not a prerequisite for a higher salary. However, many state universities pay financial bonuses for them. As for work/promotion, Bulgarian researchers have permanent employment contracts that do not depend on these publications. Most Bulgarian state universities require such publications only in competitions for the academic position of professor. This is not the case for most private universities. Also, many researchers teach at several universities or have other employment contracts. They research either for promotion or for prestige. As for awareness, many researchers are not informed about the normative significance of top achievements, as they have not had to comply with it so far. As for the scientific position of Bulgaria, its current ranking in WoS/Scopus is not high. In 2019, Bulgaria ranked 64th in Scopus and 63rd in WoS by citable documents, including articles.

The current Bulgarian context gives us reason to conclude: 1. Publications in WoS/Scopus journals are very important for the survival of Bulgarian state universities and are a prerequisite for researchers’ reputations. 2. These publications are considered “a tool to control the relevance of public spending” on science at state universities (Yordanov, 1999, p. 40). 3. The ‘publish-or-perish’ principle puts strong pressure on Bulgarian university management, but not on researchers.

Model

In response to RQ3, we created a model for factors influencing researchers to publish in WoS/Scopus journals (Figure 2). It is based on the following *limitations*:

1. Target community - Bulgarian researchers
2. The model covers internal university stakeholders directly involved in this topic.
3. Factor ranking is not incorporated in the model.

The main *peculiarities* of the model are as follows:

- It is country-specific (limitation 1).
- Due to limitation 3, it applies to the Bulgarian research community as a whole.
- It covers 46 factors influencing researchers. They are classified into motivational drivers (17) and potential features (29). Vroom’s expectancy theory and the notion of control influence (Formula 1) underlie this classification. Per Ryan and Deci’s concepts (2000), the motivational drivers are grouped as either intrinsic or extrinsic. Based on the theory, the potential features are divided into three groups: personal strength, position, and political power.
- The factors are systematized by stakeholders based on stakeholder theory and our sample.
- It addresses academic staff (limitation 2) divided into three stakeholders - researcher, academic department head, and top university management (Rector, Vice-rectors, Deans).
- All but one of the motivational drivers are positive reinforcers in line with behaviour strengthening strategies of reinforcement theory.

Concerning *intrinsic* motivational *drivers*, job satisfaction is the only one enrolled in the model for all stakeholders. In our view, it is currently the key intrinsic driver for Bulgarian researchers.

For the *researcher stakeholder*, the model covers five *extrinsic drivers*. Four drivers match those ranked 2nd to 5th in the results of the literature sample analysis (Figure 1a). The rationale of the drivers:

- Financial benefits: The driver is 1. highly ranked in the sample (3rd, Figure 1a); 2. "a major positive reinforcer of work motivation" (Luthans et al., 2015, p. 352); 3. very important for Bulgarian researchers due to their low pay. 4. Bulgarian state universities reward researchers with financial bonuses for articles in WoS/Scopus journals.
- Promotion to academic and administrative positions: The driver is 1. highly ranked in the sample (2nd, Figure 1a); 2. a major positive reinforcer (Luthans et al., 2015). 3. Currently, the requirement to publish in WoS/Scopus journals is one of the most difficult for acquiring a professorial academic position in most Bulgarian state universities. 4. The promotion results in higher pay and raises the researcher's reputation.
- Researcher's reputation: The driver is 1. ranked 5th in the sample (Figure 1a). 2. Reputation is considered "an effective social positive reinforcer" due to its nature of "informal feedback and achievement motive" (Luthans et al., 2015, pp. 134, 352).
- Publish-or-perish pressure reducing: This is the only negative reinforcer in the model. The publish-or-perish principle is 1. highly ranked in the sample (3rd, Figure 1a); 2. already globally-spread (Raitskaya & Tikhonova, 2020b). 3. Although it is still not applied fiercely in Bulgaria, its importance is constantly growing due to higher education regulations.
- Participation in groups/juries, projects: It combines the drivers of collaboration and research funding, which are highly ranked in the sample (1st and 6th, Figure 1a). Although "collaboration is an important affiliation motive" according to behaviourists (Luthans et al., 2015, p. 134) and the most cited driver found in the sample (Figure 1a), it is not a separate driver in this model. There are two reasons for this. First, cooperation is not currently vital for Bulgarian researchers due to the non-application of the 'publish-or-perish' principle for their promotion and periodic attestation at most universities. Second, we believe that cooperation is a potential feature in this context, but not a motivational driver.

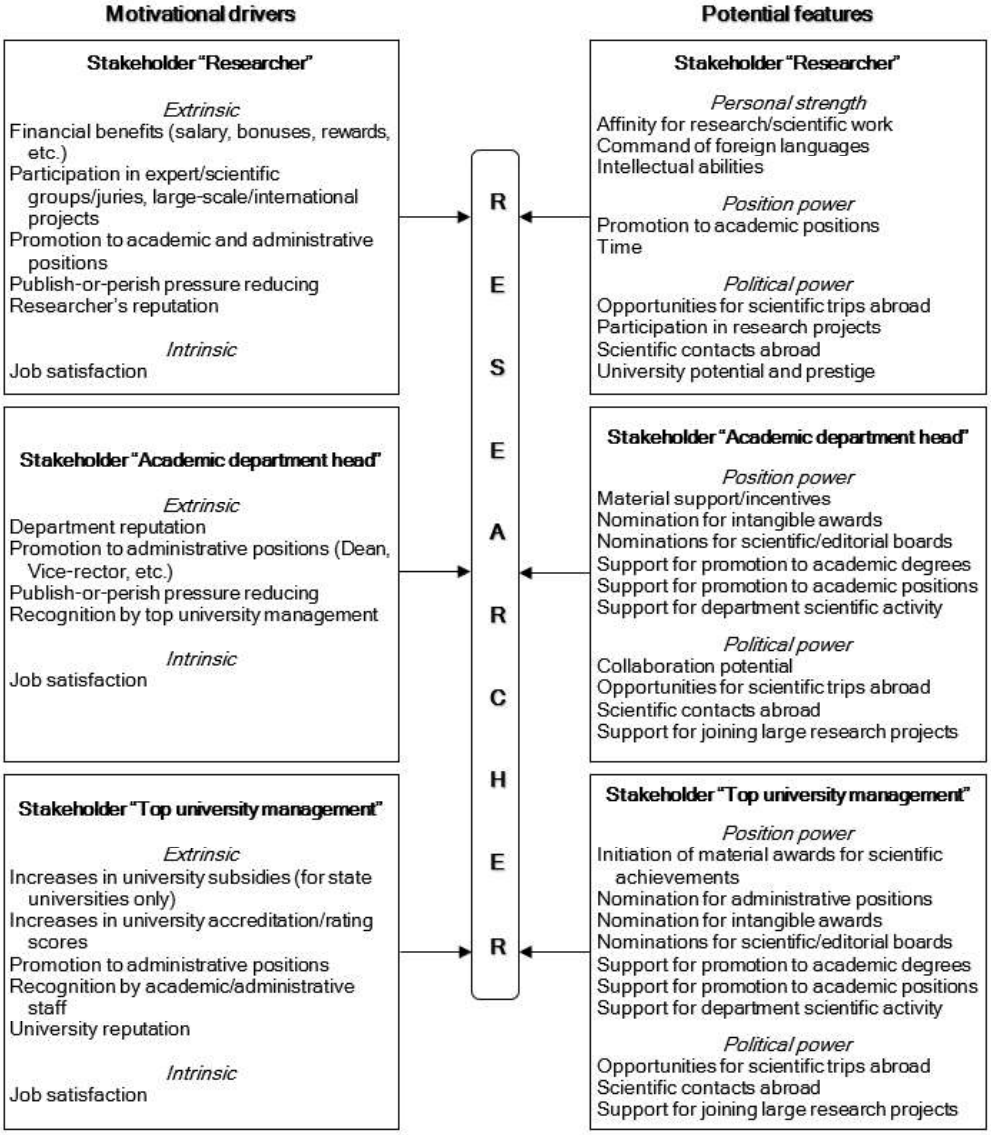
For the *department head stakeholder*, the model covers four *extrinsic drivers*. Two (recognition by top university management and department reputation) are feedback. They are considered prerequisites for the third driver - promotion to administrative positions. Publish-or-perishing pressure reducing is the fourth driver. The importance of these drivers is explained above.

For the *top university management stakeholder*, five *extrinsic drivers* are included in the model. Three are similar to the previous stakeholder: promotion to administrative positions, university reputation, and recognition by academic/administrative staff. The others are extremely important to Bulgarian universities, especially during the COVID-19 crisis. These are 'increases in university accreditation/rating scores' and 'increases in university subsidies (for state universities only)'. Student influx depends on the former indicator and the finances of state universities on the latter.

Features of stakeholder potential are identified based on our experience as university researchers and the literature review results (Figure 1b). In the model, the publish-or-perish pressure is not a potential feature, as we consider it is a motivational driver.

For the *researcher stakeholder*, the model covers nine potential features. The features of personal strength are an affinity for research/scientific work, command of foreign languages, and intellectual abilities. In our view, the researcher's position power is best described by two potential features: promotion to academic positions and time. Although these features are not highly ranked in the literature sample (4th and 6th, Figure 1b), they provide great opportunities for researchers, especially in the current Bulgarian context. The researcher's political power group is formed by four potential features. Of these, three are effects connected to researchers' collaborations (2nd, Figure 1b), including opportunities for scientific trips abroad, participation in research projects, scientific contacts abroad. We recorded them as separate features due to their difference in nature and significance for researchers. The fourth feature is university potential and prestige (10th, Figure 1b).

Figure 2
Authors' model for factors influencing researchers to publish in WoS/Scopus journals



The *department head* and *top university management* stakeholders have similar potential features in the model. We believe that personal strength features are not particularly important for the control influences of these stakeholders. That is why we did not include them in the model. The opposite is true for the features of the other two groups. In the position power group of these stakeholders, there are five features that are the same. They are related to support (for promotion to academic degrees/position - 4th in Figure 1b and for department scientific activity) and nominations (for intangible awards - 7th in Figure 1b and for scientific/editorial boards). In this group, there is another feature for the department head (material support/incentives, 2nd in Figure 1b), and two other features for the top university management - initiation of material awards for scientific achievements and nomination for administrative positions. They are included in the model for two reasons: 1. the high rank in the sample results and 2. the current situation in which Bulgarian researchers work. In the political power group, there is a coincidence of three features: opportunities for scientific trips abroad, scientific contacts abroad, and support for joining large-scale research projects. To take into account the department head's potential to support subordinates in their research, the collaboration feature is added to the political power group of this stakeholder.

Implementation of the Model

Here we present the results from the model implementation at the Todor Kableshkov Transport University (TKTU), Sofia in 2020 (Figure 3). TKTU is a Bulgarian state university. In 2019, it ranked 31st out of 41 Bulgarian universities in terms of articles indexed by WoS (MES RB, 2010).

Research Design

The method of expert evaluations and a comprehensive study of the entire population were used to test the model. Respondents had to rank motivational drivers and potential features in descending order of importance. The population of TKTU researchers covered 120 people, including 24.17% professors, 33.33% associate professors, and 42.5% assistants. It was distributed by *internal stakeholders* as follows: researchers – 101, department heads – 12, top university management - 7. Researcher stakeholders were divided into five groups (General Engineering, Geodesy & Construction, Natural Sciences, Social Sciences, and Technical Sciences), based on the Scopus and WoS subject areas in which TKTU researchers published most between 2014 and 2019.

Kendall's rank concordance coefficient (W) was applied as a tool to measure stakeholder consensus. This coefficient is very often used to measure the consistency of expert evaluations in rankings. Its value varies in the range from 0 to 1 ($W \in [0,1]$). If its value is greater than or equal to .5 ($W \geqslant .5$), it is assumed that there is sufficient consensus (David, Kendall, & Stuart, 1951). Here we adopted the following scale for concordance assessment (Table 2): low – $W \in (0, .3)$, moderate - $W \in [.3, .5)$, significant - $W \in [.5, .7)$, strong - $W \in [.7, .9)$, and very strong concordance - $W \in [.9, 1]$ (where $\in$,(,[are designations of affiliation, open and closed interval).

Results and Discussion

The model implementation at TKTU resulted in stakeholder rankings of the factors influencing researchers to publish in WoS/Scopus journals (Figure 3). The results were as follows.

Rankings of motivational drivers at TKTU (Figure 3a):

- The researcher stakeholder - The highest-ranked drivers were the researcher's reputation (1st), job satisfaction (2nd), and promotion to academic positions (3rd). Publish-or-perish pressure reducing was the lowest-ranked (9th).
- The department head stakeholder – Department reputation and job satisfaction were the highest-ranked (1st). Promotion to administrative positions was 3rd. Publish-or-perish pressure reducing was the lowest-ranked (5th).
- The top university management stakeholder – The highest-ranked were university reputation (1st), increases in university subsidies (2nd), and increases in university accreditation/rating scores (3rd). Promotion to administrative positions took the lowest place (6th).

Rankings of potential features at TKTU (Figure 3b):

- The researcher stakeholder – University potential and prestige (1st), affinity for research (2nd), and promotion to academic positions (3rd) were the highest-ranked. Time was the lowest (9th).
- The department head stakeholder – The top-ranked features were the support for promotion to academic degrees (1st), support for promotion to academic positions (2nd), and scientific contacts abroad (3rd). Collaboration potential was the lowest-ranked (10th).
- The top university management stakeholder – The two top-ranked features were the same as for the department head stakeholder. The nomination for administrative positions was ranked 3rd. Support for the department scientific activity was the lowest-ranked (10th).

The results of TKTU ranking concordance showed that a strong concordance assessment prevailed (Table 2). It was typical of half of the stakeholder rankings and 70% of the researcher group rankings. Regarding motivational drivers, the department head and top university management stakeholders were exceptions, with moderate and very strong concordance respectively. Regarding potential features, there were four exceptions.

We ignored them, as the concordance of researcher stakeholder was above .5 (.5967). Thus, we concluded that the TKTU rankings were concordant.

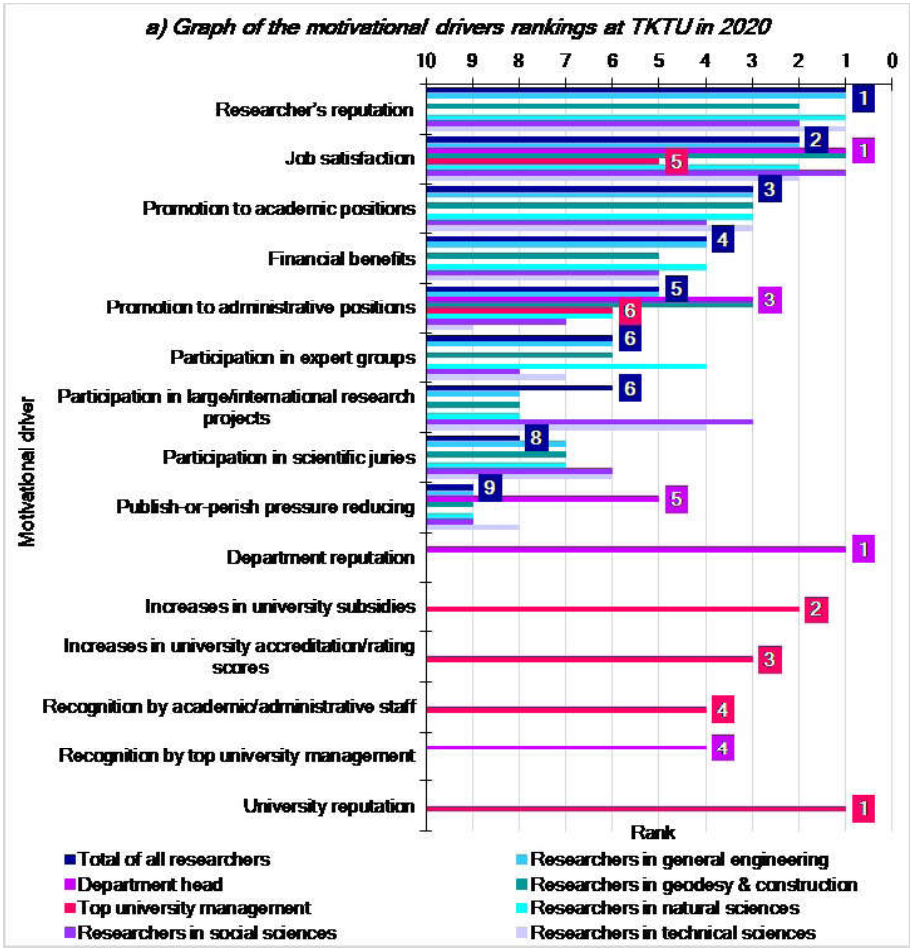
The experimental results gave us reason to draw the following main conclusions:

- For motivational drivers: The TKTU rankings did not confirm the results of models presented in our review. There were two exceptions: reputation and the 'publish-or-perish' principle. Reputation was ranked highest in the TKTU rankings and highly in the models of Daumiller and Dresel (2020) and Karimi and Asadnia (2020). The 'publish-or-perish' principle was the lowest-ranked in the TKTU rankings. Many authors oppose its use (Binswanger, 2015; Blaginin et al., 2019; Raitskaya & Tikhonova, 2020b, etc.). In a large-scale study, Richard et al. (2015) proved that it demotivates rather than motivates researchers.
- For potential features: The TKTU rankings differed largely from the sample results.
- For TKTU: Statistically, the experimental results are representative of TKTU due to the scope of the study (entire population). Therefore, they can be used as an element of a comprehensive model for research management of TKTU.
- The experimental results did not confirm our expectations for the highest ranking of material incentives/benefits as both a motivational driver and a potential feature.

The experimental results cannot be considered representative of the Bulgarian research community. Moreover, factor ranking is not incorporated in this model (limitation 3). Therefore, we expect variations in the results of its implementation at Bulgarian universities, depending on the university ownership, size, organizational and publication culture, community research field, etc.

Figure 3

Ranking graphs of the stakeholder motivational drivers and potential features at TKUT in 2020



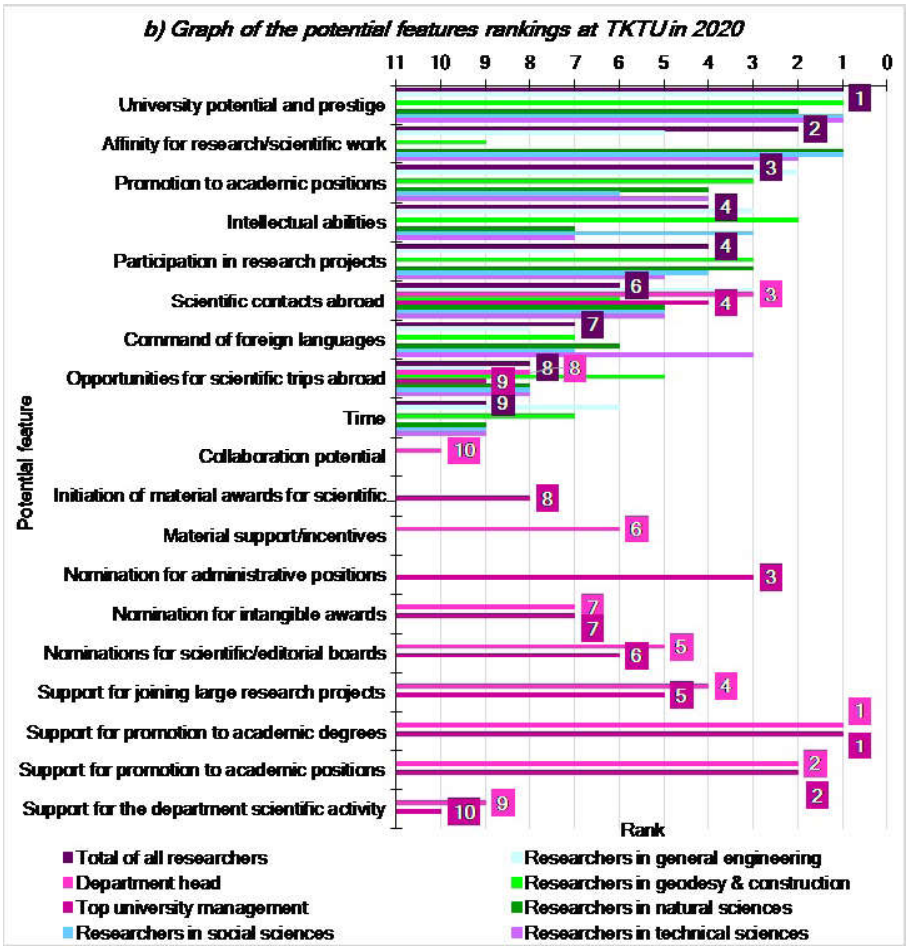


Table 2
Concordance of the TKTU rankings for motivational drivers and potential features in 2020

Stakeholders	Kendall's W rank concordance coefficient for			
	Motivational drivers		Potential features	
	Quantitative value	Qualitative level	Quantitative value	Qualitative level
Researcher group				
General Engineering	.7866	strong	.4413	moderate
Geodesy & Construction	.8102	strong	.1269	low
Natural Sciences	.8733	strong	.7707	strong
Social Sciences	.7912	strong	.7889	strong
Technical Sciences	.7071	strong	.4905	moderate
Total of all researchers	.8133	strong	.5967	significant
Department head	.3911	moderate	.8138	strong
Top university management	.9016	very strong	.8828	strong

Conclusion

This paper presents a model for factors influencing researchers publishing in WoS/Scopus journals, based mainly on positive reinforcement and a combination of concepts from social theories (control, management, stakeholder theory, psychology, etc.). The model is intended for Bulgarian universities. It covers motivational

drivers and potential features of internal university stakeholders directly involved in the topic. All but one of the motivational drivers are positive reinforcers based on strategies to strengthen behaviour. Factor ranking was not incorporated in the model.

Results from the model implementation at Todor Kableshkov Transport University in Sofia are also presented in the paper. They can be used for developing a comprehensive model for research management of this university. In our view, the model is also suitable for all universities (Bulgarian and foreign) operating in a similar context in terms of culture (national, organizational, and publication), reputational systems, educational regulations, etc.

We believe that the proposed model is a contribution to the theory of behaviour control. For future research, the model could be integrated into models for managing the influence on researchers to publish in WoS/Scopus journals. In terms of practice, we try to support efforts to encourage Bulgarian researchers to publish in prestigious journals. We also expect the pressure of negative reinforcers on researchers to be reduced as a result of the model's implementation. Overall, we hope that this paper will contribute to the improvement of university research management.

Conflict of interests

The authors declare that they have no conflict of interest.

References

Alfonso, A. G. (2019). Exogenous factors, implicit theories and linguistic-discursive procedures in scientific writing. *Enunciacion*, *24*(2), 184-198. https://doi.org/10.14483/22486798.15199

Banks, D. (2018). Thoughts on publishing the research article over the Centuries. *Publications*, *6*(1), Article 10. https://doi.org/10.3390/publications6010010

Barreto, I. B., Roa, E. R. A., & Velasquez, T. D. M. (2019). Scientific production of teachers in Peruvian Universities: motivations and perceptions. *Revista San Gregorio 35*, 86-96.

Beavitt, T. A., & Popova, N. G. (2020). The role of the English article system in developing dialogical context: A view from Russian science. *Journal of Language and Education*, *6*(3), 52-68. https://doi.org/10.17323/jle.2020.10360

Bedeian, A. G., Van Fleet, D. D., & Hyman, H. H. (2009). Scientific achievement and editorial board membership. *Organizational Research Methods*, *12*(2), 211-238. https://doi.org/10.1177/1094428107309312

Behl, A., Chavan, M., Dutta, P., & Sheorey, P. A. (2020). Benchmarking publication metrics for Indian business researchers. Exploring the role of collaboration. *Benchmarking-an International Journal*, *27*(2), 571-591. https://doi.org/10.1108/bij-04-2019-0184

Binswanger, M. (2015). How nonsense became excellence: Forcing professors to publish. In *Incentives and performance: Governance of research organizations* (pp. 19-32). Springer International Publishing. https://doi.org/10.1007/978-3-319-09785-5_2

Blaginin, V., Volkova, M., & Strielkowski, W. (2019). Measuring academic leadership using research performance. In W. Strielkowski (Ed.), *Sustainable leadership for entrepreneurs and academics, Esal2018* (pp. 355-362). Springer. https://doi.org/10.1007/978-3-030-15495-0_37

Bourne, L., & Walker, D. H. T. (2005). Visualising and mapping stakeholder influence. *Management Decision*, *43*(5), 649-660. https://doi.org/10.1108/00251740510597680

Cizmas, E., Feder, E.-S., Maticiuc, M.-D., & Vlad-Anghel, S. (2020). Team management, diversity, and performance as key influencing factors of organizational sustainable performance. *Sustainability, 12*(18), 7414. https://doi.org/10.3390/su12187414

Daumiller, M., & Dresel, M. (2020). Researchers' achievement goals: Prevalence, structure, and associations with job burnout/engagement and professional learning. *Contemporary Educational Psychology*, *61*, Article 101843. https://doi.org/10.1016/j.cedpsych.2020.101843

Daumiller, M., Siegel, S., & Dresel, M. (2019). Construction and validation of a short multidisciplinary research performance questionnaire (SMRPQ). *Research Evaluation*, *28*(3), 241–252, https://doi.org/10.1093/reseval/rvz009

David, S. T., Kendall, M. G., & Stuart, A. (1951). Some questions of distribution in the theory of rank correlation. *Biometrika*, *38*(1-2), 131-140. https://doi.org/10.1093/biomet/38.1-2.131

Dornyei, Z. (2009). The L2 motivational self system. In Z. Dornyei, & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 9-42). Multilingual Matters Ltd.

Freeman, R. E. (2015). *Strategic management: A stakeholder approach*. Cambridge University Press. https://doi.org/10.1017/CBO9781139192675

Ghinea, V., Mihaylova, L., & Papazov, E. (2015). Organizational culture dynamics: Complex systems dynamics. *Quality - Access to Success*, *16*(141), 99-105.

Hamner, C., Luthans, F., & Krietner, R. (2015). Operant behavior and organizational behavior modification. In *Organizational behavior 1: Essential theories of motivation and leadership* (pp. 114-133). Taylor and Francis.

Hung. B. P., & Baranovskaya, T. A. (2020). Second language teaching and teacher education in diverse contexts. *Journal of Language and Education*, *6*(3), 4-6. https://doi.org/10.17323/jle.2020.11455

Johnston, A. (2016). Motivation and the academic - where the drivers sit. *Journal of Management Development*, *35*(6), 765-777. https://doi.org/10.1108/jmd-09-2015-0140

Karimi, M. N., & Asadnia, F. (2020). Applied linguistics researchers' possible selves as motivational resources guiding their research productivity. *Research in Post-Compulsory Education*, *25*(2), 214-235. https://doi.org/10.1080/13596748.2020.1742994

Kirova, M. (2010). Effective combination of the performance characteristics of the innovations. In *The Proceedings of the 6th International Scientific Conference "Business and Management"* (vol. 1-2, pp. 399-406). VGTU. https://doi.org/10.3846/bm.2010.054

Kitchenham, B., Brereton, O. P., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering - A systematic literature review. *Information and Software Technology*, *51*(1), 7-15. https://doi.org/10.1016/j.infsof.2008.09.009

Lambovska, M., & Yordanov, K. (2020). Motivation of researchers to publish in high-quality journals: A theoretical framework. *TEM Journal*, *9*(1), 188-197. https://doi.org/10.18421/tem91-27

Luthans, F., Luthans, B. C., & Luthans, K. W. (Eds.). (2015). *Organizational behavior: An evidence-based approach* (13th. ed.). Information Age Publishing.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*(9), 954-969. https://doi.org/10.1037/0003-066x.41.9.954

Miller, A. N., Taylor, S. G., & Bedeian, A. G. (2011). Publish or perish: Academic life as management faculty live it. *Career Development International*, *16*(4-5), 422-445. https://doi.org/10.1108/13620431111167751

Ministry of Education and Science of the Republic of Bulgaria [MES RB]. (2010). *Bulgarian University Ranking System*. https://rsvu.mon.bg/rsvu4/#/

Ministry of Education and Science of the R Bulgaria [MES RB]. (2018). *Rules for monitoring and evaluation of the research activity of scientific organizations, the research fund and higher schools* [Act]. http://www.mon.bg›pravilnik_ocenka-NIDejnost_290618

Murray, H. A. (1936). Basic concepts for a psychology of personality. *Journal of General Psychology*, *15*(2), 241-268. https://doi.org/10.1080/00221309.1936.9917922

Osterloh, M., & Frey, B. S. (2014). Academic rankings between the "republic of science" and "new public management". In A. Lanteri , & J. Vromen (Eds.), *Economics of economists: Institutional setting, individual incentives, and future prospects* (pp. 77-103). Cambridge University Press. https://doi.org/10.1017/CBO9781139059145.005

Raitskaya, L., & Tikhonova, E. (2020a). Overcoming cultural barriers to scholarly communication in international peer-reviewed journals. *Journal of Language and Education*, *6*(2), 4-8. https://doi.org/10.17323/jle.2020.11043

Raitskaya, L., & Tikhonova, E. (2020b). Pressure to publish internationally: Scholarly writing coming to the fore. *Journal of Language and Education*, *6*(1), 4-7. https://doi.org/10.17323/jle.2020.10631

Raitskaya, L., & Tikhonova, E. (2020c). Seven deadly sins: Culture's effect on scholarly editing and publishing. *Journal of Language and Education*, *6*(3), 167-172. https://doi.org/10.17323/jle.2020.11205

Richard, J. E., Plimmer, G., Fam, K. S., & Campbell, C. (2015). Publishing success of marketing academics: Antecedents and outcomes. *European Journal of Marketing*, *49*(1-2), 123-145. https://doi.org/10.1108/ejm-06-2013-0311

Romani-Dias, M., Carneiro, J., & Barbosa, A. D. (2019). Internationalization of higher education institutions: The underestimated role of faculty. *International Journal of Educational Management*, *33*(2), 300-316. https://doi.org/10.1108/ijem-07-2017-0184

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54-67. https://doi.org/10.1006/ceps.1999.1020

Simeonov, O. (1997). *Theoretical issues of control*. Akadem Consult.
Sink, D. S. (1985). *Productivity management: Planning, measurement and evaluation, control and improvement*. Wiley.
Sink, D. S. (1986). Performance and productivity-measurement - The art of developing creative scoreboards. *Industrial Engineering*, *18*(1), 86-90.
Stoyanov, I. (2014). Expectations, attitudes and behavior of the human factor in the organizational environment. *KSI Transactions on KNOWLEDGE SOCIETY*, *7(1)*, 45-49.
Stoyanov, I. (2012). Power and behaviour of the human factor in management. *Dialog E-journal*, *3*, 23-55.
Turan, F. K., Cetinkaya, S., & Ustun, C. (2016). A methodological framework to analyze stakeholder preferences and propose strategic pathways for a sustainable university. *Higher Education*, *72*(6), 743-760. https://doi.org/10.1007/s10734-015-9973-8
Vogel, R., & Hattke, F. (2018). How is the use of performance information related to performance of public sector professionals? Evidence from the field of academic research. *Public Performance & Management Review*, *41*(2), 390-414. https://doi.org/10.1080/15309576.2017.1400986
Vorontsova, A., Shvindina, H., Mayboroda, T., Mishenina, H. & Heiets, I. (2020). The impact of state regulation in a sphere of education on sustainable development of national economy. *Problems and Perspectives in Management*, *18*(4), 275-288. https://doi.org/10.21511/ppm.18(4).2020.23
Vroom, V. H. (1985). Citation Classic - Work and Motivation. *Current Contents/Social & Behavioral Sciences, 27*, 20-20.
Yordanov, K. (1997). Control as state power. *Economic Archive, 1*, 31-38.
Yordanov, K. (1999). Control on public finances. *Economic Archive, 1*, 36-41.