



Assessing EFL learners' writing metacognitive awareness

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APA Citation:

Farahian, M. (2015). Assessing EFL learners' writing metacognitive awareness. *Journal of Language and Linguistic Studies*, 11(2), 39-51.

Abstract

Research on metacognition in English as a foreign language (EFL) writing is heavily dependent on a valid measure to assess metacognitive ability. Since there is no report of a validated domain-specific measure of metacognitive awareness of foreign language (FL) writing this study made an attempt to develop and validate a metacognitive awareness writing questionnaire (MAWQ). In order to construct the questionnaire, an interview with 59 EFL learners was conducted. Based on the content analysis as well as the literature, a framework for metacognitive awareness of writing was developed which led to a hypothesized model, as well as a preliminary inventory. To validate the questionnaire, various exploratory factor analyses were run, and as a result, no clear pattern of hypothesized subscales of knowledge and regulation of cognition emerged. However, in the analysis of the whole questionnaire through EFA, the researcher's assumption regarding the two general scales of MAWQ was supported indicating that knowledge and regulation of cognition are two main components of MAWQ.

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Keywords: Metacognition; Metacognitive awareness; Knowledge and regulation of cognition; Metacognitive awareness writing questionnaire

1. Introduction

Metacognition often defined as cognition about cognition or simply thought about the thought, has become a major field of enquiry in cognitive and developmental psychology (Öz, 2005) and is recognized to affect cognition of human beings in various ways. The construct of metacognition has also been recognized as having a great importance in learning. It has been argued that metacognitively aware learners can monitor and control the effectiveness of their learning and have control on their problem solving behavior. Flavell (1987) suggested that metacognitive knowledge is "the part of one's acquired world knowledge that has to do with cognitive (or perhaps better, psychological) matters" (p. 21). Based on Flavell, metacognition includes the individual's perspective of one's own cognitive abilities as well as others.

Metacognitive knowledge is considered to be a declarative knowledge stored in the long term memory and includes three distinct and highly interactive variables: person knowledge, task knowledge, and strategic knowledge. Person knowledge, which enhances or acts as a barrier to learning, refers to a person's belief about himself and others as a cognitive processor. On the other hand, task knowledge is related to the knowledge of the individual during a cognitive activity about the task. And the strategic knowledge helps one to choose a suitable strategy and evaluate its effectiveness in achieving a goal.

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In addition to metacognitive knowledge, Flavell (1979) introduced metacognitive experience as the second concept in his dichotomy of metacognition. Metacognitive experience relates to non-cognitive experiences such as individual's feelings which accompany and lead to metacognitive knowledge.

Ever since Flavell put forward the concept of metacognition, it has been studied with much passion. In a subsequent attempt to define metacognition, Baker and Brown (1984) and Brown et al. (1983) suggested an elaborate framework for metacognition which was later adopted by majority of researchers (e.g. Brown 1987; Jacobs & Paris 1987; Schraw & Mushman 1995). As speculated, there are two dimensions in metacognition which are closely related: (a) knowledge about cognition and (b) regulation of cognition. Brown et al. (1983) proposed that knowledge of cognition refers to general knowledge an individual possesses about his own cognition. Regulation of cognition denotes those activities which control the individual's learning or thinking process consists of three subcategories: planning, monitoring, and evaluation.

Planning are those activities which occur before engaging in a problem and help the writer organize the entire upcoming processes. Secondly, metacognitive monitoring comprises the revision and adjusting the strategies one employs. Finally, metacognitive evaluation refers to checking the outcome of the strategic action to see whether it has been effective.

1.1. Metacognitive awareness in writing

After the shift of paradigm towards progressive education and under the influence of cognitivism, education witnessed a marked emphasis on experiential learning (Gold et al. 2012) and problem solving (Mohanty 2007). There has been a move toward process-oriented theories of writing which is, as Hairston (1982) claims, a paradigm shift in composition theory. In the new perspective, writing is viewed as a process of creation of meaning in which the writer gets involved in the recursive process of preparing the draft, revising and checking.

Under the influence of cognitive psychology on models of writing in early 1980s, the writers' mental processes gained prominent importance (Johns 1990). In a short time, terms which had been borrowed from cognitive psychology found their place in the description of writers' mental processes. This trend gave birth to process-based models of writing. These models began to examine anew the act of composing. Among these models the most notable ones were developed by Hayes and Flower (1980) and Bereiter and Scardamalia (1987). Both models consider writing as problem solving act and a higher order mechanism which deal with the constraints while writing.

In Hayes and Flower's (1980) model, it is assumed that writing is basically a problem-solving activity. Problem solving in this model means that the writer has to tackle the ongoing problem of formulating, organizing, and producing text. To put it simply, the problem for a writer is the act of producing the text for which he has to set goals and find a solution. To do so, based on Hayes and Flower's model, writers has to constantly make decisions regarding their cognitive recourses (Wong 1991). This necessitates the use of a higher order process which seems to control cognitive processing. In Hayes and Flower's (1980) model, the monitor assumes such a responsibility and checks the progress of planning, translating and reviewing. Therefore, although not explicitly stated in the model, the monitor plays the role of metacognitive awareness.

Bereiter and Scardamalia's (1987) model of knowledge-telling and knowledge-transforming, as the most developed metacognitive model of writing (Klein 2004), like Hayes and Flower's (1980) model revolves around the problem solving idea and provides further evidence into metacognitive processes in writing. As Bereiter and Scardamalia (1987) suggest, while knowledge-tellers keep using their long term memory in all processes of writing and make the least use of planning, revising, and monitoring,

knowledge-transformers who are more mature writers, as Sitko (1998) notes, engage in “metacognitively guided planning, audience considerations, problem solving and diagnosing” (p. 97). Such metacognitive concerns are absent in knowledge telling process (Zalewski 2010). This monitoring over the thinking process distinguishes expert from novice writers.

In sum, while it seems that there is no general agreement in the models of cognitive process regarding the definition of a management and control process, these theories refer to the crucial role of self-regulatory and decision making processes which improve the writing performance. Different terms in the models refer to these processes: In Hayes and Flower’s (1980) model, executive control mechanisms, in Hayes’ (1996) model task schema, and in Bereiter and Scardamalia’s (1987) strategic control guide and control cognitive processes in writing.

Similar, but not exactly identical to first language, metacognitive knowledge plays a great role in cognitive activities which are responsible for second language (SL) learning (Flavell 1979); therefore, metacognitive knowledge should be given more credit in language learning (Wenden 2001). Due to this deficiency, Wenden (1999) calls for the study of metacognitive knowledge in language learning since successful SL learners efficiently make use of their metacognition (Thamraksa 2005) and such an awareness contributes to their progress in different language skills, specifically writing. Metacognitive knowledge has been recognized as a significant attribute affecting the process as well as the product in SL writing (Wang et. al. 2009; Zimmerman & Bandura 1994). Research findings identify metacognitive awareness as a factor which distinguishes poor from skilled writers (Victori 1999). The metacognitive growth of SL learners, apart from their ethnic, cultural, and linguistic background, correlates positively with their writing performance (Kasper 1997).

Parallel to the interest in metacognition in education, the need to assess metacognition was given credit; however, the assessment of metacognition has turned out to be a demanding issue. The complexity of the measurement is due to two different reasons, as Panaoura and Philippou (2005) put it. First, there is no consensus over the operational definition of the construct. Secondly, individuals are not aware of their metacognitive processes; therefore, they are not able to articulate them. In other words, metacognitive processes are internal and inferring them from an overt behavior is not a simple undertaking.

The instruction of metacognition without an appropriate measure of metacognition is not conceivable. Further, research on metacognition in writing is heavily dependent on valid measuring instruments to assess metacognitive ability. Therefore, extensive research has been concerned with developing methods for measuring metacognition (e.g. Sperling et al. 2002). Based on such a need, this study, as its main contribution, reports the development and validation of a questionnaire which is a domain specific measure of FL learners’ metacognitive awareness. Since there is no report of a validated domain specific measure of metacognitive awareness of FL writing, the development of a questionnaire such as a quantitative offline measure will be of special interest to researchers or teachers who intend to measure the metacognitive awareness of their FL learners in writing. Accordingly, the specific questions motivating the research are as follows:

- 1) What factors of metacognitive writing knowledge are identified in Iranian EFL learners’ responses to the metacognitive writing questionnaire?
- 2) What factors of metacognitive writing regulation are identified in Iranian EFL learners’ responses to the metacognitive writing questionnaire?

2. Method

2.1. Design

Since the use of more than one method provides a more comprehensive picture of the phenomena under study (Denscombe, 2010), it was felt that a mixed method approach obtained by means of triangulation employing both qualitative and quantitative methods of research was appropriate to devise the questionnaire. As Jick (1979) argues, by using triangulation the researcher gets more confident in their research findings and overcomes the shortcomings of the quantitative method of data collection by the qualitative methods. Therefore, after gathering the qualitative data through a semi-structured interview (Appendix A), the related literature and experts were consulted in order to prepare the first draft of the items which were later subjected to factor analysis.

2.2. Participants

Five hundred thirty eight Iranian EFL university students whose age ranged from 17 to 27 participated in the study. They were majoring various fields of study, including Teaching English, Translation, and Literature from different universities in Kermanshah, a city in the west of Iran. EFL students were chosen for the study since learners majoring in other disciplines rarely have writing courses in English.

The participants were selected from the different universities according to convenience sampling procedure. This frame was used for sampling since the researcher needed a large sample of EFL learners; hence, different classes including freshmen to seniors were selected to make sure that there were enough participants with various proficiency levels in the study.

It should also be noted that out of 538 participants who took part in the study only 524 were available to answer the questionnaire. Furthermore, six questionnaires were removed from the sample because they were incomplete. Accordingly, 518 questionnaires were subjected to factor analysis.

2.3. Procedure

The following steps were taken in order to develop the MAWQ. First, a proficiency test was given to 538 available EFL participants. All participants were Iranian EFL university students majoring in Teaching English, Translation, and Literature in three different universities in Kermanshah, a city to the west of Iran. Based on the results gained from the proficiency test, the participants were divided into three groups: elementary, intermediate, and post-intermediate. In the next step, a timed essay was administered. Since it was time consuming to give all the participants the writing pretest, only a sample of 59 subjects with different levels of language proficiency composed of novice and skillful writers were randomly selected from the population and were asked to write an essay.

After writing the assignment, the participants who wrote the essays were interviewed (see Maftoon, Birjandi, & Farahian, 2014). The reason for choosing the interviewees from the participants who took part in the writing assignment was twofold. First, it is not feasible to conduct an interview with all the participants. Second, assessment of metacognition should take place within an appropriate context (Gunstone 1994) in order to give the participants the opportunity to relate the metacognitive processes to a specific task.

All interviews were tape-recorded and transcribed. Based on the content analysis of responses, a list of statements was then developed. Subsequently five experts were asked to exert their judgments on the statements. The resultant questionnaire was piloted with twenty participants, who were asked to identify ambiguous items. They were also asked to write their comments regarding the items. The main version

of the questionnaire was prepared and distributed among the participants (Appendix B). After preliminary analyses (reliability and testing assumptions), the data for knowledge and regulation of cognition were first evaluated separately, and later the whole questionnaire consisting of knowledge and regulation of cognition was subjected to exploratory factor analysis (EFA).

2.4. Instrument development

The MAWQ questionnaire presented in this article began with a framework which was developed based on an interview with fifty nine EFL learners. The first version of the questionnaire was prepared after the content analysis and coding of the emerging themes. In addition, the related literature (Brown 1987; Flavell 1979; Schraw & Dennison 1994; Schraw & Moshman 1995) as well as Schraw & Dennison's (1994) metacognitive awareness inventory was consulted to modify and complement the items emerging from the open-ended questions.

The MAWQ questionnaire in the present article subsumes both Flavel's (1979) and two dimensional dichotomy of knowledge and regulation of cognition as its point of departure since it was assumed that each model has its own merits and can shed light into the concept of metacognition. Therefore, while knowledge of cognition subsumes declarative, procedural, and conditional knowledge as suggested by two-dimensional model of metacognition, declarative knowledge is assumed to subsume person, and task knowledge proposed by Flavell.

The declarative knowledge in the model includes both self-efficacy and general fact and opinions of EFL writers. Considering belief, fact beliefs not value beliefs, as a component of the metacognition is based on Flavel's (1987) conception. Flavell assumes that person knowledge includes both the knowledge and belief the learner possesses about himself and what he believes in general about what other individuals do as effective writers. Moreover, the results of the interview indicated that as part of their declarative knowledge participants had formed general belief regarding what constitutes good writing.

Additionally, another subcomponent added to the regulation of cognition was on-line strategies. The rationale for incorporating on-line strategies was evidence of awareness of some strategies which had not been categorized as components of regulation of condition in the related literature; however, based on the interviewees' reports, it seemed that these strategies affected the application of other regulatory strategies. Accordingly, budgeting time, use of L1, attention, avoidance, and help seeking were categorized as on-line strategies. All in all, regulation of cognition subsumes planning and drafting, audience consideration, monitoring, on-line strategies, revision, and evaluation (see Table 1).

Table 1. The framework for metacognitive awareness writing knowledge

A Knowledge of Cognition	
1	Declarative Knowledge (Person) Self-concept and self-efficacy General facts and opinion mental translation the effect of reading in FL
2	Declarative Knowledge (Task Knowledge)
3	Procedural Knowledge
4	Conditional Knowledge
B Regulation of Cognition	
1	Planning & Drafting Audience Consideration
2	Monitoring
3	General on-line strategies Allocating time and place Avoidance Attention

	Asking for help
	Translation
4	Revision
5	Evaluation

Adopted from Maftoon, Birjandi & Farahian (2014, p. 48).

3. Results

3.1. Exploratory factor analysis

3.1.1. Assessing the construct validity of knowledge of cognition

The knowledge of cognition has 22 items which measure four main components (1) declarative knowledge (Person), (2) declarative knowledge (task knowledge), (3) procedural knowledge (4), and conditional knowledge. In order to probe the construct validity of the knowledge of cognition, the EFA using the SPSS IBM V. 21 was run. The principal component analysis and principal axis factoring methods were employed to run the factor analyses using orthogonal (uncorrelated factors) and oblique (correlated factors) rotation methods.

Before discussing the results, it should be mentioned that factor analysis has four main assumptions: sampling adequacy, sphericity, normality, and reliability of the instruments. The results of the KMO test (.95 > .60) indicated that the present sample size was adequate to run EFA. The sphericity assumption was also met ($\chi^2 = 4389.94$, $P < .05$). That is to say the correlation matrix was factorable, i.e., it did not suffer from multicollinearity or too high correlations among all variables.

The present data also enjoyed univariate and multivariate normality. All the values skewness and kurtosis were lower than critical values (c.r.). The Mardia's index of 31.42 was also smaller than the P (P+2) index where P refers to the number of observed variables. That is to say, the Mardia's index of 31.42 was smaller than 528 ($31.42 < 22(22+2)$). And finally the KCOG and its components enjoyed reliability. In fact, the reliability indices ranged from .67 to .91.

Although not related to the discussion of assumptions, it should be mentioned that there was a relationship between sample size and the minimum legitimate factor loadings. Therefore, as Stevens (2009) has suggested for the present sample size, i.e. 518, the minimum factor loading of .21 was selected.

An EFA was run to probe the underlying constructs of the knowledge of cognition using the principal axis method and orthogonal rotation technique. The SPSS extracted four factors which accounted for 43.93 percent of the total variance. The patterns of the loadings were far from the outline of the items measuring each section discussed above. Majority of the items loaded on the first factor. These results may suggest the knowledge of cognition is a unitary factor. Four items measuring conditional knowledge loaded on the second factor. They also showed minor loadings on the first factor. The first and second items of the procedural knowledge loaded on the third factor. And finally, the fourth item of general section of declarative knowledge (person) loaded on the fourth factor. The items also showed minor loadings on different factors.

A different EFA was carried out using the principal axis method and oblique rotation technique. The SPSS extracted four factors which accounted for 43.93 percent of the total variance. When the SPSS was asked to extract correlated factors, the Total Variance Explained section remained the same, as discussed above. The factor loadings preferred a one-factor solution because almost all of the items loaded under the first factor. It, therefore, can be concluded that EFA could not detect a reasonable structure for the 22 items of the knowledge of cognition.

3.1.2. Assessing the construct validity of regulation of cognition

The regulation of cognition questionnaire included 33 items measuring six main components: (1) planning and drafting, (2) audience consideration, (3) monitoring (4) strategy formulation, (5) revision, and (6) evaluation.

The results of the KMO test (.89 > .60) indicated that the present sample size was adequate to run EFA. The sphericity assumption was also met ($\chi^2 = 6927.80$, $P < .05$). There was evidence of univariate and multivariate normality. All the values, skewness and kurtosis, were lower than critical values (c.r.). The Mardia's index of 167.78 was also smaller than the P (P+2) index where P refers to the number of observed variables (Khine 2013). That is to say, the Mardia's index of 167.78 was smaller than 1155 ($167.78 < 33(33+2)$). And finally, the regulation of cognition and its components enjoyed reliability. The reliability indices ranged from .67 to .91.

Using the principal axis method and orthogonal rotation technique, an EFA was run to probe the underlying constructs of the regulation of cognition. The SPSS extracted nine factors which accounted for 49.76 percent of the total variance. The first factor was a mixture of different items which were supposed to measure different sub-constructs. The second factor included five items related to planning. The third factor included four items of monitoring. The fourth factor included three items related to revision. The sixth and eighth factors included two items related to asking for help and the planning, respectively. The other factor loadings did not show any clear pattern.

Following EFA, different other factor analyses were run to determine the underlying factors of the regulation of cognition using the principal axis method and oblique rotation technique, the principal component and orthogonal rotation technique, the principal component and orthogonal rotation technique, and the principal component and oblique rotation technique. Again, the same results were obtained; that is, nine factors were extracted, and various EFA techniques did not render a manageable solution. Except for some sporadic appropriate factor loadings, neither the principal axis factor nor the principal component analyses rendered clear patterns of items under the extracted factor.

3.1.3. Assessing the construct validity of knowledge and regulation of cognition

Four separate EFA analyses were run using the principal component and principal axis factoring methods (orthogonal and oblique rotations) in order to probe the underlying constructs of the knowledge of cognition and regulation of cognition questionnaires. The EFA using principal components analysis through varimax rotation extracted two factors which accounted for 56.74 percent of the total variance (Table 2).

Table 2. Total variance explained; knowledge of cognition (KCOG) and Regulation of Cognition (REGCOG)

Component	Initial Eigenvalues		Cumulative %
	Total	% of Variance	
1	3.909	30.069	30.069
2	3.468	26.679	56.748
3	.979	7.529	64.276
4	.811	6.242	70.518
5	.704	5.414	75.932
6	.564	4.340	80.272
7	.513	3.946	84.218
8	.489	3.765	87.983
9	.402	3.092	91.075
10	.360	2.770	93.845
11	.288	2.218	96.063
12	.277	2.130	98.193
13	.235	1.807	100.000

Extraction Method: Principal Component Analysis

As displayed in Table 3, the components of knowledge of cognition and regulation of cognition have loaded on two distinct factors which were already labeled as “regulation of cognition” factor and “knowledge of cognition” factor.

Table 3. Rotated component matrix

	Component	
	1	2
GENEST	.816	
ALLOCA	.745	
AVOID	.721	
PLAN	.713	
REVISE	.634	
EVALU	.627	
MONIT	.606	
ASKHELP	.593	
SELFC		.883
GENERAL		.881
DECLARE		.853
PROCEDU		.829
CONDIT		.772

Other factor analyses - principal components analysis using oblique rotation, principal axis factoring using orthogonal rotation, and principal axis factoring using oblique rotation- were run to evaluate the factors underlying knowledge and regulation of cognition. Overall, irrespective of the extraction or rotation methods, again, the EFA analysis extracted two factors which unambiguously represented the components of knowledge and regulation of cognition questionnaires. Based on the pre-hypothesized model, declarative knowledge (person), (2) declarative knowledge (task knowledge), (3) procedural knowledge (4), and conditional knowledge loaded on knowledge of cognition and six components of (1) planning and drafting, (2) audience consideration, (3) monitoring (4) strategy formulation, (5) revision, and (6) evaluation loaded on regulation of cognition, the second factor.

4. Discussion

The present study was carried out with the intention of constructing and validating a MAWQ. The hypothesized model presented a two-component model with sixteen subcategories. Different EFA analyses were performed to explore the factors underlying two general subcategories of MAWQ, namely, knowledge and regulation of cognition. Furthermore, a general factor analysis of the whole items was performed. As for the two general subcategories of MAWQ, KMOs were satisfactory, the sphericity assumptions were satisfied, and all components were reliable; however, the results did not reveal the hypothesized subscales of the MAWQ. Based on the results of principal axis using orthogonal and oblique rotation, four factors which accounted for 43.93 percent of the total variance were extracted. In the analysis of regulation of regulation through various EFA analyses of principal axis and principal component using orthogonal and oblique rotation, nine factors were produced which accounted for 49.76 percent of the total variance.

Again, similar to the results obtained from knowledge of cognition no clear pattern of hypothesized subscales of regulation of cognition emerged. However, in the analysis of the whole questionnaire through EFA, the researchers' assumption regarding the two general scales of MAWQ was supported indicating that knowledge and regulation of cognition are two main components of MAWQ. Consistent

with the researchers' hypothesis, all the subscales under knowledge and regulation of cognition loaded on the first and second general components. The results are in line with Schraw and Dennison's (1994) findings in that in their study the researchers did not get to conclusive results as to factor analysis of subcomponents of metacognitive awareness. Perhaps, due to the abstract nature of the items which measure a highly complex construct, the findings did not reveal a clear pattern of the expected factors.

5. Conclusion

Since there is no report of a validated domain-specific measure of metacognitive awareness about FL writing, the development of a questionnaire as a quantitative offline measure can help researchers assess the metacognitive awareness of a large number of FL learners. Although further confirmatory factor analysis is needed to test the resultant model, the hypothesized model and the questionnaire may give insight to EFL teachers in that metacognition is largely viewed as an abstract model, and an awareness of its possible components enables teachers to better understand the nature of the construct. The model may help them assess the metacognitive awareness of EFL writers in order to deepen their own understanding of learners' metacognitive behavior in writing. Based on such an awareness, teachers can incorporate either direct or indirect remedial courses to raise learners awareness of this higher order construct.

Findings should be interpreted with caution since the participants were not randomly selected. Furthermore, the participants were chosen only from Iran as an EFL context. Conducting the study with a group of participants selected from different EFL learners from diverse nationalities may enhance the generalizability of the findings or present a different subscale for metacognitive awareness about writing.

References

- Baker, L., & Brown, A.L. (1984). Metacognitive skills and reading. In P. D. Pearson, M. Kamil, R. Barr & P. Mosenthal (Eds.), *Handbook of reading research* (pp. 353-394). White Plains, NY: Longman.
- Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Brown, A. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. Weinert & R. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65–116). Hillsdale, NJ: Erlbaum.
- Brown, A. L., Bransford, J. D., Ferrara, R. A., & Campione, J. C. (1983). Learning, remembering, and understanding. In P. H. Mussen (Ed.), *Handbook of child psychology* (4th ed., Vol. III, pp. 77-166). New York: Wiley.
- Denscombe, M. (2010). *The good research guide: For small scale research projects* (4th ed.). Maidenhead: McGraw-Hill Open University Press.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34, 906-911.
- Flavell, J. H. (1987). Speculation about the nature and development of metacognition. In F. Weinert & R. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 21-29). Hillsdale, NJ: Lawrence Erlbaum.

- Gold, D., Hobbs, C. L., & Berlin, J. A. (2012). Writing instruction in school and college English. In J. J. Murphy (Ed.), *A short history of writing instruction: From ancient Greece to contemporary America* (3rd ed.). (pp.232-272). New York: Routledge
- Gunstone, R. F. (1994). The importance of specific science content in the enhancement of metacognition. In P. Fensham, R. Gunstone, & R. Whit (Eds.), *The content of science: A constructivist approach to its teaching and learning* (p.131-146). London: Flamer Press.
- Hairston, M. (1982). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. *College Composition and Communication*, 33, 76-88.
- Hayes, J. (1996). A new framework for understanding cognition and affect in writing. In L. Michael & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 1-27). Mahwah, NJ: Lawrence Erlbaum.
- Hayes, J., & Flower, L. (1980). Identifying the organization of writing processes. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing* (pp. 3–30). Hillsdale, NJ: Erlbaum.
- Jacobs, J. E., & Paris, S. G. (1987). Children's metacognition about reading: Issues in definition, measurement, and instruction. *Educational Psychologist*, 22, 225–278.
- Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24(4), 602-611.
- Johns, A. M. (1990). L1 composition theories: Implications for developing theories of L2 composition. In B. Kroll (Ed.), *Second language writing: Research insights for the classroom* (pp. 24–36). Cambridge: Cambridge University Press.
- Kasper, L. F. (1997). Assessing the metacognitive growth of ESL student writers. *TESL EJ*, 3(1), 1-20.
- Khine, M. S. (2013). *Application of structural equation modeling in research and education*. Rotterdam: Sense Publications.
- Klein, P. D. (2004). Constructing scientific explanations through writing. *Instructional Science*, 32, 192-231.
- Maftoon, P., Birjandi, P., Farahian, M. (2014). Investigating Iranian EFL learners' writing metacognitive awareness. *International Journal of Research Studies in Education*, 3(5), 37-52.
- Mohanty, S. B. (2007). *Lifelong and adult education*. New Delhi: Ashish Publishing House.
- Öz, H. (2005). Metacognition in foreign / second language learning and teaching. *Hacettepe University Journal of Education*, 29,147-156.
- Panaoura, A., & Phillippou, G. (2005). *The measurement of young pupils' metacognitive ability in mathematics: The case of self-representation and self-evaluation*. Paper presented at the Conference of European Society for Research in Mathematics Education. Retrieved March 12, 2014 from <http://cerme4.crm.es/Papers%20definitius/2/panaoura.philippou.pdf>
- Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19, 460-475.
- Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychology Review*, 7(4), 351-371.
- Sitko, B. M. (1998). Knowing how to write: Metacognition and writing instruction. In D. J. Hacker, J. Donlosky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 93-115). Mahwah, NJ: Erlbaum.

- Sperling, R. A., Howard, B. C., Miller, L. A., & Murphy, C. (2002). Measures of children's knowledge and regulation of cognition. *Contemporary Educational Psychology, 27*, 51-79.
- Stevens, J. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). NJ: Lawrence Erlbaum Associates.
- Thamraksa, C. (2004). Metacognition: A key to success for EFL learners. *BU Academic Review, 4*(1). Retrieved from http://www.bu.ac.th/knowledgecenter/epaper/jan_june2005/chutima.pdf
- Victori, M. (1999). An analysis of writing knowledge in EFL composing: A case study of two effective and two less effective writers. *System, 27*, 537-555.
- Wang, J., Spencer, K., & Xing, M. (2009). Metacognitive beliefs and strategies in learning Chinese as a foreign language. *System, 37*, 46–56.
- Wenden, A. (1999). An introduction to metacognitive knowledge and beliefs in language learning: Beyond the basics [Special Issue]. *System, 27*, 435-441.
- Wenden, A. L. (2001). Meta-cognitive knowledge in SLA: The neglected variable. In M. P. Breen (Ed.), *Learner contributions to language learning: New directions in research* (pp. 44-46). Harlow, Essex, United Kingdom: Pearson.
- Wong, B. Y. L. (1991). The conceptual perspectives in the connections between reading and writing processes. In A. McKeough & J. L. Lupart (Eds.), *Toward the practice of theory-based instruction. Current cognitive theories* (pp. 66-93). Hillsdale, NJ: Lawrence Erlbaum.
- Zalewski, J. (2010). A connectionist–enactivist perspective on learning to write. In J. Arabski & Wojtaszek (Eds.), *Neurolinguistic and psycholinguistic perspectives on SLA* (pp. 93-106). Toronto: Multilingual Matters.
- Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Educational Research Journal, 31*, 845-62.

Appendix A. The interview guideline¹

Knowledge of cognition

1. What is your general attitude toward writing? Do you think you are a good writer in English?
2. How do you feel when you are assigned a writing task in English? Do you enjoy it? Why (not)?
3. What kind of problems do you often encounter while writing in English? What is the main one? How do you deal with your problems?
4. Are you familiar with English writing conventions (for example, how to write a topic sentence, how to compose a paragraph, how to establish cohesion and coherence)? Are you aware of them while writing in English?
5. Do you know how to begin, proceed, and conclude the writing task? Explain.
6. Are you aware of the strategies you use while writing? Do you have specific reasons for using them?
7. If you use specific strategies, when and why you use them? How do you apply strategies to your writing?

Regulation of cognition

1. What do you do first before you begin to write in English? Do you have any plan in your mind before beginning to write? Explain.
2. Do you try to concentrate first on the overall idea, the audience, and the message before you begin to write?

¹ Adopted from Maftoon, Birjandi, & Farahian (2014)

3. What do you hope to accomplish with what you write? (Satisfy the teacher? Be able to write emails?) Do you set goals and sub-goals before and while writing?
4. While writing in English, what do you do when you have a problem and get stuck? Do you consider several alternatives to solve the problem?
5. Do you often stop while writing and ask yourself how well you are doing? If yes, what do you do then?
6. What do you do when you finish writing? Do you know how well you have done when you finish the task?
7. Do you often revise your writing tasks?
8. Do you stop while writing and reread what you have written?
9. What do good writers do while writing?
10. Is there anything else you would like to add about your writing in English?

Appendix B. Metacognitive awareness writing questionnaire (MAWQ)

1. Writing in English makes me feel bad about myself.
2. I think writing in English is more difficult than reading, speaking, or listening in English.
3. I believe a successful writer is born not made.
4. Topic familiarity has a significant effect on one's writing output.
5. A skilful writer is familiar with writing strategies (e.g., planning or revising the text).
6. To improve my writing skill, I have to read a lot.
7. Word by word translation from first language to English negatively affects one's ability in writing.
8. I believe that the more I practice writing, the more I improve my writing skill.
9. At every stage of writing, a skilful writer avoids making error.
10. Dwelling on vocabulary items and grammar interferes with getting the message across.
11. I am aware of different types of genres in writing (e.g., expository, descriptive, narrative).
12. I know that the necessary components of an essay are introduction, body, and conclusion.
13. I am familiar with cohesive ties (e.g., therefore, as a result, firstly).
14. I am good at writing topic sentences.
15. I know what to do at each stage of writing.
16. I find myself applying writing strategies with little difficulty.
17. I know how to develop an appropriate introduction, body, and conclusion for my essay.
18. I know when to use a strategy.
19. I know which strategy best serves the purpose I have in my mind.
20. I know what a coherent piece of writing is.
21. I know what to do when the strategies I employ are not effective.
22. I know which problem in writing needs much more attention than others.
23. Before I start to write, I prepare an outline.
24. I have frequent false starts since I do not know how to begin.
25. Before I start to write, I find myself visualizing what I am going to write.
26. My initial planning is restricted to the language resources (e.g., vocabulary, grammar, expressions) I need to use in my essay.
27. I make necessary modifications in my plan while writing.
28. I set goals and sub-goals before writing (e.g., to satisfy the teacher, to be able to write emails, to be a professional writer).
29. I make a draft before writing.
30. I pause while writing and ask myself if the message is clear.
31. I have a specific audience in mind.
32. I stop while writing and ask myself how well I am doing.
33. While writing, I identify the mistakes I have made.
34. When I use a strategy, I ask myself if it is appropriate.
35. I ask myself if the content matches the outline I have already developed.
36. I find myself resorting to fixed set of sentences I have in mind instead of creating novel sentences.
37. I can develop ideas creatively through using novel sentences.
38. At every stage of writing, I use my background knowledge to create the content.

39. When I get stuck, I can find ways to solve the problem.
40. I mainly focus on conveying the main message rather than the details.
41. I automatically concentrate on both the content and the language of the text.
42. I can effectively manage the time allocated to writing.
43. I choose the right place and the right time in order to write.
44. After I finish the essay, I check whether the content fits the original plan.
45. I use avoidance strategies (e.g., when I do not know a certain vocabulary item or structure I avoid it).
46. When I cannot write complicated sentences, I develop other simple ones.
47. If I do revision, I do it at both textual and the content level.
48. I have control over my attention and do not easily let myself sidetracked.
49. When I do not understand something, I get help from others (e.g., my classmates, the teacher)
50. After I finish the essay, I know how well I have done.
51. While writing, I consult resources such as a dictionary or the Web to get help.
52. If my mind goes blank when I begin to write, I use other similar texts or resources to take hint.
53. As I write, I translate word by word from Persian to English.
54. After I finish writing, I edit the content of my paper.
55. If I do revision, I do it at the textual features of the text (e.g., vocabulary, grammar, spelling).

İngilizce öğrencilerinin yazma becerisi ile ilgili üstbilişsel farkındalıklarının değerlendirilmesi

Öz

Yabancı dil olarak İngilizce yazma konusunda yürütülen üstbiliş araştırması, üstbilişsel yeteneğin ölçümü için gerekli olan geçerli bir ölçeğe bağlıdır. Yabancı dil yazım becerisinin üstbilişsel farkındalığının ölçümüne yönelik, alana özgü geçerliliği onaylanmış herhangi bir ölçek bulunmadığından, bu çalışma üstbilişsel farkındalık yazım anketini (MAWQ) geliştirmeyi ve onun geçerliliğini ölçmeyi amaçlamaktadır. Anketi oluşturabilmek için, yabancı dil olarak İngilizce öğrenen 59 kişiyle mülakat yapılmıştır. Alan yazımı ve içerik analizinden yararlanarak, yazma becerisinin üstbilişsel farkındalığıyla ilgili bir taslak oluşturulmuş ve bu taslak sayesinde varsayılan bir model elde edilmiş ve bir ön çalışma yürütülmüştür. Anketin geçerliliğini ölçmek için ise, farklı açıklayıcı faktör analizleri yapılmıştır ve , sonuç olarak, biliş bilgisi ve düzeni ile ilgili varsayılan alt ölçekler ortaya çıkmamıştır. Fakat tüm anketin EFA yoluyla yapılan analizinde, araştırmacının MAWQ'nun iki genel ölçeğine dair varsayımı, biliş bilgisi ve düzeni MAWQ'nun iki ayrı ögesi olduğu belirtilerek desteklenmiştir.

Anahtar Sözcükler:

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