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METACOGNITIVE AWARENESS
IN IRANIAN UNIVERSITY STUDIES:
AN OVERVIEW FOR FUTURE DIRECTION

Marjan Masoodi, PhD student

Mykolas Romeris University
Institute of Educational Sciences and Social work
Ateities St. 20, LT-08303 Vilnius-Lithuania
E-mail: marjan.masoodi@mruni.eu
Telephone: 0037060091406

Assoc. Prof. Dr. Tomas Butvilas

Mykolas Romeris University
Institute of Educational Sciences and Social work
Ateities St. 20, LT-08303 Vilnius-Lithuania
E-mail: tbutvilas@mruni.eu

Abstract

The purpose of this article is to overview and analyze the discourse pertaining to meta-cognitive awareness to disclose the trend, diversity of approaches and the complexity of the concept in Iranian university studies. A systematic literature review was performed to include 110 published papers between October 2011- August 2019 searched on Scopus and ERIC databases. Then, after meticulously reading the abstract, fifty articles were chosen for analysis. Finally, a total of twenty-two papers were considered in our study.

The findings from this analysis reveal that the growing studies mostly are empirical and in the context of English as a foreign language when metacognitive awareness addresses the main objectives of the research. Besides, the themes which are associated with metacognitive aware-ness are language skills including reading, writing and listening, language learning strategies,

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lecturers' attitudes, knowledge and practice, cross-cultural comparison, efficacy, components and model, technology, and problem-solving. Furthermore, the most prominent metacognitive practices are prompts, reflective writing, interactive-reflective activities, and modeling respectively. Moreover, three metacognitive awareness roles of measured quantitatively, measured qualitatively and instructional can be investigated. Since the most frequent role is metacognitive awareness measured quantitatively (questionnaire), researchers might wish to use various types of measurement to triangulate data from different sources to better understand the complex concept of metacognitive awareness. Based on the results of this overview, since studies are mostly on learners' regulation of cognition not on the knowledge of cognition, it is recommended to delve deeper into the measurement of knowledge of cognition. A further study can be conducted to consider metacognitive training for lecturers which is absent in previous studies. The findings of this study might have implications for university lecturers and researchers in the field of teaching and learning to realize what has already been conducted and figure out an appropriate direction to what is still required to be carried out in future research.

Keywords: metacognitive awareness, metacognitive instructional practices, roles of metacognitive awareness, Iranian university studies.

Introduction

Metacognitive awareness plays a significant role in successful learning and teaching processes (Ghorbani Nejad Farvardin, 2018; Seifoori, 2015) over the last three decades. Furthermore, it has an ingenious role in self-regulation, reflective thinking (Ansarin, Farrokhi & Rahmani, 2015; Deway, 1933; Shafiee, 2014), problem-solving and critical learning (Ghahari & Basanjideh, 2015). To conceptualize the nature of this sophisticated concept in any context, there is a great requirement to overview the previous studies in that specific context which, on the one hand, provides lecturers with fruitful information about what have already been done on this discern field to consider in their own teaching and on the other hand, offers a good base for realizing what is required to be conducted in future research. In this direction, the purpose of the presented study is to set the discourse pertaining to metacognitive awareness to disclose the trend, diversity of approaches and the complexity of the concept in Iranian university studies. The report involves scientific results of research which were carried out in Iranian university studies during the last decade. In particular, the research sought a response to the research question of *"How are the trend, diversity of approaches and the complexity of the concept of metacognitive awareness in Iranian university studies?"*

1. Theoretical background

This part, a comprehensive literature review, which serves as a vantage point that locates mainly the object of this research in the existing conceptual framework, is compiled from a selection of previous articles about metacognitive awareness conducted in Iran in the last decade. The short summary of each study has been presented, grouped under vari-

ous themes. The research range is wide involving different aspects associated with meta-cognitive awareness. The aim of this part is to characterize briefly the problems, solutions, significant points and the trends in the sphere of metacognitive awareness in Iranian university studies to analyze them afterward.

1.1. Metacognitive awareness and reading, writing and listening

Further to English language reading and writing as fundamental skills in education with diverse benefits for the learners, listening skill as the most intangible applied ability in the class environment and the main tool for learning has taken the attention of a few Iranian researchers to discover the learners' thinking process in each one.

Khonamri and Kojidi (2011) test the relationship between metacognitive awareness of reading strategies and comprehension monitoring of English as a foreign language (EFL) learners at the Industrial University of Noushirvani in Iran. Thinking-aloud, reflecting on reading, error-detection, finding a trick in the reading text and retrospective questions were used to examine the comprehension monitoring of the readers. Similarly, Mokhtari and Reichard's (2002) Metacognitive Awareness of Reading Strategies Inventory (MARSI) was applied for measuring the degree of reading metacognitive awareness. In this study, the combination of assessing how well a student is doing on a task and correcting any problems is called _monitoring cognition_. Khonamri and Kojidi (2011) use the metacognitive journal in their research as "one of the tools that can provide useful information about the comprehension monitoring of the subjects. Students analyze their own thought processes following a reading" (p. 103). The results show that the more a student is metacognitively aware of reading strategies, the more comprehension monitoring s/he does and the more errors s/he can detect. One reason for this difference in comprehension monitoring of learners with a higher level of metacognitive awareness with lower ones could be that they read more holistically and link the meaning of sentences to get a better understanding of the context. This means "knowing that" (declarative knowledge) is different from "knowing how" (procedural knowledge). They mention through practice and explanation of techniques "teachers can play a key role in enhancing learners' metacognitive awareness of reading strategies in order to facilitate their comprehension monitoring and thus improve their reading comprehension ability" (p. 110). Moreover, Maasum and Maarof (2012) in another study disclose a moderate to a high level of forty-one undergraduate EFL learners' awareness and use of learning strategies in reading skill through the MARSI.

Maftoon, Birjandi and Farahian, (2014) submit a model of writing metacognitive awareness through content analysis of gathered data while interviewing fifty-nine EFL university students divided into two skillful and unskillful groups. The framework for the model of metacognitive awareness writing is classified under two categories by Maftoon et al. (2014): 1) four categories of knowledge of cognition in writing including declarative, procedural and conditional knowledge. There are two categories for declarative knowledge (person and task). Part of declarative knowledge is the person's attitudes towards himself. Self-efficacy affects learner's learning, motivation and ability to undertake a task (Bandura, 1997). Many students consider writing as a difficult task with an inborn talent

which implies their negative self-concepts toward their own skill. Most scholars especially those that believe in constructivism (Flavell, 1976) assume attitudes as part of learners' declarative knowledge that has a great impact on their thinking and learning. Another type of declarative knowledge is related to task knowledge which is the students' awareness about the nature of the task and the demand for doing it and consists of organizing, text type, linguistic resources (mostly vocabulary) and topic familiarity and 2) five categories of regulation of cognition in writing includes planning and drafting, monitoring, general online strategies, evaluation and revision.

Seifoori (2015) compares reading skill and overall metacognitive awareness of reading strategies of one hundred postgraduate students majoring in English Language Teaching (ELT) and English Literature (EL) from Tabriz Azad University. A reading comprehension test and Mokhtari and Reichard's MARSI (2002) were the instruments used to gather data. Learners have a similar reading skill and a medium level of metacognitive awareness in both groups. Furthermore, Sahragrard, Kushki, Miri and Mahmooudi (2015) tend to investigate the effect of responding to and reflecting on the Metacognitive Awareness Listening Questionnaire (MALQ) at different times on forty university learners' level of metacognitive awareness, majoring in ELT and EL at Lorestan University, Iran. The experimental group filled in the questionnaire seven times through a semester while the control group merely filled in a pre-and post-survey. The results of the study show that the questionnaire benefits the experimental group in a statistically positive way while less-skilled participants benefit from the treatment more in comparison to their more-skilled counterparts.

Ghorbani Nejad and Farvardin (2018) assess 120 EFL learner's metacognitive awareness in listening comprehension. The data was collected through MALQ with five types of metacognitive strategies of problem-solving, planning and evaluation, mental translation, person knowledge and directed attention to measure the participants' metacognitive awareness: 1) problem-solving strategies, used for the prediction of what one cannot understand in the listening process and inferences; 2) planning and evaluation strategies, applied in preparation for listening and evaluation of the outcomes; 3) mental translation strategies, employed when the listeners are not proficient; 4) person knowledge strategies, showed self-efficacy, beliefs, and attitudes of listeners to listening and 5) directed attention strategies, used for concentration and staying on a listening task. The results reveal that there is no significant relationship between listening comprehension and any components of metacognitive awareness. Aural vocabulary knowledge, language proficiency and person knowledge affect listening comprehension (12.5%, 10.2% and 3.2% respectively).

1.2. Metacognitive awareness and learners' language learning strategies

Nosratinia, Saveiy and Zaker (2014) show the relationship among 143 EFL learners' self-efficacy, metacognitive awareness and language learning strategy use. The learners majoring in ELT and EL at Karaj and Sari Azad Universities in Iran were requested to complete the three questionnaires on General Self-Efficacy Scale, Metacognitive Awareness Inventory (MAI) and Oxford's Strategy Inventory for Language Learning (SILL). The

findings reveal that there is a significant relationship among EFL learners' self-efficacy, metacognitive awareness and language learning strategies. Metacognitive awareness is considered to be the best predictor of language learning strategies. Nosratinia et al. (2014) mention the strength of self-efficacy in language learning.

Kamalizad (2015) compares a total of 157 EFL (live in Tehran) and English as a second language (ESL, live in Kuala Lumpur) Iranian University students' strategy levels. He gets data via the Oxford's SILL and semi-structured interviews to discover related issues. He states that: 1) all Iranian students consider themselves as medium strategy users. Their most favorite strategies are metacognitive and social ones while memory and affective strategies are their least desired ones. EFL learners' high use of metacognitive strategies may be due to the lack of natural English use in settings and teaching with explicit rules even in communicative approaches. It can be because of autonomy as well which helps to control their learning even without suitable teaching programs such as grammar-based approaches of teaching. Therefore, they heavily rely on their conscious and metacognitive strategies for learning; 2) learners' lower use of affective strategies could be due to their difficulty in managing their emotions and anxiety during their presentation, a simple talk in front of other students in the class or being afraid of making mistake. This fear might be due to the fact that they have merely the experience of speaking in the classroom which does not let them build up second language identity for self-expression while ESL learner needs to communicate with their teachers, peers and people outside the academic setting; 3) Iranian ESL learners significantly perform better than Iranian EFL learners on the six categories of the SILL which can be due to the environmental differences that give them the availability of the English-speaking opportunities; 4) a sociocultural view can be that any type of activity is not possible in isolation. The ESL participants' strategic behaviors change after moving to an ESL context due to being faced with different sociocultural mediators and 5) nationality is regarded as an important element in the application of strategies.

1.3. Metacognitive awareness and problem-solving

Ghahari and Basanjideh (2015) have a long study on the effect of applying reading metacognitive strategies on achievement and problem-solving abilities. One hundred and forty-five undergraduates studying ELT and LT at Shahid Bahonar University of Kerman have been selected for this study divided in two groups. The control group has received normal instruction while the experimental group has gone under a strategy-based instruction. Three tools have been applied: a problem-solving Inventory, Mokhtari and Sheorey's Survey of Reading Strategies (SORS) (2002) and a Reading Comprehension Test. The analysis of data reveals that while metacognitive strategies have a more positive impact on problem-solving than cognitive ones, cognitive strategies contribute more to reading skills. Ghahari and Basanjideh (2015) finalize their findings by stating that "an awareness and use of reading strategies can increase students' confidence and expectation of success; when they are confident, they anticipate the quality of their work and are more self-reliant on their ability to solve problems they encounter in language learning, which can further lead to an improvement in such life qualities as self-efficacy, autonomy, and problem-solving competencies" (p. 248).

1.4. Metacognitive awareness and lecturers' attitudes, knowledge and practice

The relationship among lecturers' metacognitive awareness attitudes, pedagogical knowledge and instructional practices cause the Iranian researchers to focus on these concepts in their studies.

Shafiee Nahrkhalaji (2014) considers the effect of EFL lecturers' metacognitive knowledge in their pedagogical success and to what extent reflective or metacognitive teaching is influenced by EFL teachers' years of teaching experience and academic education. Fifty EFL lecturers completed MAI that assessed six components of metacognition (comprehension monitoring and evaluation are merged in this research). Moreover, their students fill in "the Language Teacher Characteristics Questionnaire" to evaluate their teachers' pedagogical performance. As Shafiee Nahrkhalaji (2014) states effective teaching is not restricted to procedural methods since in an authentic classroom there are always some unpredictable situations requiring quick decisions rather than pre-determined procedures which need metacognitive thinking. She reaches these results that 1) "[...] despite the relatively high correlation between teachers' metacognitive awareness and their pedagogical success, only four of the six components of metacognitive awareness, namely declarative knowledge, planning, evaluating, and management strategies sequentially correlate strongly with pedagogical success; 2) [...] teachers' metacognitive awareness tends to increase with additional years of teaching experience; 3) [...] teachers with more years of academic education are metacognitively more aware" (p.1668). It is concluded that teachers who are more aware of cognitive knowledge can help students better. Shafiee Nahrkhalaji (2014, pp. 1668-1669) further suggests that making the discussion of metacognitive knowledge as part of the everyday activity gives this opportunity to the learners to talk, share, compare, judge and make learning more explicit and less mysterious. Also, the teachers' reflection can be the modeling of strategies through explaining and giving reasons for applying any strategy for any specific problem which can involve students in the conditional knowledge. It is possible that a lecturer has all sorts of metacognitive knowledge, though students do not have the means to reach this.

Azari, Moeini and Shafiee (2014) look at the awareness, attitudes, and instructional practices of fifty-five Iranian EFL lecturers about vocabulary learning/teaching strategies. The related questionnaire, including memory, cognitive, metacognitive and determination strategies, was employed to determine the degree of usefulness and the frequency of application of strategies in the classroom by the lecturers. The results show that there is a positive correlation between the teachers' attitudes and their instructional practices. Minor differences can be due to various contextual factors. The usefulness degree and the frequency of application of metacognitive strategies in classroom practices show an average score. After memory strategies, metacognitive strategies are the most popular selection of lecturers. Azari et al. (2014) finalize that "the more useful a vocabulary learning strategy was evaluated by the teachers from a pedagogical perspective, the more frequently it was implemented in the language classroom" (p. 267).

Ansarin, Farrokhi and Rahmani (2015) discover the levels at which Iranian lecturers reflect on their practice. Also, they disclose the roles of gender, qualification, and years of experience in this process. John Deway (1933) called "reflection", the way teachers think about their own practice, as one feature of a multi-faceted career of teaching. He states that this type of teaching gives a chance to teachers to act consciously, purposefully and deliberatively rather than in a routine and automatic way. Reflective thinking leads teachers to actively analyze their attitudes and practices, increase the metacognitive level, and monitor their decisions about making what and how to teach. In fact, the level of teachers' reflection has a direct influence on their performance (cited in Ansarin, Farrokhi & Rahmani, 2015, pp. 140-141). Larrivee's questionnaire (2008) was applied to assess four levels at which 100 lecturers reflect on their practice. The four reflection levels are: 1) pre-reflective teachers respond in automatic ways and do not ask questions and modify their teaching style based on students' feedback; 2) surface teachers focus on methods and strategies used to achieve planned goals; 3) pedagogical teachers consider the theories underlying teaching methods, the instructional goals and the relationship between theory and practice. They attempt to connect between their attitudes and their actual practice and 4) critical teachers examine ethical and social matters (cited in Ansarin, Farrokhi & Rahmani, 2015, p. 143). They reach the following results: 1) Iranian teachers mostly apply pedagogical reflection in their teaching. Critical, surface and pre-reflection levels are considered after it respectively; 2) lecturers with more teaching experience and higher academic qualifications have higher levels of critical and pedagogical reflection and 3) Iranian lecturers require to improve their critical thinking skills, raise their social and political awareness regarding educational context and go beyond theory and action and consider the impact of a broader context on their practice.

Garmabi and Zareian (2016) argue that the teachers' attitudes towards the effectiveness of their students' reading metacognitive strategies. Ninety-one lecturers with various years of experience of teaching English were asked to complete MARSI with three types of pre-reading, reading and post-reading metacognitive strategies. The results show that though teachers holding different academic degrees have the same attitudes towards pre-reading metacognitive strategies, they have significantly different attitudes towards reading and post-reading metacognitive strategies. What is more, teachers who have a higher academic degree and more experience have more metacognitive strategies awareness, consequently, they have a more positive attitude towards using these strategies in their classes in comparison to their colleagues with a lower academic degree and experience.

Nazari (2018) tests the lecturers' pre- and post-course attitudes towards and practices of metacognitive listening teaching. The data was collected through interviews and videotaping of the teachers' practices before and after the course. The teachers' pre-course listening attitudes and practices echo a product/text-oriented perspective. However, post-course analyses prove that the lecturers reflect on their previous ideas and criticize their own practices. They acquire more advanced pedagogical knowledge about metacognitive listening training. They consider students with a more active role, help the learners to manage their listening process and request the learners to speak about their understanding of the listening by raising the learners' awareness of the strategies. There are congru-

ities between the teachers' stated attitudes and their practices in both pre- and post-course instruction.

Atai, Babaii and Taherkhani's (2017) paper is an attempt to find out the similarities and differences between language teachers' and content teachers' pedagogical content knowledge (PCK), their teaching practices and their students' attitudes towards their methodology. Questionnaires, observations, semi-structured interviews and taking notes were applied to gather data from 318 lecturers and 1537 students from five Medical Sciences Universities in Iran. One of the components of PCK in their study is the importance of the teachers' knowledge of students' needs. The majority of teachers mention both in their questionnaires and interviews that they know about their students' needs. Despite the positive responses of content teachers to this question, through their interviews, they show no idea of their needs. Another component of PCK is categorized under "teaching practices" with consciousness-raising strategies. In response to the question: "How much do you use consciousness-raising strategies?", the majority of teachers select "much" in their questionnaires. However, in their interviews, the majority of language teachers do not apply these strategies due to lack of time while the content teachers have no idea about these strategies. Considering the learners' attitudes, the majority of them have positive views about the teaching of their teachers (language teachers, 83.7% and content teachers, 47%). The learners with language teachers are consent with their methodology because of applying various practices, considering all skills and all students, creating a friendly atmosphere and having a thorough knowledge of both language and content. Based on Atai et al.'s (2017) findings the methodological dissatisfaction of learners with content teachers is mostly due to "focusing on the translation, not motivating students, not involving students in any activities, teaching only in L1, and not being able to manage the class well" (p. 23).

1.5. Metacognitive awareness and self-efficacy

In a meta-analysis of self-efficacy, many Iranian researchers have discovered a positive relationship between or among self-efficacy as one of the motivational constructs, metacognitive awareness, teachers' pedagogical success and students' achievements.

Ghonsooly, Khajavy and Mohaghegh Mahjoobi (2014) aim to disclose to what degree the Iranian English teachers' sense of self-efficacy and metacognitive awareness predict their academic performance. To this end, 107 Iranian EFL teachers at Farhangian University completed the Teachers' Sense of Self-Efficacy Scale and Teacher's MAI. The findings reveal that both metacognition and self-efficacy affect academic performance. However, metacognition has a stronger effect. This implies that lecturers with a higher level of metacognitive awareness have better performance and a higher level of self-efficacy compared to those with a lower level of it.

Tavakoli and Koosha (2016) in their paper attempt to investigate the influence of explicit metacognitive strategy instruction on reading skill and self-efficacy among 100 undergraduate EFL university students in Iran. The quantitative data were collected by SORS, Motivated Strategies for Learning Questionnaire (MSLQ), a reading comprehen-

sion test and semi-structured interviews to permit a triangulation of data to complete pre-test and post-test. The outcomes show that the group with the explicit metacognitive strategy training outperforms their counterparts not only on the reading skill but also on the level of learners' self-efficacy which increases from low to medium level after training. Tavakoli and Koosha (2016) also add that "teachers should provide students with multiple and repeated opportunities to practice the new strategies on a variety of learning tasks and activities so that eventually the strategy itself becomes part of students' procedural knowledge" (p. 129).

1. 6. Metacognitive awareness and authenticity of university lecturers

The concept of authenticity, which is how lecturers can find their own voice in selecting their classroom materials, curriculum and activities among the dominant voice of native scholars and provide their own meaning is one of the topics for discussion among Iranian scholars. Lecturers' authenticity not only gives them a feeling of completeness, self-understanding and identity in teaching but also assists them to reflect on their teaching and engage in developmental activities. This concept is greatly related to metacognitive awareness.

Ramezanzadeh (2017) explores the concept of authenticity in English language lecturers in their practices. The data was collected from thirty Iranian lecturers who teach at Iranian state universities through in-depth interviews and memos. Three main themes of three-way pedagogical relationship, reflectivity, and context-appropriate adjustments were discovered via content analysis. According to Ramezanzadeh's (2017) three-way pedagogical relationship which is lecturers, learners, subject matters, learners' interests and experiences all are effective factors on lecturers' pedagogical decisions. The lecturers emphasize on bringing one's own self in the classroom which is the awareness and recognition of one's own values, expectations, and experiences. In reflectivity as the second theme, lecturers can re-examine their teaching and its impact on the learning and learners through the students' feedback as a good source for discovering their expectations and values. Through reflections, they can make decisions and pinpoint the problems and related solutions. In the third theme, context-appropriate adjustments, authentic lecturers attempt to get familiar with native speakers' methods and theories of teaching but they find the most appropriate ones based on their own contexts, lecturers' needs and culture. In other words, "authenticity as finding one's own voice in the midst of the dominant native voices, while reflecting on one's own pedagogical practices and respecting one's own context and culture" (p. 296). She further concludes that the lecturers would like to be ruled by their own expectations rather than by the native ones and reflected on their teaching practices and beliefs to achieve a new meaning of their experiences in teaching.

1.7. Metacognitive awareness and personality traits

Any learner has a unique personality pattern of traits and chooses the strategies according to them. Lecturers should discover the attitudes and individual differences of his students to adapt his teaching style based on their preferred metacognitive strategies. We begin this part by reviewing the previous research on the relationship between personality traits and metacognitive strategies.

Fazeli (2012) investigates the relationship between metacognitive awareness and personality traits. Two hundred and thirteen Iranian university learners of English language completed Oxford's SILL (1990) and NEO-Five Factors Inventory which measures the five domains of personality. "a) Neuroticism is related to poor emotional adjustment, anxious, and pessimistic; b) Extraversion is when a person is sociable and assertive, cheerful, active, and optimistic; c) Openness to experiences represents the tendency to be imaginative, intellectually curious and artistically sensitive; d) Agreeableness is the tendency to be trusting, compliant, caring, gentle, compassionate, empathic, and cooperative; e) Conscientiousness is to be responsible, organized, hard-working, dependable, achievement-oriented, purposeful, strong-willed, and determined" (Fazeli, 2012, p. 533). The final results are as follows: 1) the metacognitive strategies are highly employed; 2) the mean of the Conscientiousness trait is the highest while the mean of the Neuroticism trait is the least one and 3) 17.7% of changes in the students' overall metacognitive strategy use is for the Conscientiousness trait and the Openness to Experiences traits.

1.8. Metacognitive awareness and cross-cultural comparison studies

Cross-cultural comparison studies of metacognitive awareness and its related strategies push the Iranian researchers to take note of them because this type of research has enormously impacted our understanding of not only different areas of the human learning process but likewise the monocultural bias in our cultural mix classroom and society.

Kasimi (2012) focuses on cognitive and metacognitive reading strategies of two groups of first-grade students at ELT departments of four universities in Turkey and three universities in Iran. The data was collected through the MARSI and Cognitive Strategies Questionnaire. The mean scores for the use of cognitive and metacognitive reading strategies are strongly and positively correlated to each other and have, overall, a medium level of usage in both groups. Comparing Iranian and Turkish learners, there could be some differences in frequency and choices of the strategies which can arise due to some underlying reasons such as cultural, social-cultural values, education system, curriculum, personal expectations, beliefs and their previous teaching methodology. Another reason can be due to logographic skills concerning the similarities and the differences between the alphabets of mother tongue and English. Turkish and English alphabets are similar while Farsi has Arabic alphabets which cause the Iranian students to read slower while spending more time in English.

Keshavarz and Ghamoushi (2014) report on the differences between monolingual and bilingual learners in their use of English metacognitive reading strategies. To this end, two

groups of ELT Persian monolinguals and Turkish-Persian bilingual second-year university students completed the MARSI. The findings indicate that the overall mean scores and mean scores in each metacognitive strategy in both groups are considered medium level and the only global strategy of the bilingual group is regarded as high level due to language proficiency level and learners' attitudes towards reading skill. Moreover, Keshavarz and Ghamoushi (2014) conclude that bilingualism increases learners' overall awareness and use of metacognitive reading strategies due to applying the learnt metacognitive strategies from one language to another one.

1.9. Metacognitive awareness and technology

Mobini Dehcord and Alavi (2019) in their research entitled "Structural analysis of Iranian educational technologies" find out the fundamental driving forces through the structural analysis method, determined mostly by professors, that can change the educational paradigm and help to develop and equip universities according to the future needs. They mention that metacognitive awareness, process-oriented and independent learning have a great impact on the basic concepts of education in this regard. The future of educational technologies is influenced by these driving forces' sequentially: 1) redesigning pioneer educational environment, for increasing the facilities for using different devices that have educational consequences for them; 2) massive open online courses/virtual learning/open education; 3) interactive learning, 4) simulator technologies; 5) learning measurement; 6) digital education; 7) social networks and (viii) customization/personalization, technology can provide personal and smart tools and services to give final users more control on their data.

2. Systematic literature review

As there were varieties of designs and methodologies in the selected papers, these were analyzed in a systematic and holistic manner. A systematic literature review was performed to include the published papers between October 2011 to August 2019 searched on Scopus and ERIC databases. The same keywords – "metacognitive awareness", "metacognitive strategies" and "metacognition" – were used to conduct an online search in all databases. There were three steps used in selecting articles: by considering the title, by reading the abstract and by reading the whole article. Initially, 110 articles in the Iranian context were found. Then, after carefully reading the abstract, fifty papers were selected for full-text analysis. Finally, a total of twenty-two papers were considered in our study. It should be noted that the researcher managed to take into account all publications in the above-mentioned databases, though not all in this field of study, even though these studies are regarded as a very good representation of the study subject.

3. Findings and discussion

3.1. General findings in the Iranian context

The significance of metacognitive awareness for successful learning was emphasized tremendously. In the last decade, the number of studies on metacognitive awareness has been vividly growing. These studies started by first studying the concept; however, they are steadily addressing the main goals of learning.

A myriad of studies are empirical and only a few are based on the conceptual synopsis of the topic. In most of the studies, metacognitive awareness or metacognitive strategies play a central role, since they are included in the definition of the aim and the research questions of the study. In all papers, English as a foreign language is considered as the field of study while only one of them takes into account English as a second language. We can categorize three roles for metacognitive awareness in these papers: metacognitive instruction role in which it acts as training, practice or activities to increase learning, measured quantitatively (questionnaire) and measured qualitatively (observation, interview, others). In the last two roles, metacognitive awareness is assessed without teaching any specific instruction or practice.

In addition, in a few Iranian papers that have studied metacognitive instruction with a pre-test and a post-test methodology, the metacognitive instruction is interweaved with other types of instruction, meaning that the improvement of learning cannot be purely assigned to metacognitive instruction. In fact, on the one hand, the generalization of results is not justifiable and, on the other hand, there are difficulties in the assessment of metacognitive awareness alone.

The focus of most of the studies is on assessing and/or fostering learners' metacognitive awareness while those of lecturers are insufficiently considered. As a matter of fact, many studies investigated the role of learners' reflection, attitudes, preferred metacognitive strategies and their self-assessments. Also, our analysis indicates that the context of the study is learning English as a foreign language. It is noteworthy to consider other study field contexts such as history, sciences, etc. Furthermore, in a large body of the research, metacognitive awareness is considered as a separate construct related to another construct. It is sometimes regarded as a construct overlapping with another one. Therefore, it is not considered in isolation in any of the studies.

3.2. Main themes associated with metacognitive awareness

As can be seen in Table 1, the most frequent to least frequent themes which are associated with metacognitive awareness are language skills (25%), lecturers (25%), efficacy (12.4%), language learning strategies (8.3%), cross-cultural comparative (8.3%), components & model (4.2%), technology (4.2%), problem-solving (4.2%), personality traits (4.2%) and authenticity (4.2%).

Table 1. *Percentage of each theme for all Iranian research studies*

No	Author/Year	Skills	Lecturers' attitudes, knowledge & practice	Efficacy	Language strategy learning	Cross-cultural comparative	Components& Model	Technology	Problem solving	Personality traits	Authenticity
1	Khonamri & Kojidi (2011)	+									
2	Maasum & Maarof (2012)	+									
3	Maftoon, Birjandi & Farahian, (2014)	+					+				
4	Seifoori (2015)	+									
5	Sahragrard, Kushki, Miri & Mahmooudi (2015)	+									
6	Ghorbani Nejad & Farvardin (2018)	+									
7	Nosratinia, Saveiy & Zaker (2014)				+						
8	Kamalizad (2015)			+	+						
9	Ghahari & Basanjideh (2015)								+		
10	Shafiee Nahrkhalaji (2014)		+								
11	Azari, Moeini & Shafiee (2014)		+								
12	Ansarin, Farrokhi & Rahmani (2015)		+								
13	Garmabi & Zareian (2016)		+								
14	Nazari (2018)		+								
15	Atai, Babaii & Taherkhani's (2017)		+								
16	Ghonsooly, Khajavy & Mohaghegh Mahjoobi (2014)			+							
17	Tavakoli & Koosha (2016)			+							
18	Ramezanzadeh (2017)										+
19	Fazeli (2012)									+	

No	Author/Year	Skills	Lecturers' attitudes, knowledge & practice	Efficacy	Language strategy learning	Cross-cultural comparative	Components& Model	Technology	Problem solving	Personality traits	Authenticity
20	Kasimi (2012)					+					
21	Keshavarz & Ghamoushi (2014)					+					
22	Mobini Dehcord & Alavi (2019)							+			
Total		6	6	3	2	2	1	1	1	1	1
Percentage %		25%	25%	12.4%	8.3%	8.3%	4.2%	4.2%	4.2%	4.2%	4.2%

In these studies, there is a wide range of subject matters linked to metacognitive awareness that are similarly discussed along with the main themes in both contexts. Stress and negative emotions influential role on metacognitive awareness (Kamalizad, 2015), self-confidence (Ghahari & Basanjideh, 2015), academic achievement (Ghonsooly, Khajavy & Mohaghegh, 2014), motivation and self-efficacy (Ghahari & Basanjideh, 2015; Maftoon, Birjandi & Farahian, 2014; Nosratinia, Saveiy & Zaker, 2014), autonomy (Ghahari&Basanjideh, 2015), performance (Ansarin, Farrokhi & Rahmani, 2015) need analysis (Atai, Babaii & Taherkhani, 2017; Ramezanzadeh, 2017), cognitive strategies (Kasimi, 2012), cooperative learning are the most popular sub-themes in this setting. The significant role of lecturers in enhancing learners' reading metacognitive awareness can be seen only in a few studies (Khonamri & Kojidi, 2011).

The most popular field of research that becomes apparent is finding the significant role of metacognitive awareness in reading skill. This implies the particular noteworthiness of this skill for getting access to scientific and informative text-based sources including online news and reports. Different research methods and designs were used in these studies. In the studies, the scholars mostly considered reading, writing and listening respectively as the learning skills associated with metacognitive awareness. No title included speaking, fluency or pronunciation; therefore, this skill and sub-skills were ignored.

Whenever a new approach to learning/teaching comes to existence, it can partially contradict some culturally-rooted belief systems or educational practices in any society. A society may not accept new lecturers' and learners' roles and duties, preferred learning strategies and different classroom etiquettes wholly due to different sociocultural values. The trend of this potential resistance to a new paradigm, in our case reflective and constructive ones, can be found in Iranian studies (Maftoon, Birjandi & Farahian, 2014; Nosratinia, Saveiy & Zaker, 2014; Shafiee, 2014). The direct transfer of the new paradigm can be rejected and requires appropriate conditions to be adapted to the model.

3.3. Roles of metacognitive awareness

By considering the three most to least frequent and three roles of metacognitive awareness in the below table and their percentages, we reach the related frequencies and percentages, presented in Table 2. The most frequent role is metacognitive awareness measured quantitatively (62.5%,) then metacognitive awareness measured qualitatively (20.8%) and finally metacognitive instruction (16.7%).

Table 2. *Frequencies and percentages of the role of metacognitive awareness in learners' studies*

Role of metacognitive awareness in learners' study		Ir f/%	Sum/Ir f/%
Metacognitive instruction	Metacognitive instruction alone	1 / 4.17%	4 / 16.7%
	Pretest-instruction-post test	3 / 12.53%	
Measured quantitatively	Questionnaire	15 / 62.5%	15 / 62.5%
Measured qualitatively	Observation	1 / 4.16%	5 / 20.8%
	Interview	3 / 12.48%	
	Others	1 / 4.16%	

The breakdown of this role can be seen in Figure 1 as well. The need for metacognitive instruction is very striking in this setting. It seems that quantitative measurement of metacognitive awareness should be accompanied by qualitative measurement not only to triangulate data but also to indicate how learners apply related strategies in an authentic learning situation.
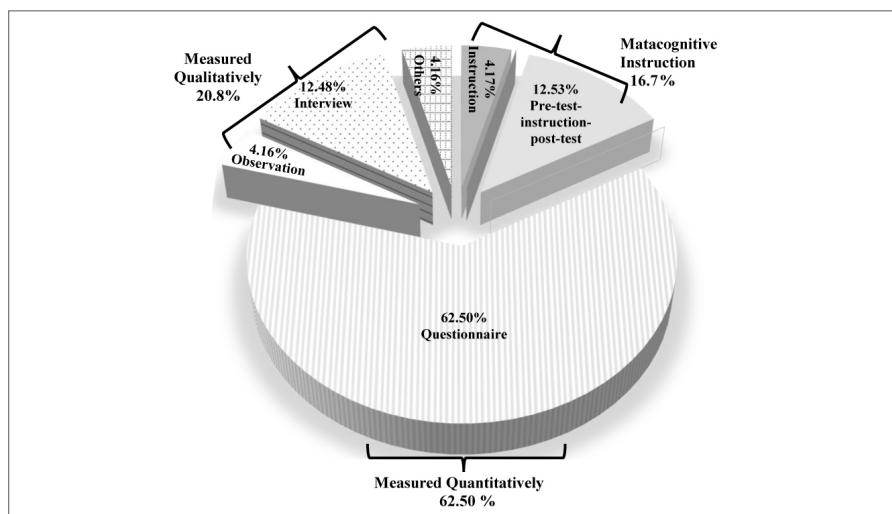

Figure 1. *Role of metacognitive awareness in learners' study, 100%*

Table 3. *Frequencies and percentages of the role of metacognitive awareness in lecturers' studies*

Role of metacognitive awareness in lecturers' study		Ir f/%	Sum/Ir f/%
Instruction	Pre-test-instruction-post test	1 / 9%	1 / 9%
Measured quantitatively	Questionnaire	5 / 45.5%	5 / 45.5%
Measured qualitatively	Observation	-	5 / 45.5%
	Interview	3 / 27.3%	
	Others	2 / 18.2%	

As it is clear, the number of lecturers' studies is much less than the learners', which reveals the need for more profound studies to be done in this area. Lecturers' metacognitive instruction is only in one case. The percentages of the role of metacognitive awareness in lecturers' studies can be depicted better in Figure 2.
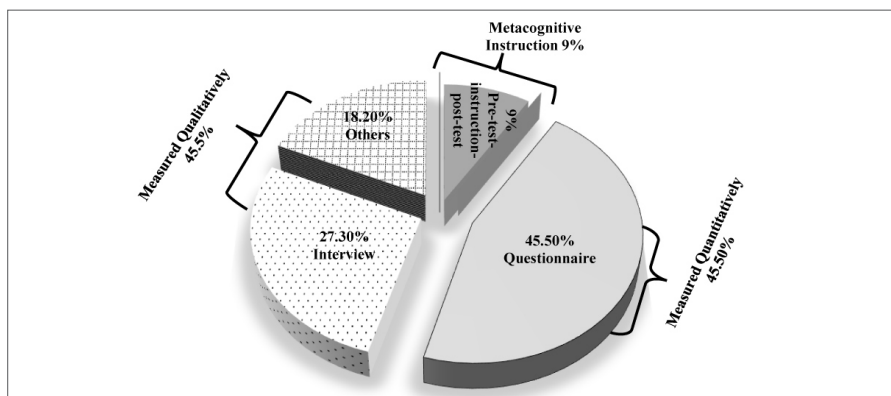

Figure 2. *Role of metacognitive awareness in lecturers' study, 100%*

3.4. Metacognitive awareness instructional practices

There are four studies in the Iranian context on metacognitive practices. The metacognitive practices which were applied in the classroom are presented in Table 4.

Table 4. *Frequencies and percentages of metacognitive awareness instructional practices in learners' studies*

Metacognitive awareness instructional practices		Ir f/%	Sum/Ir f/%
Reflective writing	Learning contracts	-	3 / 13%
	Learning journals	1 / 4.33%	
	Learning portfolio	1 / 4.33%	
	Learning log	1 / 4.33%	

Metacognitive awareness instructional practices		Ir f/%	Sum/Ir f/%
Modeling	-	1	1 / 4.3%
Interactive-reflective activities	Discussion	1 / 4.35%	2 / 8.7%
	Observation	-	
	Brainstorming	-	
	Reflection	1 / 4.35%	
Prompts	Prompts	10 / 43.4%	17 / 74%
	Questions	3 / 13%	
	Analyzing thinking after reading	1 / 4.4%	
Prompts	Thinking aloud	1 / 4.4%	17 / 74%
	Error detection	1 / 4.4%	
	Verbal report	1 / 4.4%	

The most popular practice in Iranian learners' university studies is associated with the use of prompts which covers 74% of the total practices. The second most frequent practice is employing reflective writing (13%). The third most common practice is Interactive-reflective activities (8.7%). This practice consists of a discussion of the learning processes (i.e. peer to peer, teacher to students, group discussion and so on), presentation and collaborative learning. The least frequent practice is modeling with 4.3 % of total practices. In only one of the studies, the explicit metacognitive instruction regarding metacognitive strategies including explaining, providing examples, talking about its importance is investigated. Furthermore, in one of the studies, prolonged and repeated exposure to the metacognitive questionnaire is considered as metacognitive awareness instruction. In most of the studies with metacognitive instruction, practices for raising metacognitive strategies can be seen. Figure 3 shows the percentages of metacognitive awareness instructional practices in learners' studies.
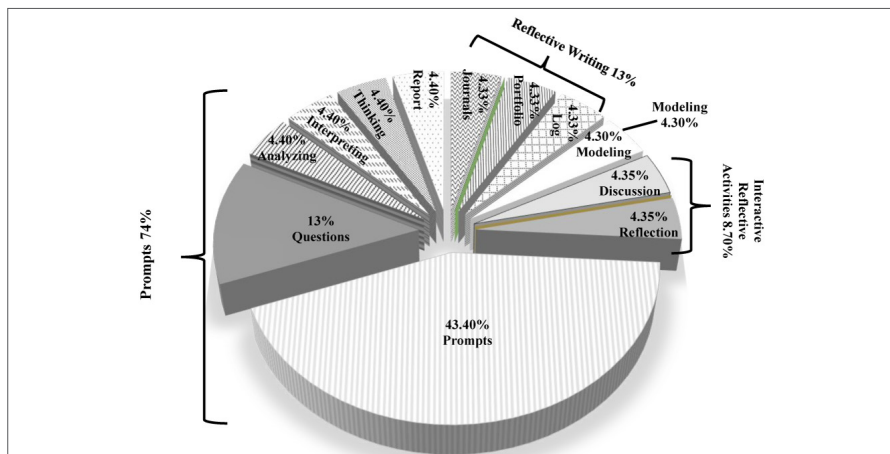

Figure 3. Metacognitive awareness instructional practices, 100%

Metacognitive practices for lecturers can be seen only in one of the studies in which the lecturer's metacognitive training encompasses modeling with explicit explanation, invoking reflection, dialogue interaction and discussion.

By examining the previous papers, it is clear that most of the studies are on the regulation of cognition subcomponents, especially in monitoring and evaluation. This imbalance may be due to different underlying reasons. Metacognitive strategies are known as the most fertile factors in improving the learners' learning process (Veenman, 2012). The second potential reason can be the general applicability of metacognitive strategies compared to metacognitive knowledge (Schraw et al., 1995; Veenman, 2012). It means that teaching metacognitive strategies is the same across different contexts and science topics whereas special instruction should be designed for metacognitive knowledge in different contexts and topics. Not only are metacognitive knowledge and metacognitive strategies – interlocked components of metacognitive awareness – but their activation and development depend on the existence of metacognitive knowledge (Efklides, 2009; Schraw, 1998; Schraw & Moshman, 1995; Veenman, 2012) not to mention that both metacognitive knowledge and strategies can be attributed to the development of cognitive strategies (Flavell, 1976; Schraw & Moshman, 1995).

There are some missing points of metacognitive teaching which may open a new line of inquiries. What is mostly missed is explicit metacognitive instruction. As Veenman (2012) emphasizes any successful metacognitive teaching makes a link between metacognitive knowledge and metacognitive strategies. Secondly, explicit instruction is very informative for learners. Knowing about the merits and usefulness of metacognitive awareness persuades them to engage in related activities. Thirdly, it should be prolonged enough with sufficient and varied activities to provide opportunities for learners to apply them gradually. What is more, lectures should have enough metacognitive knowledge and pedagogical knowledge to be able to give fruitful learners' metacognitive instructions. These two factors are related to their actual practices in the classrooms. Also, no study was conducted on the type of program or workshop for improving lecturers' metacognitive awareness. Lecturers' higher level of metacognitive awareness and being competent in its teaching are significant factors not only in authentic teaching and learning but also in reaching the pre-determined academic objectives.

Conclusion

Metacognitive awareness is considered to be one of the fundamental and defining concepts in learning in the last decade in Iranian university studies. It is an overarching phenomenon that subsumes multiple relevant concepts. The themes which are associated with metacognitive awareness are skills, language learning strategies, lecturers' attitudes, knowledge and practice, cross-cultural comparison, efficacy, components & model, technology, and problem-solving. Some other subjects are also discussed in these papers such as self-confidence, academic achievement, autonomy, performance, cognitive strategies and cooperative learning, which are the most common sub-themes. Also, metacognitive practices consisting of prompts, reflective writing, interactive-reflective activities and

modeling emerge. Admittedly, three roles for metacognitive awareness, measured quantitatively, measured qualitatively and instructional role can be found in these university studies. Reading, writing and listening respectively are mostly analyzed in the selected papers. As there are only a few studies that have been conducted on speaking, this area can be the focus of future studies. Moreover, resistance can be seen towards shifting to a reflective paradigm. Relatively, some missing points, which could act as research ideas for future studies in both contexts, are the following: 1. In most of the studies metacognitive awareness is considered in English as a foreign language context whereas wide range of fields in social sciences, art and history can be treated as the context of research. 2. Some studies related to metacognitive instruction are interlocked with other sorts of instructions, which impacts on an accurate measurement of metacognitive awareness. 3. In most of the studies, raising learners' metacognitive awareness is taken into account while the need to evaluate and raise lecturers' metacognitive awareness is insufficiently considered. 4. Most of the studies are on the regulation of cognition whereas research on knowledge of cognition is ignored. 5. Metacognitive training and instruction with explicit explanation especially for lecturers are absent. The application of technology in metacognitive learning could also be enhanced. 6. The greater proportion of the papers consider learners' attitudes, knowledge and practices whereas fewer studies are related to lecturers' ones.

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METACOGNITIVE AWARENESS IN IRANIAN UNIVERSITY STUDIES: AN OVERVIEW FOR FUTURE DIRECTION

Marjan Masoodi, PhD student
Assoc. Prof. Dr. Tomas Butvilas

Mykolas Romeris University, Lithuania

Summary

Increasingly Iranian universities are under pressure to equip learners with metacognitive skills for independent and lifelong learning, problem-solving, critical thinking and self-regulated learning as imperative factors in their education system. To conceptualize the vague and slippery nature of metacognitive awareness as an umbrella term, it is highly necessary to overview the previous Iranian university studies not only to get access to the results of past research but also to understand what is required to be done in future research in Iranian university studies. To this end, the aim of the present study is to set the discourse pertaining to metacognitive awareness to disclose the trend, diversity of approaches and the complexity of the concept in Iranian university studies.

A systematic literature review was conducted to include the published papers between October 2011 to August 2019 searched on Scopus and ERIC databases. There were three steps of considering the title, reading the abstract and reading the whole article in selecting the final twenty-two articles for analyzing in the present research. The summary of each paper has been provided and categorized under different themes to specify the most important points and trends in the field of metacognitive awareness to analyze in the next step.

As the results of the analysis run in the previous section, a number of findings emerged. To begin with, most studies are empirical and metacognitive awareness forms the main focus of these studies. Moreover, the sequence of highest to lowest percentage of themes which are related to metacognitive awareness is language skills (25%), lecturers (25%), efficacy (12.4%), language learning strategies (8.3%), cross-cultural comparative (8.3%), components & model (4.2%), technology (4.2%), problem-solving (4.2%), personality traits (4.2%) and authenticity (4.2%). Some other subjects are also discussed in these papers such as self-confidence, academic achievement, autonomy, performance, cognitive strategies and cooperative learning, which are the most popular sub-themes. Furthermore, the most frequent role is metacognitive awareness measured quantitatively (62.5%,) then metacognitive awareness measured qualitatively (20.8%) and finally metacognitive instruction (16.7%). It has been investigated that quantitative measurement of metacognitive awareness should be accompanied by qualitative measurement not only to triangulate data but also to indicate how learners apply related strategies in an authentic learning situation. The last but not the least, the most to the least common practices in Iranian learners' university studies are prompts (74%), reflective writing (13%), interactive-reflective activities (8.7%) and modeling (4.3%).

A few missing points have been explored in these papers, which reveal the requirement for more profound studies in the future: (i) English as a foreign language is the main context

of most of the papers while other study fields were ignored. (ii) Studies are mostly on the reg-ulation of cognition not on the knowledge of cognition. (iii) Metacognitive instruction with explicit explanations is relatively absent. (iv) The great proportion of the papers consider learners' metacognitive awareness while only a few studies are associated with lecturers' ones. (v) The metacognitive instruction is interwoven with other types of instruction which makes the assessment of metacognitive awareness alone as a complicated task.

***Keywords:** metacognitive awareness, metacognitive instructional practices, roles of metacognitive awareness, Iranian university studies.*

Marjan Masoodi, Mykolo Romerio universitetas, Edukologijos ir socialinio darbo institutas, doktorantė. Mokslinių tyrimų kryptys: anglų kalbos dėstymas, anglų kalbos žinių vertinimas, verti-mai, dalykinė anglų kalba (ESP), inovatyvūs studijų metodai, savarankiškas ir visą gyvenimą trunkantis mokymąsis.

Marjan Masoodi, PhD student, Mykolas Romeris University, Institute of Educational Sciences and Social work. Research areas: teaching and testing foreign language skills, translation, ESP in university studies, innovative study methods and autonomous and lifelong learning.

Tomas Butvilas, socialinių mokslų (edukologija) daktaras, Mykolo Romerio universiteto Edukologijos ir socialinio darbo instituto docentas. Mokslinių tyrimų kryptys: asmens socializacija, netekties fenom-enas, socialinių tyrimų metodologija, mokymasis visą gyvenimą ir tyrimo duomenų apdorojimas.

Tomas Butvilas, Doctor of Social Sciences (Education), Mykolas Romeris University, Institute of Educational Sciences and Social Work, Associated Professor. Research areas: person's socialization, loss phenomenon, social science methodology, life-long learning, research data processing.