Library Manag



# **Bulgarian Author Open Access Awareness and Preferences**

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## Bulgarian Author Open Access Awareness and Preferences

#### 1. Introduction

At a meeting of the European Union Competitive Council (E.U.) on May 27, 2016, member states agreed to the ambitious goal of making all scientific research papers published by faculty at public universities freely available by 2020 (Enserink, 2016). To facilitate achievement of the goal, Plan S, coordinated by Science Europe, proposed implementation details and funding requirements. These announcements and plans represent a strong push from European research funding agencies for immediate open access to the results of publicly funded research in Europe.

Open access allows the fruits of research to be read and used by the people who paid for it, not only those who are fortunate enough to be associated with an institution that is able to afford to pay for journal subscriptions. There are two primary strategies in place to make research available open access, commonly referred to as green and gold. Green open access refers to articles available via open access repositories. Gold open access refers to articles available via open access journals. In addition to these two models, many subscription journals accept a fee from the author to make the article open access, commonly referred to as the hybrid model.

As part of the E.U. goal, member countries were encouraged to consider implementation strategies to meet the goal. To date, Bulgaria is far from achieving the E.U. goal due to the lack of a national open access policy and a lack of infrastructure and scholarly communication services at universities across the country (Todorova, 2018). A 2017 government publication---"National Strategy for the Development of Scientific Research in the Republic of Bulgaria 2017-2030"--is expected to result in increased access to, and impact of, Bulgarian research. A key report recommendation is participation in the E.U. initiative "European Open Science Cloud" ((Castelli *et al.*, 2018https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud).

By describing the results of a survey of faculty in a broad range of disciplines at six universities in Bulgaria, this paper seeks to inform policy makers, research funders and universities in Bulgaria about the level of awareness of the E.U. goal and faculty preferences for achieving it. The paper seeks to answer these five research questions:

- RQ1: To what extent do Bulgarian faculty make their research open access?
- RQ2: To what extent are Bulgarian faculty aware of the European Union Competitive Council open access 2020 goal?
- RQ3: To what extent do Bulgarian faculty support open access and the European Union Competitive Council open access 2020 goal?
- RQ4: What factors are important to Bulgarian faculty when choosing a journal?
- RQ5: Do Bulgarian faculty have a preference for green or gold open access in order to achieve the European Union Competitive Council open access 2020 goal?

## 2. Literature Review

2.1 Open access support

A number of surveys of faculty in Europe and across the globe have found that while researchers support the idea of open access generally, there is also a lack of understanding of open access journal publishing and open access repositories and a relatively small percentage of articles are being deposited to open access repositories or published in open access journals. In a survey of 38,358 authors around the world, authors agreed that open access journal publishing was beneficial to their field; however, only 52% of those authors had published an article in an open access journal (Dallmeier-Tiessen *et al.*, 2011). The study found that authors are also reluctant to pay open access article processing charges and are concerned with the quality of open access journals. To date, there is no formal research that seeks to determine the degree to which researchers are aware of the E.U. Competitive Council goal.

#### 2.2 Journal characteristics and open access

Authors have long identified journal prestige and readership in one's discipline as important journal characteristics when they choose a journal in which to publish (Rowlands, 2005; Boukacem-Zeghmouri *et al.*, 2018). Several recent studies ask authors to weigh the importance of the open access availability of the journal and whether the journal permits deposit of articles to open access repositories. Tenopir *et al.* (2016) and Wolff *et al.* (2016) in interdisciplinary surveys of researchers found that open access and permission to deposit are among the least important factors for authors when considering where to publish.

## 2.3 Repository awareness and article deposit rates

Studies have also found a lack of awareness of institutional repositories and of their purpose in making scholarly articles and other research openly available (Hahn and Wyatt, 2014; Mischo and Schlembach, 2011). Institutions that have open access policies in place and offer deposit services have demonstrated a higher rate of article deposit than those that do not (Vincent-Lamarre *et al.*, 2015; Zhang *et al.*, 2015; Daoutis and Rodriguez-Marquez, 2018). It wasn't until the National Institutes of Health in the United States began requiring deposit of articles to PubMed Central that deposit rates increased significantly (Suber, 2008). Schöpfel *et al.* (2016), in a survey of 432 directors of French public research laboratories associated with the French Research Center CNRS, found the directors to be "more supportive of open repositories (green road) than of OA journal publishing (gold)."

## 2.4 Open Access in Bulgaria

In recent years, Bulgarian authors have published a number of open access related books and papers on themes such as: open access definitions and key terms (Trencheva 2013); implementation of open access principles and a national open access roadmap (Stanchev *et al.*, 2018); open access strategies, business models, and work plans (Stanchev, 2014); copyright and licensing best practices (Todorova *et al.*, 2017; Simeonov and Stanchev, 2011); policy options (Castelli *et al.*, 2018); libraries and open access (Todorova 2012; Arsenova 2015); open access and scientific communications (Dimchev, 2013); and Bulgarian open access journals (Trencheva and Todorova, 2014; Trencheva *et al.*, 2019). This paper is intended to continue these conversations to help researchers, project managers, and librarians obtain knowledge about open access policies, strategies, and best practices.

# 3. Methodology

In April 2019, the authors distributed a survey to faculty in all academic ranks at six Bulgarian universities to learn the extent to which Bulgarian authors currently make their research openly available, ascertain their awareness of the E.U. goal, their support of the goal, and their preferences for achieving it. The six universities, from a total of 50 Bulgarian universities, were selected because it was expected that they would be willing to participate in the study and be responsive to requests for participation. The survey included a total of 21 questions in three sections: 1. Demographic Information, 2. Research Practices and Open Access Benefits, and 3. Awareness of and Attitudes Concerning the European Union Goal of Open Access. Three of the questions were matrix tables that contained a total of 23 statements with responses ranked on a 5-part likert scale. Two were open-ended questions.

The web-based survey was developed using Qualtrics software. The authors used the Dallmeier-Tiessen *et al.* (2011) survey as a starting point. The authors obtained feedback from faculty and postdoctoral students at the University of Library Studies and Information Technologies to refine aspects of the survey structure, flow, and question design. The survey language was Bulgarian. The authors translated the questions and responses to English, the primary author's native language, for the purpose of analysis. The survey was distributed to all faculty members (584) at the University of Library Studies and Information Technologies, Konstantin Preslavsky University of Shumen, New Bulgarian University, and the University of Chemical Technology and Metallurgy using official institutional email lists and to selected faculty at The National Academy for Theater and Film Arts "Krastyo Sarafov" and The University of Veliko Tarnovo "St. St. Ciryl and Methodius". Invitations to participate were sent to the population twice in the period between 19 March to 15 May 2019.

In total, 269 surveys were started. Of these, 19 answered that they have either not published anything in the last 2 years or were not planning to publish in the next 2 years, leaving 250 respondents eligible to answer the survey questions. Another 28 respondents did not respond to any of the remaining questions. They were also removed, resulting in 222 total responses under consideration and a response rate of 46.1%: 269-19-28/584=46.1%. To de-identify survey results, the authors used the "Anonymize Response" feature in the Survey Termination section of the Qualtrics Survey Flow to disassociate responses from the individual survey link and scrub the IP address.

## 4. Findings

## 4.1 Demographics

The first section of the survey asked a series of demographic questions. Out of the 219 respondents who disclosed gender (3 chose not to disclose), 145 (66%) are female, and 74 male (34%). Participants are in the following age ranges--less than 30 years of age (5 of 219; 2%), 30-39 (46 of 219; 21%), 40-49 (83 of 219; 38%), 50-59 (56 of 219; 26%), 60 and over (29 of 219; 13%). Three respondents chose not to disclose their age range. Respondents were closely split in terms of the length of time that they have been employed in research. The largest group of respondents have been employed in research for 20 years or more (69 of 221; 31%), 46 of 221 (21%) between 15 and 19 years, 40 of 221 (18%) between 10 and 14 years, 36 of 221 (16%) between 6 and 9 years, and 30 of 221 (14%) for 5 years or fewer. One respondent chose

not to disclose length of tenure or highest degree achieved. The highest educational degree achieved by 169 of the 221 (76%) of the respondents is a PhD degree, 21 (10%) have a Doctor of Science (DSc) degree, and 31 (14%) have a Masters degree. In Bulgaria, a PhD is awarded to students who have completed their doctoral studies and defended a PhD thesis. A DSc is awarded after the defense of a second Doctor of Science thesis.

# 4.2 Open Access Awareness and Preferences

The authors included a question to ascertain the degree to which authors are aware of arguments in favor of open access. Seventy-three percent of survey respondents indicate that they are either extremely aware (19%) or very aware (54%) of arguments in favor of open access and 97% indicate that they are at least slightly aware of such arguments (Table 1). Researchers who have been employed for ten years or more are more aware of arguments in favor of open access (81% are very aware or extremely aware) than those who have been employed for fewer than ten years (53%).

## [Table 1]

 Table 2 offers insight as to whether researchers believe open access benefits their research field. 81% believe their research field benefits from open access to research, 7% respondents do not, and the remainder, 12% are not sure. No respondents said that they do not care about this at all. Sixty percent of respondents indicate that members of the public who do not otherwise have access to research benefit by open access to the research in their field, and 27% indicated that they are not sure whether the public benefits from open access to the research in their field. Eight percent responded that they do not think the public benefits from open access to the research in their field. There were no significant differences based on how long the respondent has been employed as a researcher.

# [Table 2]

While respondents are aware of open access generally, Table 3 demonstrates a lack of awareness of the E.U. goal for open access to publicly funded research by the year 2020. Results are evenly split between those who have heard of the goal--37%--and those who have not--37%. Sixteen percent of respondents are not sure if they have heard of the goal and 11% are not interested. There are no significant differences in terms of researcher's length of tenure.

In spite of the relative lack of awareness of the E.U. goal, Table 4 shows that once the goal is explained, respondents support it. Eighty-two percent of respondents answered that they either "support" or "fully support" the goal. Seventeen percent are undecided and only 3 respondents "do not support" or "actively do not support" the goal. Of those who had previously heard of the goal, 90% say that they "support" (35%) or "fully support" it (54%). Only 9% of the respondents who have heard of the goal said that they are undecided about it. Respondents who were not previously aware of the goal are also generally supportive but do not "fully support" the goal as much as those who have previously heard of it.

[Table 3]

[Table 4]

#### 

# 4.3 Open Access Participation: Repositories

Of the six institutions, only New Bulgarian University (NBU) has an institutional repository. NBU is also the only institution that suggests that their faculty deposit their research articles to the repository. Table 5 shows that 67% of NBU respondents deposit articles to their institutional repository often or almost always and 89% of NBU respondents deposit articles to the repository at least sometimes. Fifty-three percent of all university respondents indicate that they deposit articles to an institutional repository at least sometimes. A significantly higher percentage of respondents who have been employed for 10 years or more deposit to an institutional repository at least sometimes (59%) compared with researchers who have been employed for fewer than 10 years (36%).

## [Table 5]

Table 6 shows that almost exactly the same percentage of respondents who say that they deposit to institutional repositories deposit to disciplinary repositories. Again, those who have been employed as researchers longer are more likely to have done so. Sixty-one percent of respondents who have been employed for 10 years or more deposit to a disciplinary repository at least sometimes compared with researchers who have been employed for fewer than 10 years (15%).

## [Table 6]

In order to comply with a potential requirement to deposit research articles to an open access repository, 75% of respondents say that having a publisher deposit the version of record--a final published version of the article--on their behalf to an open access repository would be important or very important (Table 7). Seventy percent find that a publisher depositing a post peer review version of articles would be important or very important. In comparison, fewer respondents say that requiring the author to deposit the version of record (59%) or the accepted manuscript version of the article that is accepted for publication and includes all changes made as a result of the peer review process (48%) to be important or very important. Regardless of whether it is the publisher or researcher who is responsible for deposit, researchers have a slight preference that the version of record of an article is deposited rather than the accepted manuscript version.

[Table 7]

# 4.4 Open Access Participation: Journals

Respondents were asked a series of questions to determine how often they publish articles in open access journals, publish articles open access in hybrid journals, and the factors they would consider important in a scenario that required open access publication. Only 6% of respondents say they never publish an article in an open access journal and only 17% rarely do so (Table 8). Seventeen percent of respondents say that they almost always publish articles in an open access journal, 29% do so often, 31% do so sometimes, and 17% do so rarely. There is little difference based on how long the researcher has been employed or the age of the researcher.

# [Table 8]

Table 9 demonstrates that respondents publish in a hybrid journal and pay a fee to make their article available open access in that journal less often than they publish articles in open access journals. Sixty-three percent have rarely (21%) or never (42%) paid a fee to publish open access in a hybrid journal. Sixteen percent publish articles open access in hybrid journals often (8%) or almost always (8%).

# [Table 9]

Table 10 demonstrates what authors would find important if they were required to publish their articles open access. Eighty-nine percent of respondents believe that the provision of financial support to pay open access fees is an important (50%) or very important (39%) factor in such a scenario. Respondents show a slight preference for fees to be made available to publish articles in an open access journal (84%) than for fees to be made available to publish open access in a hybrid journal (77%). Fifty-six percent of respondents agree that making the open access availability of an article a basis for future funding is either important (43%) or very important (13%) and 30% are neutral in regard to this factor.

[Table 10]

## 4.5 Journal Preference

Table 11 provides insight into what authors consider important when choosing a journal in which to publish. Respondents indicate that the prestige of the journal is the most important criteria. Ninety-two percent say that this is important or extremely important and only 1% say that this is less important or irrelevant. Other prestige related factors are also considered especially important or very important: the prestige of the journal within the respondent's discipline (90%), the impact factor of the journal (86%), and the importance of the journal for receiving promotion or tenure (86%) all receive high marks. Whether or not the journal is open access and the journal's copyright policy are among the least important factors for authors.

[Table 11]

# 5. Discussion

Researchers at Bulgarian universities are aware of arguments in favor of open access and believe that open access especially benefits researchers in their research field. Ninety-seven percent of respondents are at least slightly aware of arguments in favor of open access, 81% believe that open access to research benefits those in their discipline, and 60% believe that it benefits the general public. These numbers correspond to recent research by Odell *et al.* (2017) which found that 89% of survey respondents at Indiana University - Purdue University Indianapolis had previously heard of open access. Dallmeier-Tiessen *et al.*, in a 2011 global study, found that 89% of published researchers thought that open access journals are beneficial to their field.

In terms of open access publishing habits, Bulgarian authors may be more likely to publish in open access journals than authors generally. Only 23% of respondents say they never publish

articles in open access journals or rarely do so. Seventeen percent of respondents say that they almost always publish articles in an open access journal, 29% do so often, and 31% do so sometimes. The SOAP survey distributed in 2010 found that only 52% of respondents had published at least one article in an open access journal (Dallmeier-Tiessen *et al.*, 2011). The Schöpfel *et al.* 2014 survey of research laboratory directors in France found that only 30% of respondents had paid for an article to be open access (2016).

Bulgarian researchers also appear quite willing to meet the terms of potential open access policies that would require article deposit to an open access repository. Of the six institutions included in the survey population, only NBU has an institutional repository and sixty-seven percent of NBU respondents say they deposit articles to the repository often or almost always. Eighty-nine percent of NBU respondents say they deposit articles at least sometimes. Surprisingly, 53% of all respondents said they deposit articles to an institutional repository at least sometimes. The fact that five of the six institutions did not work at a university with an institutional repository suggests that some of the respondents consider the practice of making an article available on a personal or departmental website, sometimes referred to as "grey" open access, as equivalent to green. In order for the number of Bulgarian articles in repositories to increase, Bulgarian universities must implement and promote institutional repositories and build services that support article deposit. It also appears that outreach to new faculty is needed to encourage article deposit to open access repositories. A significantly higher percentage of respondents who have been employed for 10 years or more deposit to an institutional repository at least sometimes (59%) compared with researchers who have been employed for fewer than 10 years (36%).

While respondents were aware of open access generally, respondents were not very aware of the E.U. goal that the results of publicly funded research should be open access by the year 2020. In spite of the relative lack of awareness of the E.U. goal, once it was explained, respondents were supportive of it. In order to determine whether Bulgarian faculty have a preference for green or gold open access in order to achieve the E.U. goal, the survey asked respondents to indicate how important different factors would be in order for them to comply with a requirement to deposit research articles to an open access repository or publish their articles open access. In terms of green open access compliance, respondents said that having a publisher deposit articles to an institutional repository on their behalf would be preferable to doing it themselves.

Researchers have only a very slight preference that the version of record of an article is deposited rather than an accepted manuscript version. The high number of neutral responses to questions about requiring authors to deposit an article to an institutional repository, and negotiating the right to deposit suggests that respondents would be willing to take these actions if they were required to do so, but not otherwise. The neutral responses may also suggest a low level of understanding of the details of open access policies and potential means of compliance.

The authors were surprised to find that the consideration of open access publishing of articles in promotion and tenure reviews was the least important factor for researchers when considering

whether or not to publish an article open access. Respondents indicate that the prestige of the journal is the most important criteria when considering a publishing outlet, which corresponds with other research. The Act for the Development of Academic Staff in the Republic of Bulgaria requires Bulgarian researchers to publish articles in journals that have an impact factor (a measure of prestige) and are indexed in SCOPUS, Web of Science and other databases (<u>https://rio.jrc.ec.europa.eu/en/library/act-development-academic-staff-republic-bulgaria</u>). Many of the open-ended responses to the question of which journal factors are important when considering publication reiterated the importance of impact factor and that the journal is well indexed. Whether or not the journal is open access and the journal's copyright policy are among the least important factors for Bulgarian authors.

## 6. Conclusion

For this article, the authors surveyed faculty at six Bulgarian universities to determine their awareness of the E.U. Competitive Council goal of open access to publicly funded research by 2020, support for the goal, and preferences for achieving it. In response to the E.U. goal, and especially an internal desire to transform the country into an attractive center for advanced scientific research and new technology development, to strengthen the integration of Bulgarian science in society, and to increase the country's international reputation in the science sector, Bulgaria has achieved some success in moving towards open access to research. At this time, only one Bulgarian university--NBU--has an open access policy, and very few have an institutional repository. However, since December 2018, the University of Library Studies and Information Technologies and University of Chemical Technology and Metallurgy have partnered in the National Scientific Program "Information and Communication Technologies for a Single Digital Market in Science, Education and Security (ICTinSES, 2018-2020)", financed by the Bulgarian Ministry of Education and Science. One of the main tasks of this project is to establish institutional repositories at the two universities and a green open access policy that applies to both. These could be in place as early as the end of 2020.

Bulgarian researchers are aware of arguments in favor of open access and believe that it benefits researchers in their discipline. Only a little more than a third of Bulgarian faculty, however, are familiar with the E.U. goal of open access to all publicly funded research by 2020. Once the goal is explained, however, faculty support it. Although it seems likely that Bulgarian authors may not understand the intricacies of green and gold open access, it does appear that they are prepared to meet the E.U. goal by either publishing in open access journals (the gold method) or depositing articles in open access repositories (the green method).

A high percentage of Bulgarian researchers say that they already publish in open access journals at least sometimes, even though open access is considered among the least important factors for faculty when considering where to publish their research. Bulgarian authors understandably believe that, if publishing open access is to be required of Bulgarian faculty, financial support needs to be available to pay article processing charges. Although only one Bulgarian university has an open access policy, and there are relatively few institutional repositories in operation, Bulgarian faculty appear willing to deposit their research to such

repositories. Respondents from New Bulgarian University, the only university surveyed that has an institutional repository, deposit their articles to a repository at least sometimes.

On the basis of the survey results, the authors recommend the following next steps to increase open access to Bulgarian research:

- The development of training and continuing education programs to improve the Bulgarian research community's awareness of the benefits of open science, open data, and open access.
- The development of local institutional repositories or a centralized repository for the long-term storage and dissemination of scholarship.
- The development of a community-wide metadata standard and file-naming system for research deposited to open access repositories.
- The establishment of scholarly communication and repository services related to research processes and self-archiving.

A limitation of this study is that faculty at two of the largest and most prestigious universities in Bulgaria--Sofia University "St. Kliment Ohridski" and American University in Bulgaria--were not surveyed. There is a need for follow\_up and other future research on open access in Bulgaria. Research on the training and continuing education of Bulgarian researchers to improve awareness of open access publishing and depositing would be useful. An article in Bulgarian for the Bulgarian research community and government about the findings and recommendations of this paper is also in order.

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	Employed for 10 years or more (%)	Employed fewer than 10 years (%)	All lengths of employment (%)
Extremely aware	24	8	19
Very aware	57	45	54
Moderately aware	14	29	18
Slightly aware	5	15	8
Not aware at all	0	3	1

# Table 2. Open access benefits.

Table 2. Open acces		
	Benefits the discipline (%)	Benefits the public (%)
Yes	81	60
No	7	8
I am not sure	12	27
I am not interested	0	5

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# Table 3. Awareness of the E.U. open access goal.

(%)	
Yes 37	
No 37	
I am not sure 16	
I am not interested 11	

# Table 4. Support for E.U. open access goal.

	opon access gean				
	Aware of E.U. goal (%)	Not aware of E.U. goal (%)	All respondents (%)		
Fully support	54	30	38		
Support	35	53	44		
Undecided	10	15	17		
Do not support	1	1	1		
Actively do not support	0	1	.5		

Tehle F. How often researchers de	posit articles to the institutional repository
Table 3. Now onen researchers de	eposit articles to the institutional repository.

Table 5. How often researchers deposit anticles to the institutional repository.					
	New Bulgarian University (%)	Other universities (%)	Employed for 10 years or more (%)	Employed fewer than 10 years (%)	All respondents (%)
Almost always	26	14	15	6	15
Often	41	13	30	9	17
Sometimes	22	21	17	21	21
Rarely	7	18	13	24	17
Never	4	34	26	39	30

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# Table 6. How often researchers deposit articles to a disciplinary repository.

	Employed for 10 years or more (%)	Employed fewer than 10 years (%)	All respondents (%)
Almost always	21	8	17
Often	19	5	15
Sometimes	21	21	21
Rarely	20	32	24
Never	19	33	23

Table 7. Factors important to researchers in depositing articles to an institutional repository, if
doing so is required

Irrelevant or Less Important (%)	Neutral (%)	Important or Very Important (%)
5	20	75
8	22	70
7	34	59
15	37	48
19	39	41
	(%) 5 8 7 15 19	(%)     20       5     20       8     22       7     34       15     37

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# Table 8. How often researchers publish articles in an open access journal.

	Employed for 10 years or more (%)	Employed fewer than 10 years (%)	All respondents (%)
Almost always	15	24	17
Often	33	20	29
Sometimes	30	35	31
Rarely	17	15	17
Never	5	6	6

Table 0 How often researchers publish articles open access in a hybr	id iournal
Table 9. How often researchers publish articles open access in a hybr	iu iuuriai.

	Employed for 10 years or more (%)	Employed fewer than 10 years (%)	All respondents (%)
Almost always	8	8	8
Often	6	9	8
Sometimes	21	23	22
Rarely	20	22	21
Never	44	38	42

Table 10. Factors important to researchers in a case where publishing journal articles ope	n
access is required.	

	Irrelevant or Less important (%)	Neutral (%)	Important or Very important (%)
I'm given financial support to pay fees for publishing in an open access or hybrid journal of my choice.	4	7	89
I'm given financial support to pay fees for publishing in an open access journal.	6	11	84
I am able to publish the results of my research in the journal of my choice.	3	13	84
I'm given financial support to pay fees for publishing in a hybrid journal.	6	16	77
The future funding of research is tied to whether the results of previous research are published open access.	13	30	56
Only articles that are published open access are considered in promotion and tenure reviews.	25	33	42

	Irrelevant or Less important (%)	Neutral (%)	Important or Extremely important (%)
Influence, prestige of the quality of the journal	1	7	92
Importance and influence of the journal in my scientific community	3	7	90
Impact factor of the journal	6	7	86
Significance and prestige of the journal for academic growth, assessment, and promotion and tenure	5	8	86
Lack of publication fees for the journal (e.g., fee for article submission, fee for page count, fee for color images, etc.)	10	15	76
Speed of publication of the article	9	23	69
Likelihood of article acceptance in the journal	12	19	69
Positive experience with publisher/editor(s) of the journal	12	20	68
Copyright policy of the journal	12	23	65
Recommendation of the journal by colleagues	17	18	65
The journal is open access	12	26	62
The journal corresponds to the scientific policy of my organization	15	26	60
	Ç	2	

# **Table 11.** How do you assess the importance of these criteria when choosing a journal in which to publish your research papers?