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Developing and Validating a Self-Efficacy Scale for Scholarly Writing in English

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ABSTRACT

It is important that scholars possess effective written and oral communication skills in order to present their research within their discourse community, exchange findings, and make their contribution attract attention. The most common form of communication scholars are involved in to contribute to the scientific world as global partners is scholarly writing. Owing to the status of English as a lingua franca, in a number of non-Anglophone speaking countries, the accelerating pressure to publish research in English language journals imposes challenges on non-native scholars. The purpose of this study is to develop a valid and reliable measuring tool to determine writing self-efficacy of scholars who create manuscripts for publication. Following the construction of the scale, exploratory factor analysis revealed two factors and 20 items explaining 75.55 % of the variance. Reliability of total scale was found as .976. The value for the first sub-scale was .977 and .901 for the second sub-scale. Validity and reliability analyses demonstrated that the instrument is a valid and reliable tool to assess scholars' self-efficacy levels in writing research articles.

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Keywords:
Self-efficacy, scholarly writing, English-medium publications, validity and reliability

Introduction

It is important that scholars possess effective written and oral communication skills in order to present their research within their discourse community, exchange findings, and get their publications stand out. The most common form of communication scholars are involved in to make their voices heard as global partners in the scientific world is scholarly writing. Through their manuscripts, scholars strive to accomplish conveying their innovative ideas by supporting the content with a body of literature using academic language consistent with their discipline. Owing to the status of English as a lingua franca, publications in English are more preferred than other languages. In many non-English speaking countries, the growing pressure to publish research in English language journals infringes excessive demands on non-native scholars (Buckingham, 2008; Canagarajah, 2002; Flowerdew, 1999, 2008; Salager-Meyer, 2008, 2014; Tardy, 2004). As a skill, writing itself, even in one's mother tongue, is a troublesome process. Creating a manuscript in a foreign language is an additional factor that makes this process far more difficult for non-native English speakers (Salager-Meyer, 2014). While it might be easy for some non-native writers to cope with the demands of scholarly writing conventions, the majority is more likely to encounter certain difficulties arising from inabilities in rhetorical competencies (Flowerdew, 2013), and linguistic restraints (Canagarajah, 1996, 2002; Flowerdew, 2001; Salager-Meyer, 2008; Uzuner, 2008).

The ability to write well in academic and professional settings is a crucial factor for success in academia worldwide. A similar case is observed in Turkish context. In an effort to gain international acceptance,

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universities in Turkey require faculty members to publish research articles as criterion for promotion. However, academic reward systems consider publications in international journals more important and valuable than the ones published in national journals. Indeed, Turkish scholars across disciplines have to resort to English to disseminate new knowledge. Therefore, developing effective written communication skills in English is vital for Turkish scholars if they aim at presenting themselves to international scientific community. In spite of the abundance of studies on L2 writing in academic contexts, there is little empirical research that has explored the process of academic text production for publication in non-Anglophone settings (Flowerdew, 2008; Lillis & Curry, 2006; Phillipson, 1992). Neither is there ample research on to what extent scholars feel efficacious regarding academic writing in English, which refers to research on their beliefs about their ability to create certain types of written texts.

Even though there has been a number of writing self-efficacy scales to measure writing self-efficacy of students from elementary level to post graduate level (Büyükikiz, Uyar & Balcı, 2013; Cheng, 2004), up to date no writing self-efficacy instrument has been developed to measure self-efficacy beliefs of scholars. Thus, this study aims at constructing a valid and reliable scale that measures non-Anglophone scholars' self-efficacy beliefs in writing in order to offer a viable tool for researchers to assess scholars' self-efficacy in academic writing. The following section of the article will provide an overview of self-efficacy with a focus on writing, examples of assessment of writing self-efficacy in previous studies, and the stages of constructing an instrument.

Theoretical Background and Literature Review

The construct of self-efficacy stems from Bandura's social cognitive theory (1977) that views individuals as proactive, self-reflective and self-regulating beings (Mills, 2014). This theory suggests that an individual's self-belief system allows the individual to exert control over his/her thoughts, feelings and actions. The theory also postulates a reciprocal relationship between self-belief system and the social environment. That is, through self-reflection one may alter his/her own thinking and as a result may change subsequent behavior. Within this frame, although behaviors, personal traits, abilities and living conditions combine together and determine the extent of a person's achievement in fulfilling a specific task, perceptions of self-efficacy have been claimed to be "the most central mechanism of self-reflection" (Mills, 2014, p. 8). Simply put, self-efficacy refers to an individual's inner belief in his capabilities to be successful in fulfilling a given task. According to Bandura (1986), if people have well-developed self-efficacy, they are less likely to fail. Schunk (1991) further claims that self-efficacy beliefs may predict success better than prior achievements.

Individuals' self-efficacy leads to involvement in a task and commitment to exhibiting long-term efforts. In addition, people with high self-efficacy tend to be more enthusiastic about fulfilling tasks compared to ones who suspect their abilities (Hidi & Boscolo, 2006). Self-efficacy beliefs in a way determine the way individuals feel, motivate themselves and behave accordingly (Bandura, 1994). Self-efficacy is affected by four sources (Bandura, 1977). These are i. *mastery experience*- prior experiences that include the results of individual's prior performances; ii. *vicarious learning*- indirect experiences gained through observing the behaviors of others, iii. *social persuasions*- self-efficacy beliefs are created and developed in response to the social messages received from other people, and iv. *psychological states*- states such as anxiety, stress and fatigue also contribute to provision of information about efficacy beliefs (Pajares, 1996).

Self-efficacy beliefs are said to change on the basis of three determinants: level, strength and generalization (Bandura, 1997). Self-efficacy level is related to the degree of perceived difficulty of a given task. In the context of writing, there is variation among efficacy beliefs depending on the difficulty level. People may approach differently to the writing tasks (e.g. writing an argumentative essay versus a 5000 word scientific manuscript). Self-efficacy strength refers to a person's confidence for execution of a particular course of action. While weak efficacy beliefs indicate little confidence in one's ability, and may prevent him/her from being involved in a particular task, strong efficacy beliefs may lead to more engagement in a particular task. Typically, efficacy strength is expressed by participants' assertions that that they can accomplish a particular task, usually using a Likert-type scale. Self-efficacy generality refers to the extent to which the self-efficacy beliefs encompass different domains of functioning. This suggests that the tasks fulfilled within writing self-efficacy domain will be similar.

Writing competence is related to one's confidence to write successfully, which refers to one's self-efficacy beliefs and has a predictive value in writing success (Pajares & Valiente, 2001). Krashen and Lee (2004) define writing competence as possessing the skills necessary for composing organized and coherent text that demonstrates evidence of effective language use. Academic self- efficacy has been studied in writing as well (Pajares, 2003). According to Zimmerman and Bandura (1994) self-efficacy in writing acts as a mediator and influences writing performance. Similarly, self-efficacy exerts influences on writing performance, such as the perceived value of writing, writing self-concept, writing apprehension, and writing achievement goals (Pajares, 2003; Pajares & Valiante, 2001). Judgments students hold about their capabilities to pursue academic tasks successfully are strong predictors of performance across academic areas, thus such self-beliefs offer a distinctive area of research for informing writing instruction (Pajares, 2003; Wigfield & Cambria, 2010). Likewise, previous research has reported a strong relationship between writing self-efficacy and writing performance (Pajares & Johnson, 1996; Pajares & Valiante, 1997; Pajares, Johnson, & Usher, 2007; Shell, Murphy, & Bruning, 1989; Spaulding, 1995; Zimmerman & Bandura, 1994).

In terms of assessing writing self-efficacy, Bandura (2006) presents explicit guidelines regarding the measurement of self-efficacy beliefs and constructing self-efficacy scales. Owing to the nature of self-efficacy beliefs (variations in level, strength and generalization), the outlined dimensions are integral to determining the construction of instruments. Since self-efficacy is a cognitive structure that affects individuals' choices about their effort and performance, findings from the exploration of self-beliefs underlying motivation in writing suggest that students' beliefs about writing competence not only contribute to their writing achievement but also influence various writing outcomes in school (Pajares, 2003). It is claimed that self-efficacy beliefs form foundation for human motivation and personal accomplishment because when people believe that their actions can produce the desired outcomes, they have more incentive to cope with the difficulties (Pajeres, Johnson, & Usher, 2007).

In their study, McCarthy, Meier and Rinderer (1985) examined the relationship between self-efficacy and written products (expository essays) by using an instrument they constructed. They found a moderate degree of relationship between self-efficacy and essay scores of freshmen from beginning writing courses. They found that students' with stronger sense of self-efficacy produced better essays compared to the students with low self-efficacy. In a similar vein, Shell, Murphy and Bruning (1989) developed instruments for assessing writing self-efficacy and outcome expectations of students with the aim of understanding the relationship among beliefs about one's writing capabilities, expected outcomes for writing, and writing performance. They found a significant relationship between students' confidence in their writing skills and their essay scores. Likewise, Spaulding (1995) found that students with higher levels of linguistic self-efficacy were more likely to engage with their writing assignment compared to their peers who have lower levels of self-efficacy. Pajares and Valiante (1997) investigated the influence of writing self-efficacy and writing performance of fifth grade students and they demonstrated that "elementary students' self-efficacy perceptions predict their writing performance and play the mediational role that social cognitive theory hypothesizes" (p.356). In a more recent study by Lavelle (2006), the application of Lavelle and Gurino's (2003) low self-efficacy scale supported the significant relationship between writing self-efficacy and writing performance of teachers enrolled in a graduate course.

In Turkish context, writing self-efficacy research can be classified as studies on writing self-efficacy in Turkish and writing self-efficacy in English. Büyükikiz, Uyar and Balcı (2013) carried out structure reliability and reliability analyses of a self-efficacy scale, which aims at measuring writing self-efficacy perceptions of students from Turkic countries where languages belonging to the Turkic language family is spoken. Their scale is limited to understanding writing self-efficacy of the participants who were learning Turkish spoken in Turkey as a second language. Similarly, Aydın and his colleagues (2013) developed a scale to assess self-efficacy beliefs of pre-service teachers' writing expressions in Turkish and they carried out validity and reliability studies of this scale with undergraduate students from school of education. They suggest that it is possible to evaluate university students' self-efficacy in writing Turkish texts using their scale.

On the other hand, Kırmızı and Kırmızı (2015) investigated higher education L2 learners' writing self-efficacy, writing anxiety, and the causes of writing anxiety in Turkish context. They collected data from English Language and Literature students through the Second Language Writing Anxiety Inventory (SLWAI), developed by Cheng (2004), and Causes of Writing Anxiety Inventory (CWAI), and Writing Efficacy Scale

(WES), developed by Yavuz-Erkan (2004). They found out that the participants have a moderate level of writing self-efficacy in terms of content and writing self-efficacy. Yavuz-Erkan (2013) developed a 21-item writing self-efficacy scale based on the self-efficacy construct proposed by Bandura (1977) to determine how a 75-hour intervention changes participants' belief in their writing ability. Participating pre-service language teachers were asked to rate their confidence in writing English language essays. As a result of analyzing the psychometric properties of the scale, she suggested that it is a reliable and valid tool for assessing self-efficacy in foreign-language writing.

Studies carried out both in Turkish and Anglophone contexts revealed that there has been no attempt to explore writing self-efficacy of scholars whose main concern is to compose texts through which they share their scientific research with their discourse community, nor has a scale been developed for this purpose. Pajares (1996) postulated that self-efficacy in one domain does not ensure high self-efficacy in another domain due to specific judgments of specific tasks, and thus each domain should be assessed on a more analytical level. Despite the abundance in number, the writing self-efficacy measures that have been developed so far investigated the topic with regards to students. Such tools are incapable of explaining the parameters of scholarly writing and therefore do not assess the writing self-efficacy of scholars in academic field. This study aims at developing a new instrument that will enable researchers to evaluate scholarly writing self-efficacy that allows better prediction of behavior outcomes (Bandura, 1999).

Method

Objective

No previous published research on self-efficacy scale development could be found for scholarly writing for use as a basis for this study. Since it was not possible to directly build upon existing published research; there was a need to create a scale that will aid in understanding writing self—efficacy of scholars. The purpose of this study was to develop a specific instrument to measure non-Anglophone scholars' writing self-efficacy, and to test its validity and reliability in Turkish context. During the process of scale development, an exploratory sequential mixed-method approach was used. To this end, the items and response options were qualitatively generated based on formal semi-structured interviews with academic personnel as well as on extensive research obtained from literature. Using the scholars' own wording in the questionnaire ensured both face and construct validity. The questionnaire involved the use of a three point Likert scale with options "Agree", "Partially Agree", "Disagree". While it was possible to use a 0 (No Confidence at All) to 100 (Complete Confidence) response scale (Bandura, 1997), this study employed a three point Likert style format depending on the previous research that contends using three point Likert style is sufficient in order to get the required information (Jacoby & Matell, 1971). It is believed that constructing such a tool will benefit research in the area of scholarly writing to identify self-efficacy beliefs of non-Anglophone researchers when they are involved in writing in English.

Procedure

Writing a research article in English and succeeding in getting it published in a scientific journal is an intimidating process for many non-native writers in the scientific world. It is essential that the writers should pay attention to the structure of the text and follow a set of guidelines making sure they express themselves accurately and clearly using correct grammar, spelling and punctuation. The typical model of a research report includes an abstract, introduction, method (in which research design and data analysis are described), results (findings), and discussion (conclusion, implications, limitations, recommendations) sections. During the construction scale, special attention was paid to make sure the items refer to different sections of a written manuscript as well as mechanical aspects of writing. It was conceptualized that the scale should address both the procedural dimension and general view of the process. The two dimensions were labelled as self-efficacy beliefs about the procedural aspect of scholarly writing and self-efficacy beliefs about the nature of scholarly writing process. If a measure of writing self-efficacy of scholars that refers to these two dimensions is created, it may be possible that scholars with low self-efficacy can be provided with support in their writing which may result in publishing more research during their academic career. The construction of the scale consisted of the following three phases.

Phase 1: Development of statements

To assure content validity, items were generated from a number of sources including negotiating with experts in the field, probable respondents and review of related literature (Priest et al. 1995)

i. Semi-structured interviews were carried out with ten full-time academic staff working in Faculty of Education in different academic positions with varying degrees of scholarly writing experiences. The basic questions that guided the interviews were "How well do they plan and write different sections of a research article?" and "How do they feel about their writing efficacy?".
ii. While preparing the statements, the major components of a research article and the steps followed in its production were taken into consideration. In addition to focusing on organizing each section (abstract, introduction, literature review, method, results, discussion and conclusion), there was emphasis on vocabulary, grammar and meta-discourse features (i.e. boosters and hedges).
iii. An item pool was developed following the interviews and a review of previous literature and questionnaires used for assessing writing.
iv. This preliminary work led to a list of 34 statements.

Phase 2: Refinement of statements

i. The items were revised by constantly referring to the original research questions that delineated the study. The items that reflected the underlying theoretical domains of the questionnaire and the ones that were not seen relevant were omitted.
ii. The number of items was reduced to 31 after problem items were identified and deleted. In this reduction stage, items repeating similar propositions, presenting ambiguity in meaning and that were found irrelevant were omitted from the scale.
iii. The statements in the questionnaire addressed all the stages of writing research articles starting from abstract to conclusion part as well as aforementioned language skills.

Phase 3: Determination of content validity.

Determination of content validity refers to the extent to which the instrument covers the scope of writing self-efficacy for the target population. It includes evaluation of the items' relevance and potential to represent every dimension of the concept being measured (Rosenblum, 2008).

i. To determine the content validity of the items, five experts in the education field were consulted. All the experts had their PhDs. in psychology and educational sciences.
ii. In accordance with the experts' suggestions, six items were excluded, three items were corrected and one item was added.
iii. Finally, the working version of the questionnaire included 26 questions with a set of demographic questions such as gender, age, education level, and academic ranking.

Study Group

The request for participation and the link for the confidential and anonymous survey was e-mailed to academic personnel working at different universities of Turkey. Initially a sample of 784 academic personnel was contacted. Completion of this survey indicated their consent to participate in this study. The majority of studies performed exploratory factor analyses with a participant-to-item ratio of 10:1 to determine a priori sample sizes (Costello & Osborne, 2005). For the present study, utilizing the instrument with 26 items, the participant-to-item ratio of 10:1 would result in a needed sample of 260 participants. After waiting for two months, we repeated our request for a second time via e-mail as we could not collect enough data. After the third reminder, the maximum number of responses obtained was 216. As there is no ratio that will prove the best result in all cases (MacCallum, Widaman, Preacher, & Hong, 2001), we followed Hatcher (1994), who recommended that the number of subjects should be five times larger than the number of variables, or 100. Therefore, reaching 216 seemed sufficient to start the analyses. The surveys with missing data were omitted

and the final analyses were carried out with a total 199 participants. The demographic information about the participants is given in Table 1.

Table 1. The demographic information of the study group

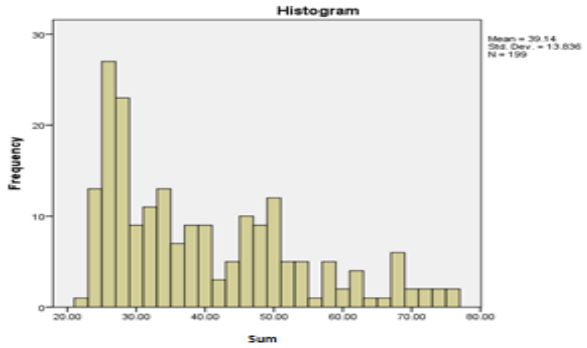
Variables		Number	Frequency (%)
Gender	Female	95	48%
	Male	104	52%
Academic Ranking	Lecturer	21	11%
	Professor Dr.	45	23%
	Associate Prof. Dr.	61	31%
	Assist. Prof. Dr.	17	9%
	Research Assistants	53	27%
Disciplines	Social Sciences	79	40%
	Engineering and Natural Science	78	39%
	Medical Sciences	38	19%
	Life Sciences	4	2%
Age	51-60	14	7%
	41-50	75	38%
	31-40	74	37%
	20-30	36	18%
Education in English	Yes	93	47%
	No	104	53%
Degrees in English language	Education in English undergraduate level	55	
	Education in English at Masters level	58	
	Education in English at PhD level	50	
	Education in English at post-doctoral level	15	

Data Analysis and Results

Data collected from the questionnaire was analyzed using SPSS 21. Factor analysis was carried out in order to determine its construct validity. An item-total correlation test was performed to check if all items correlate with the total. One of the important assumptions made during the validity of analysis of variance is normality of errors. Tabachnick and Fidell (2007) suggest that while assumptions about normal distributions are not necessary when Principal Factor Analysis is used descriptively, normality of variables contribute to improving the results and making the solution stronger. Voss, Stem and Fotopulos (2000) also argue that normality and centrality of distributions should be taken into consideration in scale development. A Kolmogorov-Smirnov test was used to test for normality on the variable since the sample size was over 50 (Alpar, 2011). In addition, a histogram was created in order to have a better representation of normality.

Figure 1. Histogram of data distribution

The results of Kolmogorov-Smirnov $p<.05$ indicated a non-normal distribution, and an examination of the histogram showed a right-skewed distribution indicating a positive value. In order to enable the data for



normal distribution, transformation was applied. Kalaycı (2009) recommends using log transformation of data in normalizing positively skewed distributions. Since the variance is proportional to square of the mean,

logarithmic transformation set was found suitable (Sheskin, 2003). Once the transformation process was completed, the analysis was performed with the transformed data. Despite the transformation process, the transformed data still demonstrated a non-normal distribution. Consequently, in order to normalize the data, the items whose skewness were more than +1 was deleted. This required deleting six items (Items 1, 12, 14, 17, 20, 21). After elimination of six items, results of Kolmogorov-Smirnov ($p>.05$) indicated normal-distribution which was also supported by skewness and kurtosis values (.545, -.925 respectively).

Following the normalization procedure, this study used the Kaiser–Mayer–Olkin (KMO) test and Bartlett's test of Sphericity. The KMO test measures the adequacy of a sample in terms of the distribution of values for factor analysis. The range of KMO is from 0.0 to 1.0 and desired values are > 0.50. The value calculated for the KMO test was found as .949. Since the KMO value was above 0.90, the data set seemed at an excellent level for running factor analysis (Kalaycı, 2009). Bartlett's test of Sphericity tests the significance of relationship between variables (Hinton, McMurray, & Brownlow, 2014). The p-value should be significant ($p<.05$) for factor analysis to be suitable. Bartlett's test of sphericity was high at 3471.405 (associated with a probability value of 0.00). These values indicated that the data were suitable for principal component analysis.

Factor analysis is based on the correlation analysis of multi-variables. Rotated factor analysis was made by using the principal component analysis (PCA) method after having collected statistical proofs showing that data set is suitable for factor analysis. The entire transformed data was analyzed via principal components analysis (PCA) with oblique (direct oblimin) rotations that allow the factors to correlate and offer a more accurate solution (Şencan, 2005). Among two major rotation strategies (orthogonal and oblique), oblique rotation was preferred because of correlation between the factors set prior to analysis (Köklü, Büyüköztürk, & Bökeoğlu 2006). The test was performed on the remaining 20 variables related to scholarly writing self-efficacy and pattern matrix was checked for factor loadings. Kaiser criterion postulates that a number of factors equal to the number of the eigenvalues of the correlation matrix that are greater than one should be used (DeCoster, 1998). Therefore, the factors whose eigenvalues are above 1 were considered significant in the analysis. As an alternative test for factor retention, we also used the screeplot obtained from the analysis and examined the graph of the eigenvalues to see the break point in the data. The screeplot (see figure 2) together with component analysis revealed a two factor structure.

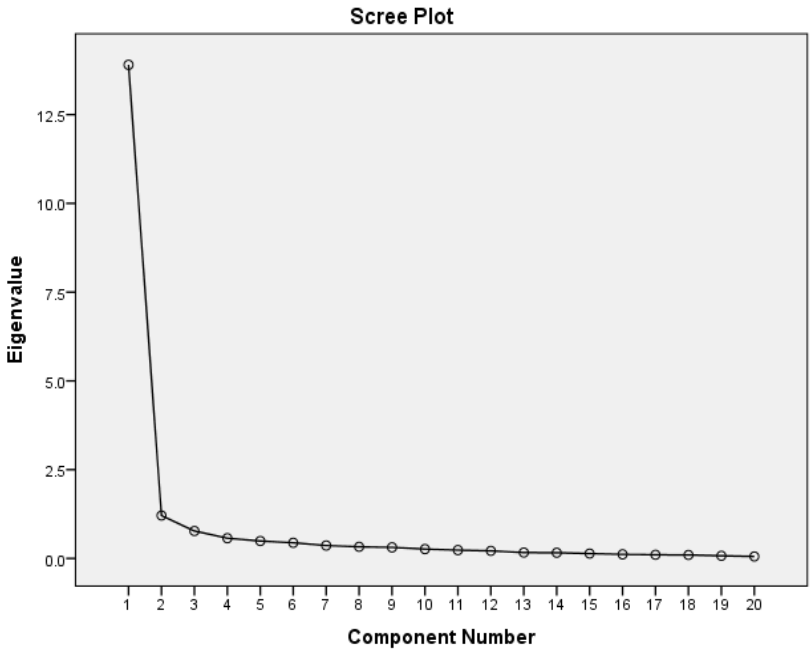


Figure 2. Screeplot displaying the eigenvalues

The loading values and factors are given in Table 2. According to Hair, Anderson, Tatham and Black (1998), factor loadings greater than 0.40 are considered important and loadings 0.50 or greater significant. In this study, factor loadings exceeded the loading cut-off 0.40, indicating practically significant levels. As the original items were created in Turkish, their translated versions are presented for the purpose of intelligibility.

Table 2. Scholarly Writing Self-Efficacy scale factor loadings

Pattern Matrix			
		Factors	
Item no.		Factor 1	Factor 2
2	I can reflect the purpose, method, findings and results of the study clearly and intelligibly in English in the abstract.	1.048	
3	I can write the topic/problem of the study clearly and intelligibly in English.	1.014	
4	I can write a text in accordance with the rules of English grammar.	.671	
5	I can express the aim of the study clearly and intelligibly in English.	.991	
6	I can express myself clearly and intelligibly while writing the theoretical background and literature review section.	.820	
7	I can clearly express the gap(s) in literature and emphasize the significance of my study.	.758	
8	I can write the method section in manuscripts using clear and intelligible English.	.963	
9	I can report my findings using clear and intelligible English.	.928	
10	I can report statistical data without any difficulty.	.762	
11	I can discuss findings using clear and intelligible English.	.810	
13	I can organize paragraphs effectively while writing English texts.	.618	
15	I can avoid word repetitions while writing English texts.	.465	
16	I can form accurate sentences while writing English texts.	.562	
18	I can use English spelling rules accurately.	.611	
19	I can use words and phrases that signal transitions effectively (e.g., in addition, nevertheless, furthermore, notwithstanding…).	.739	
22	I can use boosters appropriately while writing English texts.	.582	
23	I can use hedges appropriately while writing English texts.	.564	
24	I can use expressions that make my English text appealing and interesting for the readers.		.537
25	I can produce English texts in the same amount of time I produce texts in my mother tongue		.875
26	I can produce English texts as easily as I create in my mother tongue.		.871
Eigenvalues		13.093	1.209

As seen in Table 2, the self-efficacy beliefs regarding the accomplishment of the steps involved in creating a manuscript (Item 2-23) were loaded on one factor (between .465 and 1.048) and self-efficacy beliefs about the overall nature of creating a manuscript (Item 24-26) loaded on another factor (between .537 and .875). Two subscales were clustered: self-efficacy for text composing process explained 69.51% of variance, self-efficacy for nature of text production explained 6.04% of variance, which explained 75.55% of the total variance. The factor correlation matrix revealed correlation between two sub-scales as .64 ($p<.01$) indicating a meaningful relationship. The results revealed that the construct of self-efficacy for scholarly writing was multi-dimensional as it had been predetermined.

Establishing Reliability

Internal reliability demonstrates how well the items correlate to one another and how well each item correlates with the total scale score (Clark & Watson, 1995). Following the determination of the final version of the questionnaire, the examination of its internal consistency was executed. For internal consistency Cronbach's coefficient alpha was calculated. Nunnally (1978) suggests reliabilities of 0.70 or better for basic research. Reliability of the total scale was found as 0.976 indicating a high level of internal reliability. The value for the first sub-scale was 0.977 and for the second sub-scale, it was 0.901. These coefficients indicated that self-efficacy scale is a reliable and consistent tool for measuring scholarly writing self-efficacy beliefs of non-native speakers of English.

Conclusion

The review of literature suggests that the construct of self-efficacy is a significant variable in academic contexts. There is also strong evidence to suggest that self-efficacy beliefs have a substantial impact on the effectiveness of professional development (Bray-Clark & Bates, 2003). Despite the critical role of academic writing in disseminating scientific knowledge, relatively little research has investigated the acquisition of

scientific writing skills (Keys, 1999). Determination of non-Anglophone scholars' writing efficacy in English with a focus on academic texts has an important role in improving their efficacy while creating English texts especially for publication. This study aimed at developing an instrument for the purpose of measuring scholars' writing efficacy and carrying out analyses in order to identify its validity and reliability. The data was collected from 199 scholars having different academic ranks in a variety of disciplines. Our focus was on the development and validation of a survey instrument that would provide insights into the writing self- efficacy beliefs of scholars who write for publication. Understanding scholars' self-efficacy in writing in English can help researchers to improve areas in which scholars face challenges and enable them to be more competent in communicating their results in English widely to the international scientific community.

The data collected were analyzed to provide information about the descriptive information of the items, item-total correlations and internal consistency of the measure. An exploratory factor analysis was run to determine whether the domain measured by the instrument was multi-dimensional as initially conceptualized. The analysis results revealed that item-total correlation demonstrated a high correlation of each item with the overall scale. The analysis also offered information about the internal consistency of the questionnaire that leads to the conclusion that the instrument is a valid and reliable tool to assess scholars' writing self-efficacy levels. The final questionnaire has 20 items, which require individuals to express their strength of efficacy beliefs on a 3 point scale ranging in 3 unit intervals from 20 ("cannot do") through intermediate degrees of certainty 40 ("can moderately do") to complete certainty 60 ("can definitely do"). Bandura (2006) recommends using a 100 point scale; however, a simple response format was deemed more suitable for the target population. Yet, researchers who wish to use this scale in their studies can keep this 3 point scale or ask the respondents to rate their efficacy beliefs on a 5 or 7 point scale.

While past research has supported the role of writing self-efficacy as a predictor of writing competence, its relationship with scholarly writing of academics remains unclear. There is a need for future research to operationalize the construct 'writing difficulties' from the perspectives of both competence and perception. McCarthy, Meier, and Rinderer (1985) assert that individuals who have strong self-efficacy beliefs perceive themselves as more competent and consequently they invest in more effort which contributes to their competence. This urges us to investigate the relationship between scholarly writing self-efficacy of researchers and the number of manuscripts they publish in English. Bandura (1986) claimed that correspondence of reasonable judgments of capability with a specific outcome offers available information for prediction and accords the most explicit description for the behavioral outcomes. Accordingly, further research should be undertaken to demonstrate its predictive value against known measures of scholars' performance. Investigation of the association between self-efficacy beliefs of scholars in academic writing and various variables such as their previous exposure to foreign language, academic ranking and their publications in English might yield valuable information about the predictive potential of this instrument.

Given the context and the participants of the study, the present study has various limitations. A major limitation of this study is the applicability issue of the scale in various cultural contexts. The sample we used in this study do not probably represent the academics who use English as a second or foreign language for publication in English in other countries. Future research can examine whether our findings generalize to other samples and settings. In addition, as the scale was developed in Turkish, its translation and cross-cultural adaptation process should be carried out before it is used for measuring other non-Anglophone scholars' self-efficacy beliefs in academic writing.

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