



International Conference on Teaching and Learning English as an Additional Language,
GlobELT 2016, 14-17 April 2016, Antalya, Turkey

The Importance of Personality Traits in Students' Perceptions of Metacognitive Awareness

Hüseyin Öz^{a,*}

^a Hacettepe University, Faculty of Education, Ankara 06800, Turkey

Abstract

This study sought to investigate the role of personality traits on metacognitive awareness among preservice English teachers in a Turkish context. A total of 102 students participated in the study. The International Personality Item Pool (IPIP; Goldberg, 2001) and the Metacognitive Awareness Inventory (MAI; Schraw & Dennison, 1994) were used to measure the participants' perceptions of their personality traits and metacognitive awareness. Findings revealed a statistically significant relationship between personality traits and metacognitive awareness. The analysis of moment structures (AMOS) indicated that personality traits have a strong predictive power in determining metacognitive awareness among the participants, accounting for 29% of the variance in the knowledge of cognition (KOC) component and 28% of the variance in the regulation of cognition (ROC) component. The scrutiny of multiple squared correlations further revealed that openness to experience and extraversion emerged as the strongest predictors of academic motivation, respectively. These findings are interpreted to provide a better understanding of the importance of personality traits, especially the Big-Five personality traits, in students' impressions of their metacognitive awareness in learning a second or a foreign language (L2).

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of GlobELT 2016

Keywords: Personality traits; metacognition; metacognitive awareness; ELT; teacher education

1. Introduction

Over the last few decades, a growing body of research has highlighted the role of personality traits in influencing and shaping learners' behavior in second or foreign language (L2) learning (Dewaele, 2013; Dewaele & Al-Saraj,

* Corresponding author. Tel.: +90312-297-8575; fax: +. 90-312-297-6119
E-mail address: hoz@hacettepe.edu.tr

2015; Dörnyei, 2005; MacIntyre & Charos, 1996; MacIntyre, Clément, Dörnyei, & Noels, 1998; Öz, 2014a; Pourfeiz, 2015) as well as other disciplines (Chamorro-Premuzic & Furnham, 2003; Costa & McCrae, 1992; Furnham, Chamorro-Premuzic, & McDougall, 2003; Komarraju & Karau, 2005; Komarraju, Karau, & Schmeck, 2009; McCrae & Costa, 2003). Prior research has shown that L2 learning behavior is largely influenced by individual differences such as attitudes, motivation, personality traits (MacIntyre & Charos, 1996; MacIntyre, Clément, Dörnyei, & Noels, 1998; Öz, 2014a). Chamorro-Premuzic and Furnham (2003) argue that well-established personality traits can play an active role in predicting academic success and failure in university programs. Furthermore, it is argued that personality traits are closely related to different aspects of academic success such as final exams and continuous assessment (Furnham, Chamorro-Premuzic, & McDougall, 2003).

Substantial research in the field of second language acquisition (SLA) and other disciplines have also established the importance of metacognition in educational settings (Anderson, 2012; Flavell, 1976, 1979; Schraw, 1998; Wenden, 1998, 1999; Zhang & Goh, 2006). Schraw (1998, p. 123) asserts that “Metacognition is essential to successful learning because it enables individuals to better manage their cognitive skills, and to determine weaknesses that can be corrected by constructing new cognitive skills”. It seems compelling, therefore, to help pre-service teachers to develop their metacognitive awareness since it “allows individuals to plan, sequence, and monitor their learning in a way that directly improves performance” (Schraw & Dennison, 1994, p. 460). However, there is little empirical research concerning the relationship between personality traits and metacognitive awareness, specifically in English teaching teacher education programs. The present study, therefore, explored the role of Big Five personality traits in developing metacognitive awareness of pre-service English teachers. It is assumed that establishing links between personality traits as individual difference variables and metacognitive awareness of the pre-service English teachers would help educators to incorporate metacognition training programs into the curricula so as to create atmosphere for the interplay of personality traits and metacognitive abilities towards more efficient learning.

2. Literature review

2.1. *The Big Five personality traits*

In recent years, there has been an increasing amount of research in a variety of disciplines to explore the role of personality viewed as “the most individual characteristic of a human being” (Dörnyei, 2005, p. 10) and personality traits as stable and constant properties of an individual’s consistent behavior in a variety of contexts (Dewaele, 2013; Dörnyei, 2005; Kayaoğlu, 2013; Komarraju & Karau, 2005; Komarraju, Karau, & Schmeck, 2009; Nofle & Robins, 2007; Pervin, Cervone, & John, 2005; Pervin & John, 2001). This implies that although every person is different, as personality theory postulates, “individuals are characterized by a unique and basically unchanging pattern of traits, dispositions or temperaments” (Sharp, 2012, p. 18).

Prior research has acknowledged that the Big five personality traits, i.e. extraversion, openness to experience, neuroticism, conscientiousness, and agreeableness, are clearly connected with a wide range of human behavior including academic motivation and achievement (Komarraju, Karau, & Schmeck, 2009), academic achievement and job performance (McCrae & Costa, 2003) academic achievement (Chamorro-Premuzic & Furnham, 2003; Komarraju & Karau, 2005; Komarraju et al., 2009; Martin, Montgomery & Saphian, 2006), willingness to communicate and oral performance (MacIntyre & Charos, 1996; MacIntyre et al., 1998; Öz, 2014a; Pavičić Takač & Požega, 2011), foreign language learning anxiety (Dewaele, 2013; Dewaele & Al-Saraj, 2015; Payne, Youngcourt, & Beaubien, 2007), learning styles and academic achievement (Komarraju, Karau, Schmeck, & Avdic, 2011) and attitudes toward foreign language learning (Pourfeiz, 2015). Farsides and Woodfield (2003), for instance, found a positive correlation between agreeableness and enhanced grade point averages. Chamorro-Premuzic and Furnham (2003) reported a consistent positive relationship between conscientiousness and examination performance and a negative correlation with academic performance. Komarraju et al. (2011) investigated the relationship between Big five personality traits, learning styles, and academic achievement of 308 college students. They found that conscientiousness and agreeableness positively related with all four learning styles, i.e. synthesis analysis, methodical study, fact retention, and elaborative processing, while neuroticism negatively correlated with all four

learning styles. Extraversion and openness to experience positively correlated with elaborative processing. The Big Five personality traits explained 14% of the variance in academic achievement.

Studies within the realm of SLA research (Dörnyei, 2005; Farsides & Woodfield, 2003; MacIntyre & Charos, 1996; Kang, 2012; Dewaele, 2007, 2013; Dewaele & Al-Saraj, 2015; Öz, 2014a; Pavičić Takač & Požega, 2011; Zhang, Su, & Liu, 2013) have revealed the importance of personality traits, more specifically extraversion and introversion, in L2 learning process. However, contradictory results have been reported with regard to the role of personality traits in leaning an L2. In a recent comprehensive study, Öz (2014a) explored the relationship between Big five personality traits and prospective English teachers' willingness to communicate (WTC) in Turkey. His findings showed that extraversion, agreeableness and openness emerged as strong predictors of L2 WTC, explaining for 32.1% of the variance in participants' tendency to engage in communication communicate.

Kang (2012) examined the relationship between personality traits and language learning strategies of 250 Korean university students. The findings revealed that Korean university students' personality traits significantly correlated with the six strategy groups in the SILL. Results further indicated that openness, conscientiousness, and extraversion had strong positive relationships with most of the language learning strategies, with openness and conscientiousness as the strongest significant predictors. Neuroticism, however, was found to be negatively correlated with metacognitive strategies. Similar results were found in a recent study carried out by Ayhan and Türkyılmaz (2015) who investigated the relationship between the use of metacognitive strategies and personality traits among Bosnian university students. Their findings indicated that extraversion, openness, agreeableness and conscientiousness, but not neuroticism, significantly correlated with metacognitive strategy use.

Likewise, Dewaele (2007) found no relationship between neuroticism and foreign-language attitudes and foreign-language grades of Flemish students although he had reported a tendency toward a positive relationship in the English L3 of Flemish learners (Dewaele, 2002). Dewaele and Al-Saraj (2015) explored the link between psychological, sociobiographical and linguistic variables and foreign language classroom anxiety of 348 Arabic learners of English. Their findings revealed that self-perceived proficiency in oral English and frequency of use of English accounted for over a third of the variance in foreign language classroom anxiety. Emotional stability and social initiative explained a further fifth of the variance in foreign language classroom anxiety. Emotionally stable and more extraverted participants scored lower on foreign language classroom anxiety. They also found that age predicted only a small amount of the variance and that older participants were less anxious.

2.2. *Metacognitive awareness*

Metacognition is basically defined as “the ability to reflect upon, understand, and control one’s learning” (Schraw & Dennison, 1994, p. 460). According to Anderson (2012, p. 170) metacognition “is the ability to make one’s thinking visible. It is the ability to reflect on what one knows and does and what one does not know and does not do”. Simply defined as “thinking about thinking” or “cognition about cognition” metacognition, regardless of domain-specific knowledge and cognitive constraints, can play an essential role in developing stronger learning skills during learning process since “developing metacognitive awareness also leads to the development of stronger cognitive skills as well” (Anderson, 2012, p. 172).

The term metacognition has gone through many conceptualizations processes ever since the concept was introduced to cognitive psychology by Flavell in 1976. Regardless of various views on metacognition and its sub-processes, scholars seemingly have identified and agreed upon two major components for the construct, namely *knowledge of cognition* and *regulation of cognition*. Knowledge of cognition or metacognitive knowledge refers to individuals' knowledge of their own cognition or about cognition in general (Pintrich, 2002; Schraw, 1998, Schraw & Moshman, 1995). Metacognitive knowledge consists of three different components: declarative knowledge or “our acquired knowledge about our cognitive processes” (Anderson, 2012, p.172), procedural knowledge which concerns with our knowledge of strategies and how of the cognition, and conditional knowledge which refers to our knowledge of appropriate condition to employ metacognitive skills and strategies in teaching practices.

Regulation of cognition or metacognitive regulation also comprises a set of sub-processes that help learners to regulate and facilitate their control of learning (Öz, 2015a; Öz, 2014b; Schraw, Crippen, & Hartley, 2006; Schraw, 1998, 1994; Schraw & Dennison, 1994). The underlying skills of regulation of cognition are planning, information

management skills, monitoring, debugging strategies, and evaluation (Schraw, 1998; Schraw & Dennison, 1994). However, three major subcomponents of metacognitive regulation that are widely used in educational psychology are planning, monitoring, and evaluation. Planning refers to the process setting goals and choosing appropriate strategies to achieve goals set. Monitoring refers to one's spontaneous and "on-line" awareness of learning process, task performance, and strategy use while doing activities. Evaluation refers to one's assessment of learning outcomes, goals, and strategies employed during learning process (Öz, 2015a; Schraw, 1998).

Significant body of research has found that metacognitively aware and successful language learners are more likely to use more strategies than those who are unaware (Anderson, 2002, 2005, 2012; Hart & Memnun, 2015; Hashempour, Ghonsooly, & Ghanizadeh, 2015; Iwai, 2016; Memnun & Akkaya, 2009, 2012; Mokhtari & Reichard, 2004; Negretti & Kuteeva, 2011; Öz, 2015a; Schraw, 1998; Schraw & Dennison, 1994; Wenden, 1998, 1999). There has been an explosion of research into metacognitive awareness in various fields including teacher education programs in Turkey as well as other parts of the world. Sezgin-Memnun and Akkaya (2009, 212), for instance, carried out two separate studies to explore metacognitive awareness levels of primary school teachers. They reported high levels of metacognitive awareness for the participants in both studies. In a similar study, Hart & Sezgin-Memnun (2015) examined pre-service primary school teachers' metacognitive awareness and beliefs about mathematics teaching and learning. They found that primary mathematics preservice teachers' metacognitive knowledge and regulation significantly predicted their beliefs about mathematics teaching and learning. Iwai (2016) also found that preservice teachers viewed themselves as high-achieving readers using various metacognitive reading strategies.

Sun (2013) investigated the frequency of meta-cognitive strategy use in English learning process of non-English major college students in China. The findings revealed a significant correlation between frequency of metacognitive strategies use and English proficiency. Öz (2005, 2007, and 2015a) carried out of a series of empirical studies in order to understand the nature of metacognitive awareness among students and pre-service teachers of English in Turkish context. His recent comprehensive study addressed metacognitive awareness of 87 pre-service English teachers. His findings indicated that a great majority of the participants had *very high* levels of metacognitive awareness. Furthermore, knowledge of cognition and regulation of cognition significantly correlated, highlighting widely held view of facilitative impact of cognitive knowledge on cognitive regulation (Öz, 2015a; Schraw, 1998). More importantly, metacognitive awareness was positively related with academic achievement of the participants. However, demographic factors such as gender and the type of practice school had no bearings on the metacognitive awareness of the participants. Given the importance of personality traits in influencing learning behavior and its impact on developing metacognitive awareness in L2 learning field, few studies have been carried out so far in order to determine how and to what extent personality is capable of affecting metacognitive awareness of pre-service English teachers in teacher education programs. The current study explored the importance of personality traits in metacognitive knowledge and regulatory skills of pre-service English teachers. To this end, the following research questions were formulated:

1. What are pre-service English teachers perceived levels of personality traits and metacognitive awareness?
2. How well do personality traits predict the variability in metacognitive awareness among pre-service English teachers?

3. Methodology

3.1. Research design

This study was conducted with a quantitative research design and survey methodology to collect data. Participants provided perceptions of their personality traits, metacognitive awareness, and socio-demographic characteristics. According to Creswell (2012), quantitative research design with survey methodology is useful when a cross-sectional study is conducted at one point in time since it helps researchers to gather information quickly and economically.

3.2. Setting and participants

The participants were 102 preservice English teachers enrolled in a pre-service EFL teacher education program at a major state university in Turkey. The participants ($N = 102$; 77 females, 75.5%; 25 males, 24.5%) voluntarily completed an online survey and gave consent for data collection. They ranged in age from 19 to 25 years ($M = 20.30$, $SD = 0.96$).

3.3. Measures

3.3.1. The international personality item pool (IPIP)

Goldberg's (2001) International Personality Item Pool (IPIP) was utilized to assess the participants' Big Five personality traits. The IPIP consists of 50-item (10 items for each personality type). Participants rated how well the items described them on a 5-point Likert scale ranging from 1 = *very inaccurate* to 5 = *very accurate*. The internal consistency of the five subscales ranged from $\alpha = .90$ to $\alpha = .79$ (Extraversion .90, agreeableness .86, conscientiousness .79, neuroticism .81, and openness to experience .85).

3.3.2. The metacognitive awareness inventory (MAI)

The participants' metacognitive awareness levels were measured using the Metacognitive Awareness Inventory (MAI; Schraw & Dennison, 1994). The MAI is a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The MAI measures metacognitive awareness based on two main components of *knowledge of cognition* (17 items) and *regulation of cognition* (35 items) and the related subcomponents of *declarative, procedural, and conditional knowledge* for metacognitive knowledge and *planning, information management skills, monitoring, debugging strategies, and evaluation* for metacognitive regulation. The internal consistency of the scale, measured by Cronbach's alpha for metacognitive knowledge was $\alpha = .93$ and metacognitive regulation was $\alpha = .96$. The internal consistency for three subcomponents of metacognitive knowledge ranged from $\alpha = .90$ to $\alpha = .85$ (declarative knowledge .90, procedural knowledge .87, and conditional knowledge .85), and the internal consistency for metacognitive regulation subcomponents ranged from $\alpha = .88$ to $\alpha = .83$ (planning .88, information management skills .86, monitoring .85, debugging strategies .87, and evaluation .85).

3.4. Procedures for data collection and analysis

The present study was conducted in a pre-service EFL teacher education program at a major state university in Ankara. The participants enrolled in the teacher education program voluntarily completed an online survey. The statistical analyses were performed using IBM SPSS Statistics 22, a comprehensive computer program used to help researchers perform statistical analysis quickly and accurately.

Descriptive statistics (frequencies and percentages, and means) were used to characterize the participants' perceived levels of personality traits and metacognitive awareness. First of all, following the frequently used cut-off points in the literature (Hart & Sezgin-Memnun, 2015; Öz, 2015a; Sezgin-Memnun & Hart, 2012) the perfect scores of participants' perceptions of knowledge of cognition and regulation of cognition were grouped into four mean ranges of *Very High* (3.75-5), *High* (2.50-3.74), *Low* (1.25-2.49), and *Very Low* (0- 1.24). Further, In order to determine the prediction power of personality traits and overall relationship between personality traits and metacognitive awareness structural equation modelling (SEM) was conducted using IBM AMOS 22 statistical package. Instead of using multiple regression analysis due to its limitations and sensitivity to sample size (Tabachnick & Fidell, 2013), which might yield inaccurate results, structural equation modelling was used because it enables the researchers to explore the interrelated relationships within a single model (Hair et al., 2006; Kline, 2011).

4. Results

The present study investigated the importance of Big Five personality traits in determining pre-service English teachers' metacognitive awareness. This section presents the results of the study in terms of research questions formulated above, descriptive and inferential statistics, followed by a discussion of the findings and implications.

Descriptive statistics were computed to obtain personality types and metacognitive awareness levels of the participants. The findings revealed that 62% of the participants had extraversion, 64% agreeableness, 63% conscientiousness, 64% neuroticism, and 63% had openness to experience as their dominant personality traits. As for metacognitive awareness, the results indicated that 67% of the participants reported a *very high* level of metacognitive awareness for knowledge of cognition, 30% showed a high level of metacognitive awareness for knowledge of cognition, and only 4% had low level of metacognitive awareness for knowledge of cognition. No *very level* of metacognitive awareness was obtained for knowledge of cognition. Similarly, as shown in Table 1, 64% of the participants showed a *very high* level of metacognitive regulation and 36% had a *high* level of metacognitive regulation. Unlike knowledge of cognition, nobody had either *low* or *very low* levels of metacognitive awareness for regulation of cognition.

Table 1. Distribution of metacognitive awareness of pre-service English teachers

Metacognitive awareness	Knowledge of Cognition		Regulation of Cognition	
	F	%	F	%
Very High	68	67	65	64
High	30	29	37	36
Low	4	4	0	0
Very Low	0	0	0	0
Total	102	100	102	100

The results also indicated that 67% of females had very high levels of knowledge of cognition, while 64% of males reported very high levels of metacognitive knowledge. As indicated in Table 2, 36% of males showed a high level of metacognitive knowledge, whereas 29% of females had a high level of metacognitive awareness for knowledge of cognition. While a small proportion of females (4%) reported a low level of metacognitive knowledge, nobody showed low level of metacognitive knowledge in males. Neither of the groups showed very low levels of metacognitive knowledge. With regard to regulation of cognition, 68% of males and 62% of females had a very high level of metacognitive regulation. Besides, 32% of males and 38% of females had high metacognitive awareness for regulation of cognition, while no participant showed neither low nor very low levels of metacognitive awareness.

Table 2. Distribution of metacognitive awareness of pre-service English teachers in terms of gender

Metacognitive awareness	Knowledge of Cognition				Regulation of Cognition			
	Male		Female		Male		Female	
	F	%	F	%	F	%	F	%
Very High	16	64	52	67	17	68	48	62
High	9	36	22	29	8	32	29	38
Low	0	0	3	4	0	0	0	0
Very Low	0	0	0	0	0	0	0	0
Total	25	100	77	100	25	100	77	100

The structural equation modelling (SEM) was employed to determine the predictive power of personality traits in relation to metacognitive awareness. The results revealed a significant relationship between personality traits and the two major components of metacognitive awareness. The scrutiny of squared multiple correlations revealed that the Big Five personality traits explained 29% of the variance in knowledge of cognition and 28% of the variance in regulation of cognition. Openness to experience was the strongest predictor of both knowledge of cognition ($\beta=.32$, $p<.001$) and regulation of cognition ($\beta=.30$, $p<.001$) followed by extraversion ($\beta=.20$, $p<.001$) for knowledge of cognition and ($\beta=.18$, $p<.05$) for regulation of cognition. Neuroticism was found to be negatively correlated with both metacognitive knowledge and regulation ($\beta=-.17$, $p<.05$). Goodness-of-fit indices were found to be $\chi^2/df = 10.76$, GFI=.97, CFI=.96, and RMSEA=.03, showing that the proposed model fits the data adequately. Figure 1 diagrammatically illustrates the interrelations between personality traits and major components of metacognitive awareness.

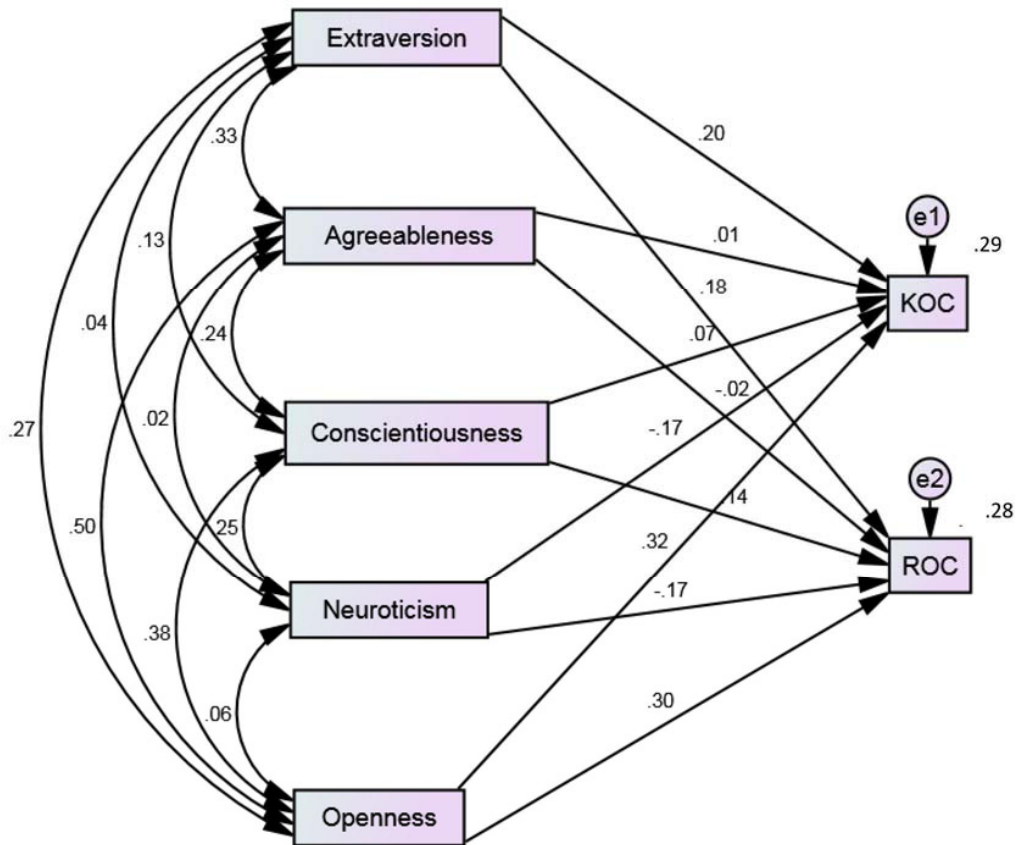


Fig. 1. The relationship between personality traits and metacognitive awareness

Regarding the subcomponents of metacognitive knowledge, personality traits predicted 19% of the variance in declarative knowledge, 18% in procedural knowledge, and 21% in conditional knowledge. Goodness-of-fit indices were $\chi^2/df=9.50$, GFI = .96, CFI = .95, and RMSEA = .04.

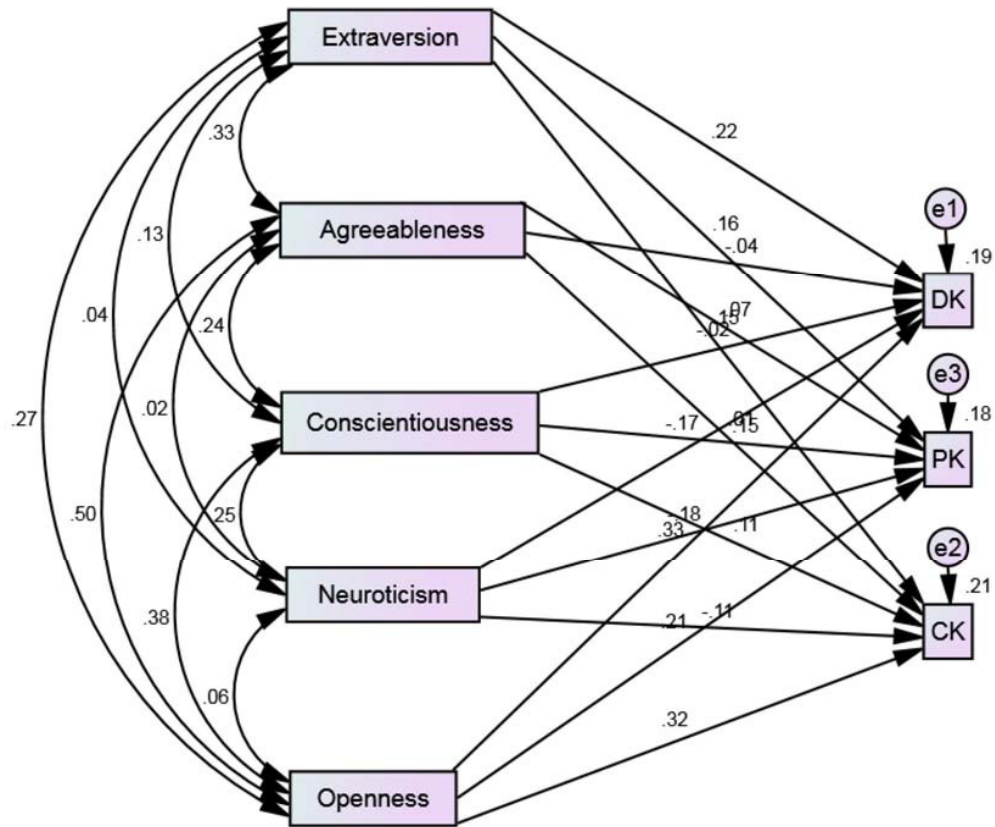


Fig. 2. The relationship between personality traits and subcomponents of metacognitive knowledge
 Note: DK=Declarative Knowledge; PK= Procedural Knowledge; CK= Conditional Knowledge

Likewise, as illustrated in Figure 3, there was a significant relationship between personality traits and three frequently used sub-processes of metacognitive regulation. Personality traits explained 17% of the variance in planning, 20% in monitoring, and 24% of the variance in evaluation.

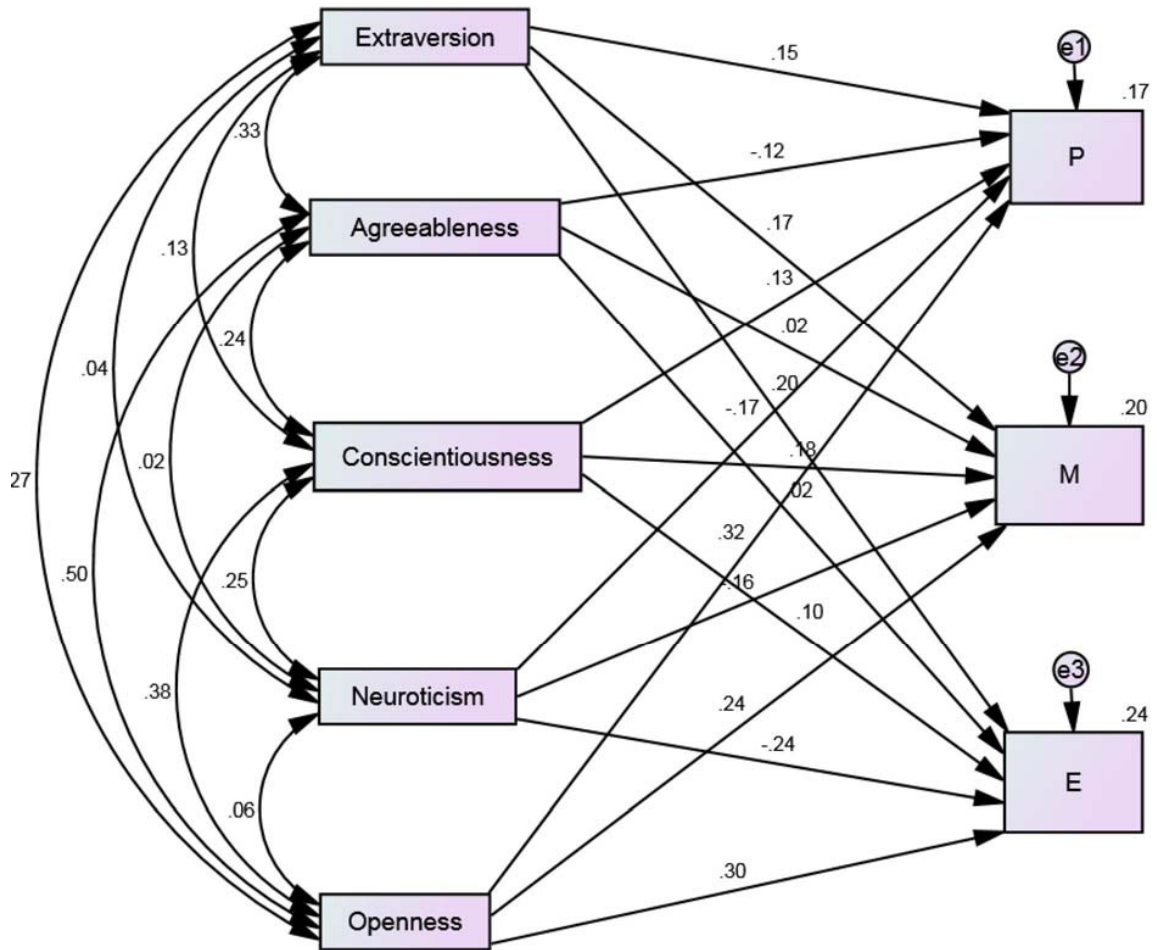


Fig. 3. The relationship between personality traits and amotivation
 Note: P=Planning; M=Monitoring; E= Evaluation

A structural equation modeling was also conducted to discover the impact of personality traits on information management skills and debugging strategies subcomponents of metacognitive regulation. The results, as illustrated in Figure 4, showed that personality traits predicted 16% of the variance in information management skills and 11% in debugging strategies. The Goodness-of-fit indices were $\chi^2/df=7.65$, GFI=.97, CFI=.96, and RMSEA=.04.

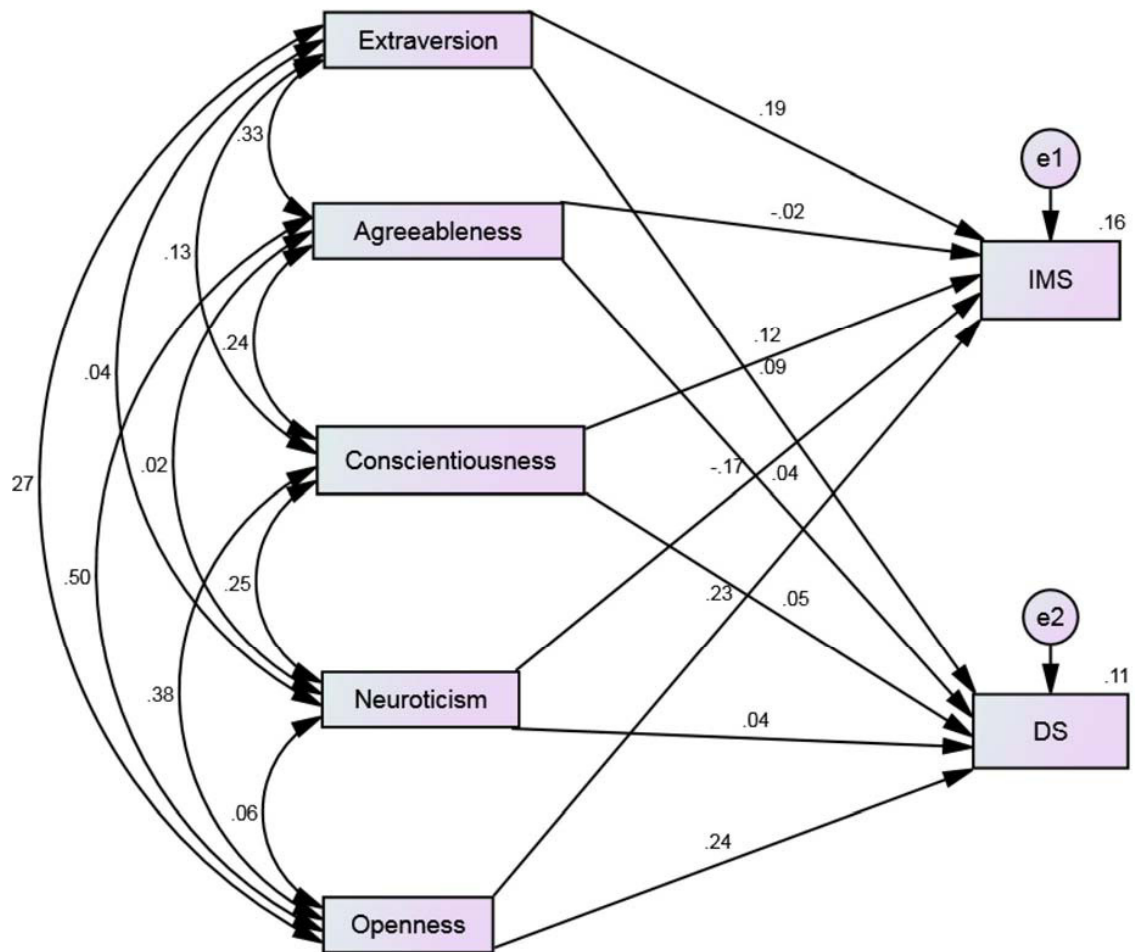


Fig. 4. The relationship between personality traits and overall academic motivation
 Note: IMS= Information Management Skills; DS= Debugging Strategies

5. Discussion

The findings of the present study revealed significant relationships between personality traits as individual variables (Dörnyei, 2005; Dörnyei & Ryan, 2015) and the two major components of metacognitive awareness and the related subcomponents, lending support to a wide range of studies carried out to explore the impact of personality traits on various aspects of learning in general and learning an L2 in particular.

The findings indicated that nearly seven out of ten participants reported very high levels of metacognitive awareness for both metacognitive knowledge (67%) and metacognitive regulation (64%). These findings suggest that high levels of metacognitive awareness are necessary for practical and professional development of pre-service teachers (Hart & Sezgin-Memnun, 2015; Pintrich, 2002; Zentoz, 2012). Similar studies in L2 learning research (Babakhani, 2014; Öz, 2007, 2015a; Sun, 2013; Zhang et al., 2013) as well as other disciplines (Alkan & Erdem, 2014; Clark and Moulding, 2012; Sezgin-Memnun, 2013; Sezgin-Memnun & Akkaya, 2012; Yeşilyurt, 2013) have highlighted the importance of metacognitive development among pre-service teachers. The findings showed no statistically significant differences in participants' metacognitive awareness levels in terms of gender in both metacognitive knowledge and metacognitive regulation. Similar results were found by other researchers (Öz, 2015a;

Sezgin-Memnun, 2013; Tüysüz et al., 2008). It seems plausible, thus, to claim that demographic variables are not necessarily related with metacognitive awareness and that it is teachers' metacognitive awareness and comprehension of the strategies and skills required for teaching and learning that strongly affects their practice and learning outcomes (Zohar, 2006).

The most significant finding of the study was the significant role of personality traits in predicting metacognitive awareness of the participants. Openness to experience and extraversion particularly emerged as central to metacognitive awareness. This runs counter to previous studies (Busato et al., 2000) claiming that openness does not always have bearings on academic behavior. The findings of the present study, however, indicated that the creativity and imaginative nature inherent in open individuals serve as a vantage point in academic settings, when particularly creative problem solving is required. This is, indeed, the intersection of personality traits and metacognitive awareness. That is, much warmer, more social, imaginative, open, and creative learners are more likely to be metacognitively aware of their regulatory skills and strategy use while engaging in an activity. The findings also revealed that neuroticism negatively affected metacognitive awareness, supporting previous research (Komarraju et al., 2009, 2011; Öz, 2014b; Pourfeiz, 2015) that suggest that lack of emotional stability has negative impact on the learning behaviour. Put differently, lack of emotional stability may negatively affect pre-service teachers' metacognitive awareness and professional development. These findings are in line with those of Kang (2015) who explored the relationship between personality traits and strategy use among 250 Korean EFL learners. The findings indicated a significant positive correlation between openness, conscientiousness, and extraversion and language learning strategies, whereas neuroticism negatively correlated with metacognitive strategies.

Another important finding of the study was the fact that personality traits were also closely related to all dimensions of metacognitive knowledge and regulation. The Big Five personality traits significantly predicted metacognitive knowledge with its all sub-processes, more specifically conditional knowledge. This suggests that the time and the reason one uses strategies or skills are affected by one's personality traits. Therefore, as conditional knowledge is a very important factor in developing metacognitive awareness and "enables students to adjust to the changing situational demands of each learning task" (Schraw, 1998, p. 114), adopting approaches that help learners to develop and adjust their knowledge and skills apropos to their personality traits would result in higher levels of metacognitive awareness and enhanced strategy use in professional teaching. Likewise, personality traits emerged as significant predictors of regulation of knowledge, with greater impact on evaluation process of cognition. This means that the way one evaluates his/her efficiency of learning is greatly influenced by one's dominant personality traits. Therefore, discovering pre-service teachers' personality traits may yield more insights into the nature of their metacognitive awareness.

6. Conclusion

The present study indicated that a great majority of the participants had higher levels of metacognitive awareness and nearly equal perceptions of personality traits. Additionally, personality traits were significantly related to metacognitive awareness and its sub-processes, predicting a significant proportion of the variance in the participants' metacognitive awareness. The implications are that personality traits are important factors in professional development of pre-service teachers. Therefore, teacher education programs should cater for the metacognitive awareness of the pre-service with differing personalities in order to live up their objectives of training quality and professionally competent teachers. Looking upon the issue from L2 teaching and learning perspective, it can be understood that awareness of pre-service teachers' personality traits and their awareness of how they learn can empower them to make decisions on how to improve their teaching through reflecting on their teaching practices during teacher training programs.

This present study extended our knowledge of the role that personality traits can play in enhancing metacognitive awareness and, consequently, on the professional development of teachers. The study also provides further support for the inclusion of metacognitive awareness courses in teacher training programs. Apart from regular programs, teacher education programs should incorporate various courses, e.g. pedagogical content knowledge courses (Öz, 2015a and 2015b), that empowers pre-service teachers as to how to adopt effective metacognitive skills and strategies in their teaching practices. Indeed, training metacognitively aware teachers is a gateway toward having metacognitively aware learners. However, as there are relatively few empirical findings, especially in L2 learning

field, the results should be interpreted and generalized with caution. Further empirical studies are needed to enquire how personality traits affect metacognitive awareness in relation to metacognitive strategy use in wide range of L2 learning skills.

References

- Alkan, F., & Erdem, E. (2014). The relationship between metacognitive awareness, teacher self-efficacy and chemistry competency perceptions. *Procedia-Social and Behavioral Sciences*, 143, 778-783.
- Anderson, N. J. (2002). The role of metacognition in second/foreign language teaching and learning. ERIC Digest. Retrieved 19 January 2016 from <http://www.cal.org/resources/digest/0110anderson.html>
- Anderson, N. J. (2012). Metacognition: Awareness of language learning. In S. Mercer, S. Ryan & M. Williams (Eds.), *Psychology for language learning: Insights from research, theory and practice* (pp. 169-187). London: Palgrave Macmillan UK.
- Ayhan, Ü., & Türkyılmaz, U. (2015). The use of meta-cognitive strategies and personality traits among bosnian university students. *Mevlana International Journal of Education (MIJE)*, 5(2), 40-60. <http://dx.doi.org/10.13054/mije.15.25.5.2>
- Babakhani, N. (2014). The relationship between the big-five model of personality, self-regulated learning strategies and academic performance of Islamic Azad University students. *Procedia-Social and Behavioral Sciences*, 19, 3542-3547. <http://doi.org/10.1016/j.sbspro.2014.01.799>
- Batang, B. L. (2015). Metacognitive strategy awareness and reading comprehension of prospective pre-service secondary teachers. *Asia Pacific Journal of Multidisciplinary Research*, 3(4), 62-67.
- Chamorro-Premuzic, T., & Furnham, A. (2003). Personality traits and academic examination performance. *European Journal of Personality*, 17, 237-250.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO PI-R: Professional manual: Revised NEO PI-R and NEO-FFI*. Odesa, FL: Psychological Assessment Resources.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson Education.
- Clark, S. K., & Moulding, L. (2012). Measuring pre-service teacher self efficacy beliefs across programs: How do teacher preparation programs compare? *Journal of International Society of Teacher Education*, 16 (1), 20-27.
- Deci, E. L., & Ryan, R.M (2008). Self-determination theory: A macrotheory of human motivation, development and health. *Canadian Psychology*, 49, 182-185.
- Dewaele, J.-M. (2013). The link between foreign language classroom anxiety and psychoticism, extraversion, and neuroticism among adult Bi- and multilinguals. *The Modern Language Journal*, 97, 670-684. <http://doi.org/t9x>
- Dewaele, J. M., & Al-Saraj, T. M. (2015). Foreign Language Classroom Anxiety of Arab learners of English: The effect of personality, linguistic and sociobiographical variables.
- Ehrman, M. (2008). Personality and the good language learner. In C. Griffiths (Ed.), *Lessons from the good language learner* (pp. 61-72). Cambridge, UK: Cambridge University Press.
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
- Farsides, T., & Woodfield, R. (2003). Individual differences and undergraduate academic success: The roles of personality, intelligence, and application. *Personality and Individual Differences*, 33, 1225-1243.
- Flavell, J.H. (1976). Metacognitive aspects of problem solving. In L.B. Resnick (Ed.), *The nature of intelligence* (pp.231-235). Hillsdale, NJ: Erlbaum.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American psychologist*, 34(10), 906. <http://dx.doi.org/10.1037/0003-066X.34.10.906>
- Furnham, A., Chamorro-Premuzic, T., & McDougall, F. (2003). Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences*, 14, 49-66.
- Goldberg, L. R. (2001). *International Personality Item Pool*. Retrieved from <http://bit.ly/1AfXuFc>
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., & Tatham, R.L. (2006). *Multivariate data analysis* (6th ed). Upper Saddle River, NJ: Prentice Hall.
- Hashempour, M., Ghonsooly, B., & Ghanizadeh, A. (2015). A Study of translation students' self-regulation and metacognitive awareness in association with their gender and educational level. *International Journal of Comparative Literature and Translation Studies*, 3(3), 60-69.
- Iwai, Y. (2016). "Promoting strategic readers: Insights of preservice teachers' understanding of metacognitive reading strategies". *International Journal for the Scholarship of Teaching and Learning*, 10 (1), 1-7. <http://dx.doi.org/10.20429/ijstl.2016.100104>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). NY: The Guilford Press.
- Hart, L. C., & Memnun, D. S. (2015). The relationship between preservice elementary mathematics teachers' beliefs and metacognitive awareness. *Journal of Education and Training Studies*, 3(5), 70-77.
- Kang, S. Y. (2012). *Individual differences in language acquisition: Personality traits and language learning strategies of Korean university students studying English as a foreign language* (Doctoral dissertation, Indiana State University).
- Kayaoglu, M. N. (2013). Impact of extroversion and introversion on language-learning behaviors. *Social Behavior and Personality: An international Journal*, 41(5), 819-825. <http://dx.doi.org/10.2224/sbp.2013.41.5.819>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: The Guilford Press.

- Komarraju, M., & Karau, S. J. (2005). The relationship between the big five personality traits and academic motivation. *Personality and Individual Differences*, 39, 557-567. <http://dx.doi.org/10.1016/j.paid.2005.02.013>
- Komarraju, M., Karau, S. J., & Schmeck, R. R. (2009). Role of the Big Five personality traits in predicting college students' academic motivation and achievement. *Learning and Individual Differences*, 19(1), 47-52. <http://dx.doi.org/10.1016/j.lindif.2008.07.001>
- MacIntyre, P. D., & Charos, C. (1996). Personality, attitudes, and affect as predictors of second language communication. *Journal of Language and Social Psychology*, 15, 3-26.
- MacIntyre, P. D., Dörnyei, Z., Clément, R., & Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. *The Modern Language Journal*, 82(4), 545-562.
- Martin, J. H., Montgomery, R. L., & Saphian, D. (2006). Personality, achievement test scores, and high school percentile as predictors of academic performance across four years of coursework. *Journal of Research in Personality*, 40, 424-431.
- McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood : A five-factor theory perspective* (2nd ed.). New York: Guilford Press.
- Memnun, D. S., & Akkaya, R. (2012). An investigation of pre-service primary school mathematics, science and classroom teachers' metacognitive awareness in terms of knowledge of and regulation of cognition. *Journal of Theoretical Educational Science*, 5(3), 312-329.
- Mokhtari, K., & Reichard, C. (2004). Investigating the strategic reading processes of first and second language readers in two different cultural contexts. *System*, 32(3), 379-394. <http://dx.doi.org/10.1016/j.system.2004.04.005>
- Negretti, R., & Kuteeva, M. (2011). Fostering metacognitive genre awareness in L2 academic reading and writing: A case study of pre-service English teachers. *Journal of Second Language Writing*, 20, 95-110. <http://dx.doi.org/10.1016/j.jslw.2011.02.002>
- Noftle, E. E., & Robins, R. W. (2007). Personality predictors of academic outcomes: Big five correlates of GPA and SAT scores. *Journal of Personality and Social Psychology*, 93, 116-130.
- Öz, H. (2005). Metacognition in foreign/second language learning and teaching. *Hacettepe University Journal of Education*, 29, 147-156.
- Öz, H. (2007). Understanding Metacognitive Knowledge of Turkish EFL Students in Secondary Education. *Online Submission*, 1(2), 53-83.
- Öz, H. (2014a). Big Five personality traits and willingness to communicate among foreign language learners in Turkey. *Social Behavior and Personality: an international journal*, 42(9), 1473-1482. <http://dx.doi.org/10.2224/sbp.2014.42.9.1473>
- Öz, H. (2014b). The relationship between metacognitive awareness and academic achievement among English as a foreign language teachers. In J. Huang & A. C. Fernandes (Eds.), *Non-native language teaching and learning: Putting the puzzle together* (pp. 139-167). New York, NY: Untested Ideas Research Center.
- Öz, H. (2015a). Investigating pre-service English teachers' metacognitive awareness. In H. Öz (Ed.), *Language and communication research around the globe: Exploring untested ideas* (pp. 35-58). New York: Untested Ideas Research Center.
- Öz, H. (2015b). Assessing pre-service English as a foreign language teachers' technological pedagogical content knowledge. *International Education Studies*, 8(5), 119-130.
- Pavičić Takač, V., & Požega, D. (2011). Personality traits, willingness to communicate and oral proficiency in English as foreign language. In L. Pon, V. Karabaliş, & S. Cimer (Eds.), *Applied linguistics today: Research and perspectives* (pp. 67-82). Berlin, Germany: Lang.
- Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, 92, 128-150.
- Pervin, L. A., & John, O. P. (2001). *Personality: Theory and research* (8th ed.). New York: John Wiley & Sons.
- Pervin, L. A., Cervone, D. & John O. P. (2005). *Personality: Theory and research*. New York: The Guilford Press.
- Pourfeiz, J.. (2015). Exploring the relationship between global personality traits and attitudes toward foreign language learning. *Procedia - Social and Behavioral Sciences*, 186, 467-473. <http://dx.doi.org/10.1016/j.sbspro.2015.04.119>
- Schraw, G. (1994). The effect of metacognitive knowledge on local and global monitoring. *Contemporary Educational Psychology*, 19(2), 143-154. <http://dx.doi.org/10.1006/ceps.1994.1013>
- Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. *Research in Science Education*, 36(1-2), 111-139. <http://dx.doi.org/10.1007/s11165-005-3917-8>
- Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19(4), 460-475.
- Sharp, A. (2009). Personality and second language learning. *Asian Social Science*, 4(11), 17-25. <http://dx.doi.org/10.4304/jltr.4.1.58-66>
- Sun, L. (2013). The Effect of Meta-cognitive Learning Strategies on English Learning. *Theory and Practice in Language Studies*, 3(11), 2004-2009.
- Tabachnick, B. G., & Fidell, L. S. (2013) 6th ed.. *Using multivariate statistics*. Boston, MA: Pearson.
- Tüysüz, C., Karakuyu, Y., & Bilgin, İ. (2008). Öğretmen adaylarının üst biliş düzeylerinin bilişlerinin belirlenmesi. *Abant İzzet Baysal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 17(2), 147-158.
- Wenden, A. L. (1998). Metacognitive knowledge and language learning. *Applied linguistics*, 19(4), 515-537.
- Wenden, A. (1999). An introduction to metacognitive knowledge and beliefs in language learning: Beyond the basics. *System*, 27, 435-441.
- Yeşilyurt, E. (2013). Metacognitive awareness and achievement focused motivation as the predictor of the study process. *International Journal of Social Sciences and Education*, 3(4), 1013-1026.
- Zenotz, V. (2012). Awareness development for online reading. *Language Awareness*, 21(1-2), 85-100.
- Zhang, D. & Goh, C. (2006). Strategy knowledge and perceived strategy use: Singaporean students' awareness of listening and speaking strategies. *Language Awareness*, 15, 199-219.
- Zhang, W., Su, D., & Liu, M. (2013). Personality traits, motivation and foreign language attainment. *Journal of Language Teaching and Research*, 4(1), 58-66.
- Zohar, A. (2006). The nature and development of teachers' meta-strategic knowledge in the context of teaching higher-order thinking. *The Journal of Learning Sciences*, 15(3), 331-377.