

THE PREDICTIVE ROLE OF TEACHING EXPERIENCE IN TEACHERS' IMPLEMENTATION OF METACOGNITIVE KNOWLEDGE

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ABSTRACT

Aim. While there is so much emphasis on teachers' metacognition, little is known about the role of teaching experience in teachers' metacognition and their instructional practices. Therefore, the current study aimed to provide new insight into the extent to which experience in teaching might predict teachers' metacognition or their awareness of each metacognitive component and sub-factor. Furthermore, the use of teachers' metacognition in their instructional practices was explored.

Method. A quantitative research method was used to investigate teachers' metacognition and their teaching experience. For this purpose, 130 teachers participated and completed the Metacognitive Awareness Inventory for Teachers (MAIT) questionnaire. Independent T-test and Enter regression were used to analyse the data.

Results. The analysis of the collected data revealed that years of teaching experience could be a predictor of teachers' metacognitive knowledge but not their metacognitive regulation.

Conclusion. Teachers can enhance their metacognition from the first years of teaching, and through training and practice, they can strengthen their abilities.

Keywords: metacognition, awareness, knowledge, metacognitive teaching, teaching experience, novice, experienced

INTRODUCTION

Effective classroom teaching goes beyond just knowing procedures, methods, and techniques. In actual classroom settings, teachers often encounter unpredictable situations that require quick, on-the-spot decisions rather than sticking to pre-established procedures (Duffy et al., 2009). Hence, a crucial aspect of advanced teaching is familiarity with methods and procedures, while another equally important aspect involves engaging in complex mental processes, a concept known as metacognition.

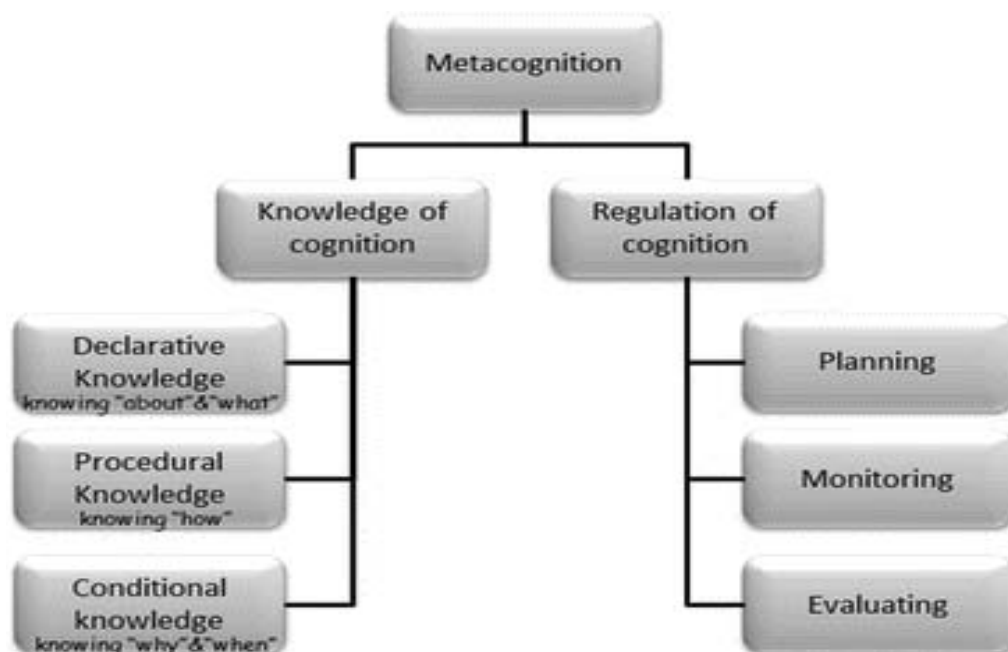
Teachers' metacognition is more complex than that of learners' (Zohar, 2006). Teachers must possess various strategies and skills (declarative knowledge), understand how to apply them (procedural knowledge), and determine when to use them (conditional knowledge). Additionally, teaching requires active processes of thinking and adapting. Teachers must be capable of monitoring and evaluating their teaching to assess whether they are on the right track or need to make adjustments.

To investigate teachers' metacognition, we must first conceptualise its components. This can be achieved by breaking it down into its components and sub-factors, following the model used by Cem Balcikanli (2011). The model divides metacognition into two components: metacognitive knowledge and metacognitive regulation. Metacognitive knowledge includes declarative knowledge (knowing what), procedural knowledge (knowing how), and conditional knowledge (knowing why and when). The sub-fac-

tors of metacognitive regulations are planning (the appropriate selection of strategies and resources), monitoring (the person's online awareness of his or her performance and comprehension), and evaluating (assessing one's regulatory process and product). Figure 1 illustrates the components and subfactors of metacognition.

Figure 1

Metacognition, Its Components, and Sub-factors



Source. Adapted from Schraw & Dennison (1994).

Metacognition undeniably plays a critical role in successful language teaching and learning. It is widely believed that proficient language learners possess a high level of awareness of the target language (Haukås, 2018). This concept applies equally to teachers. In fact, teachers' metacognitive awareness appears to be more complex than that of students (Zohar, 2006), as teachers must be conscious not only of their own teaching processes and beliefs but also of the varying needs, preferences, and contextual factors affecting their learners (Alam, Madej et al, 2024; Azizi et al., 2020; Haukås, 2018).

Researchers consistently emphasise the importance of metacognition in effective learning and teaching (Azizi et al., 2022; Hacker et al., 2009; Gonipath, 2014; Hammann & Stevens, 1998; Hattie, 2012; Schraw & Dennison, 1994; Smith, 2013; Veenman et al., 2006). Studies also indicate that metacognition can be taught (Dignath et al., 2008; Fisher, 1998; Gertrude, 1999; Ozturk, 2018; Schraw, 1998; Veenman, 2016; Wilson, 2006). It is evident that to foster metacognitive learners, teachers themselves need to be metacognitive and understand how to incorporate their metacognitive strategies into their teaching practices (Ozturk, 2017). However, there is still limited knowl-

edge about teachers' metacognition and how they implement cognitive instruction in the classroom (Alam, Hameed et al, 2024; Duffy et al., 2009; Ficzero et al., 2021; Hiver & Whitehead, 2018).

Research indicates that teachers' individual productivity significantly increases during the first three years of their teaching career, reaching its peak within the first five years (Alam, & Hameed, 2023; Ladd, 2008; Harris & Sass, 2007; Pavlíková & Ambrozy, 2019). Teachers with twenty years of experience are not significantly more effective than those with five years of experience (Ladd, 2008). Therefore, research suggests that teachers' effectiveness and productivity rise sharply in the first five years but do not change as rapidly afterwards. This study aims to compare the metacognitive awareness of teachers with less than five years of experience to those with more than five years of experience.

Research Questions

This study attempts to answer the following questions:

RQ1: Is there a significant difference between teachers who have less than five years of experience and those who have more than five years of experience in their metacognition?

RQ2. Are there any component and subfactor of metacognition that can be predicted by teachers' years of teaching experience?

Design

This study used a quantitative approach to investigate teachers' metacognitive knowledge. Metacognitive Awareness Inventory for Teachers (MAIT, Balcikanli, 2011), was used to estimate teachers' metacognition. First, teachers' metacognition was studied and then the role of demographic variable of years of teaching on teachers' metacognition was investigated. All the reports and findings are based on the results of the MAIT which are analysed by SPSS (24).

Participants

Participants of this study were 130 EFL teachers teaching in different institutes in the North of Iran of whom 95 (74.8%) were female and 35 (25.2%) were male. Their teaching experience ranged from 1 to 29 years. They were in the age range of 22 to 56.

INSTRUMENT

Questionnaire

The Metacognitive Awareness Inventory for Teachers (MAIT) developed by Cem Balçıkanlı (2011) was utilised to address the research questions. This inventory consists of 24 items designed to assess teachers' metacognition. It evaluates two main components of metacognition: metacognitive knowledge and metacognitive regulation, along with six sub-factors, which are declarative, procedural, and conditional knowledge, as well as planning, monitoring, and evaluating awareness. The questionnaire employs a Likert-type scale with the following options: 1) strongly disagree, 2) disagree, 3) neutral, 4) agree, and 5) strongly agree. Specifically, questions 3, 9, 15, and 21 assess teachers' conditional knowledge; questions 1, 7, 13, and 19 assess their declarative knowledge; questions 2, 8, 14, and 20 assess procedural knowledge; questions 4, 10, 16, and 22 assess planning awareness; questions 5, 11, 17, and 23 assess monitoring awareness; and questions 6, 12, 18, and 24 assess evaluating awareness. The reported reliability index for the original questionnaire was 0.85. Cronbach's Alpha was used to determine the reliability of the instrument in the current research context. Table 1 provides a detailed analysis of the reliability issue. The reliability data for the instrument ranged from 0.78 to 0.84, indicating that the overall reliability was at the acceptable level.

Table 1

The Reliability of the MAIT

Factors	Cronbach's Alpha
Declarative Knowledge	0.84
Procedural Knowledge	0.81
Conditional Knowledge	0.83
Planning	0.81
Monitoring	0.78
Evaluating	0.76

Source. Own research.

RESULTS AND DISCUSSION

All the responses to 24 items of the questionnaire as well as participants' years of teaching experience were collected within Google Sheets. The collected data then was transferred to Excel for coding. The coded data was analysed by SPSS (24).

The first question was: Q1. Is there a significant difference between teachers who have less than five years of experience and those who have more than five years of experience in their metacognition?

To determine if there is a significant difference in metacognitive awareness between teachers with varying years of experience, an independent sample T-test was conducted. The results are shown in the table below:

Table 2

Metacognitive Awareness of Teachers with Less and More Than Five Years of Teaching Experience

Levene's Test for equality of variances	T-test for equality of means Cohen d				
	F	Sig.	T	Df	Sig. (2-tailed)
Equal variances assumed	0.840	0.361	-3.555	124	0.001 -0.64
Equal variances not assumed			-3.508	104.558	0.001
Equal variances assumed	0.219	0.641	-0.696	124	0.488 -0.13
Equal variances not assumed			-0.685	103.245	0.495

Source. Own research.

The results reveal that the first comparison shows a significant difference between the means of the two groups ($p = 0.001$) regardless of whether equal variances are assumed. Hence, The p -value (0.001) is less than 0.05, confirming a significant difference between the means in metacognitive knowledge of those teachers who have less than five years of experience and those who have more than five years of experience. The second comparison shows no significant difference between the means of the two groups ($p = 0.488$ and $p = 0.495$), regardless of whether equal variances are assumed., meaning there is no significant difference in metacognitive regulation between these two groups of teachers. Therefore, there is no significant difference between teachers with less and more than five teaching experience in terms of their metacognitive regulation. Cohen's values indicate the effect size, with -0.64 representing a moderate effect and -0.13 representing a small effect according to Cohen's conventions for interpreting effect size.

Research has shown that the experience which is gained over time enhances workers skills, knowledge, and productivity (Rice, 2010). In other similar research studies done on the topic, teachers were not thoroughly metacognitive in the first years of teaching experience (Israel et al., 2005; Azizi and Králik, 2020). The results of these studies were contradictory to the results of the current study. Even though metacognition is crucial for teachers' professional growth, however, the lack of effective tools to measure teacher metacognition has hindered research in this field. Thus, further studies are needed to provide more evidence to support or refute the idea that teachers' years of teaching experience have no role in their metacognitive ability.

The second research question attempted to explore whether/what sub-factors of teachers' metacognition can be predicted by years of teaching experience. The sec-

ond question was: Q2. Are there any component and subfactor of metacognition that can be predicted by teachers' years of teaching experience?

An Enter regression was carried out to investigate whether years of teaching experience could significantly predict teachers' metacognition. The results are reported in the following table:

Table 3

The Predictive Role of Teaching Experience in Metacognitive Knowledge

Model	β	SE	B (std)	T	Sig.	Df	R ²	F	Sig. F
Sub-factors of Metacognitive Knowledge	0.053	0.036	0.128	1.479	0.142	129	0.08	5.35	0.006
Years of teaching experience	0.019	0.006	0.25	2.903	0.004	129			

Source. Own research.

The results of the regression analysis (Table 3) indicated that years of teaching experience contributed significantly to the subfactor of declarative knowledge of metacognitive knowledge (Sig. F: 0.006). This indicates that the overall regression model is statistically significant at the 0.05 level, meaning there is a significant relationship between the independent variables (Years of Teaching Experience) and the dependent variable (sub-factors of metacognitive knowledge) accounting for % 8 of the explained variances in metacognitive knowledge by the independent variables (sub-factors and years of teaching experience). Although this is a relatively small proportion, it indicates a significant relationship given the model's statistical significance. This p-value is less than 0.05, indicating that Years of Teaching Experience is a statistically significant predictor of the metacognitive knowledge at the 0.05 level. The T-statistic (T: 2.903) for Years of Teaching Experience indicates the strength of the relationship between Years of Teaching Experience and the dependent variable.

Another Enter regression was carried out to investigate whether years of teaching experience could significantly predict teachers' regulation of metacognition. The following result is reported:

Table 4

The Role of years of Teaching Experience on Teachers' Metacognitive Regulation

Model	B	SE	B (std)	T	Sig.	Df	R ²	F	Sig.F
Sub-factors of Regulation	0.073	0.043	0.150	1.681	0.095	123	0.026	1.631	0.200
Years of teaching experience	0.005	0.008	0.057	0.642	0.522	123			

Source. Own research.

The results of the regression, as represented in Table 4, indicate that only 2.6% of the variance in regulation can be explained by the independent variables (sub-factors and years of teaching experience). This is a very small proportion, highlighting the weak explanatory power of the model and that the model was not a significant predictor of metacognitive regulation ($Sig.F=0.200>0.05$). Therefore, years of teaching experience do not predict/affect teachers' planning awareness.

Research has discovered that years of teaching experience influence four out of six sub-factors of metacognition: declarative knowledge, planning, monitoring, and evaluating (Nahrkhalaji, 2014). Similarly, in another research, years of teaching experience positively impacted five sub-factors of metacognition in math teachers: declarative, procedural, conditional knowledge, planning, and monitoring (Lewis, 2016). However, the current study identified an effect of teaching experience only on declarative knowledge. Consequently, the findings of this study do not align with the results of previous research. Researchers propose that students in classrooms led by teachers with greater metacognitive awareness tend to achieve higher academic success compared to their peers in other classrooms (Smith, 2013). Metacognitive teachers can employ strategies to enhance learners' metacognitive awareness (Hartman, 2001; Ozcan, 2007). Additionally, teachers frequently encounter unpredictable situations in class (Hartman, 2001). Metacognition aids teachers in planning, monitoring, and evaluating both their own teaching and their students' learning.

Understanding teachers' awareness of their own teaching practices should serve as the foundation for initiating changes in their professional development. Other studies underscore that many teachers lack sufficient metacognitive knowledge to improve students' metacognitive abilities (Ozturk, 2018; Veenman, 2016). Paul R. Pintrich (2002) stresses the importance of explicit instruction in metacognition. Similarly, Wen Ya-Hui (2012) advises that a metacognitive programme be provided to teachers who lack these skills. Language teacher education is essential in training reflective teachers (Haukås, 2018). Teachers need to be well-versed in both teaching and learning processes and how to effectively implement and transfer this knowledge (metacognitive awareness). Metacognitive teachers can foster a conducive learning environment and enhance teaching competencies, including instructional planning, presentation and communication skills, student motivation, evaluation abilities, and classroom management skills (Gonipath, 2014). The study concludes that teaching experience does not significantly impact teachers' use of metacognition, suggesting that metacognitive skills can be developed through training and practice.

CONCLUSION

The results of this study provide several key insights into the relationship between teaching experience and metacognitive knowledge and regulation among teachers.

The findings indicate a significant difference in metacognitive knowledge between teachers with less than five years of experience and those with more than five years ($p = 0.001$). The calculated Cohen's d value of -0.64 suggests a moderate effect size, confirming that more experienced teachers tend to have higher metacognitive knowledge. This aligns with the idea that experience enhances skills and knowledge over time (Rice, 2010).

In contrast, no significant difference was found in metacognitive regulation between teachers with more and less experience in teaching ($p = 0.488$ and $p = 0.495$). The small effect size (Cohen's $d = -0.13$) further supports this finding, indicating that teaching experience does not significantly influence teachers' ability to regulate their metacognitive processes.

Regression analysis revealed that years of teaching experience significantly predict the subfactor of declarative knowledge within metacognitive knowledge ($Sig.F = 0.006$). However, no significant prediction was found for metacognitive regulation ($Sig.F = 0.200$), suggesting that while experience enhances certain aspects of metacognitive knowledge, it does not necessarily improve metacognitive regulation.

These findings partially contradict previous research, which indicated that teaching experience influences multiple sub-factors of metacognition (Nahrkhalaji, 2014; Lewis, 2016). The current study found a significant impact only on declarative knowledge, highlighting the need for further research to explore these discrepancies.

Overall, the study underscores the importance of metacognition in teaching and suggests that explicit instruction and training in metacognitive skills are crucial for professional development. While experience contributes to certain aspects of metacognitive knowledge, metacognitive skills can and should be developed through targeted training and practice. This approach can help teachers create a more effective learning environment and enhance their instructional competencies, ultimately leading to higher student success.

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