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Investigation of the relationship between self-esteem and metacognitive awareness level of 9th grade students

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Abstract

This study was conducted with the aim of ascertaining whether there is a relationship between the self-esteem levels and metacognitive awareness in teenagers. Further, it was investigated whether gender and school type had any effect of the level of self-esteem and metacognitive awareness. With this aim, a sample of students attending one public school and one private school located in the municipal district of Çankaya in the province of Ankara. The study sample consisted on 211 9th Grade students. The Rosenberg Self-Esteem Scale and Metacognitive Awareness Scale were used to collect data for the research. The data of the research was analysed with a t test and Pearson correlation analysis. Results of the study suggest that there is a medium level relationship between self-esteem and metacognitive awareness in upper secondary level students.

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1. Introduction

The term metacognition refers to a learner's knowledge about his or her processes of cognition, and the ability to control and monitor those processes as a function of the feedback the learner receives via outcomes of learning (Baker and Brown, 1984; Schwartz, et al., 2004). The term metacognition was originally coined by Flavell in the early 70's who described it as "*knowledge and cognition about cognitive phenomena*" (Flavell, 1979). The term metacognition includes two broad categories of mental activities: self-appraised knowledge about cognition and self-management of one's thinking (Livingston, 1997; Cross and Paris, 1988). Metacognition may be more easily

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understood as “awareness of how one learns; awareness of when one does and does not understand; knowledge of how to use available information to achieve a goal; ability to judge the cognitive demands of a particular task; knowledge of what strategies to use for what purposes; and assessment of one’s progress both during and after performance” (Gourgey, 1998; Gourgey, 2001). Metacognition refers to thoughts about thinking, cognition, and mood (Semerari et al., 2003).

In general term, self esteem is considered as the feeling of personal value (Rosenberg, 1965) reached by the result of the evaluation of individual’s attitude toward oneself, personality characteristics, people’s behaviors and attitudes towards them and individual’s interest in himself (Açak ve Karademir, 2011). Apparently, high self-esteem is a state of mind that can potentially boost individual’s feelings of self-worth, thus providing the impetus for achievement and life satisfaction. A great deal of the literature argues that having high self-esteem seems to be a key academic achievement, psychological well being, and other positive outcomes in people’s lives (Brett, 2007). Self-esteem involves a person’s view about his or her own worth and comprises cognitive, affective and social components that are thought to evolve as individuals mature, and as a result of personal interactions with significant others and life experiences (Price, 2007).

Metacognitive belief moderated the association between stress and resultant negative affect, and negative affect and suspicious thinking. Individuals who placed greater emphasis on controlling their thoughts had greater variability in their self-esteem during the stress condition, which in turn predicted the severity of their attenuated psychotic phenomena (Palmier-Claus et al., 2011). The approach of metacognition examines the variables of self-awareness of cognition of an individual, their monitoring and organisation and the choices and changes of preference for strategy of the individual (Karakelle and Saraç, 2010).

This study aims to investigate the relationship between students’ general self-esteem and metacognitive awareness. Further, the differences between the variables of gender and school type for self-esteem and metacognitive awareness were also investigated.

2. Method

2.1. Research Model

The relational screening model was used in the study. The relational screening is conducted with the aim of obtaining clues as to cause and effect and to ascertain the relationship between two or more variables (Büyüköztürk, et al., 2008). The relationship between self-esteem and the level of metacognitive awareness in upper secondary level students was calculated. The general self-esteem and level of metacognitive awareness was also investigated in regard to gender and school type.

2.2. Research Sample

The sample of the study comprised of a public high school and private high school within the boundaries of the district of Çankaya of the province of Ankara. The study sample consisted of 211 9th Grade students. Of the sample, 56.9% of the students were female and 43.1% were male and 52.6% of the sample attended private school, while 47.4% attended public school. Of the students, 10% had no siblings (only child), 57.8% had one sibling and 25.6% had two siblings. It was found that the age groups of the parents of the students in the sample were as follows: 38.4% of mothers were in the 36-40 age group and 34.1% were in the 41-45 age group; 46.4% of fathers were in the 41-45 age group and 37.4% of fathers were over the age of 46. The education level of

parents of the students in the study were as follows: 19.0% of mothers were primary education graduates, 38.4% were high school or equivalent graduates and 37.0% were graduates of tertiary education; 6.2% of fathers were primary school graduates, 28.4% were high school or equivalent graduates, 52.6% were graduates of tertiary education and 12.8% of fathers had post-graduate education degrees.

2.3. The Instruments

2.3.1. The Rosenberg Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES) was originally developed by Rosenberg (1965). RSES is a widely used unidimensional measure of global self-esteem and consists of 10-items with a 4-point Likert-type scale ranging from “strongly disagree” to “strongly agree”. The scale has five positively (e.g., “I am proud of myself”), and five negatively worded items (e.g., “I certainly feel useless at times”). Scores can range from 10 to 40. People who have the highest self-esteem get 40 from the scale, and those who have lowest self-esteem get 10 points. Items 3, 5, 8, 9, and 10 are reverse scored. Rosenberg (1979; as cited in Chubb, Fertman, and Ross, 1997) studied the scale's reliability and validity on two small college samples and had two week test retest reliability coefficients of $r = .85$ and $.88$. Also, evidence for validity was provided by correlating the instrument with Coopersmith Self-Esteem Inventory (Coopersmith, 1967, $r = .60$). Çuhadaroglu (1985) adapted Rosenberg's Self Esteem Scale to Turkish adolescents. In the Turkish version, the rating of the scale ranges from “totally right” to “totally wrong” with items 3, 5, 8, 9, and 10 reversely scored. Çuhadaroglu (1985) reported the correlation coefficient between psychiatric interview scores and scores of RSES as $.71$. Test-retest reliability of the scale was also $.75$. Another validity evidence was provided by Çankaya (2007). It was reported that there was a significant correlation between RSES and Self-Concept Inventory ($.26$ for the whole group, $p < .001$; $.26$ boys and girls $p < .05$). In the present study, an alpha coefficient of $.86$ ($N=211$) was obtained for self-esteem scale.

2.3.2. Metacognitive Awareness Inventory for Children (Jr. MAI-Form B)

The Turkish version of the Jr. Metacognitive Awareness Inventory- Form B was used for the study (Sperling et al., 2002). Jr. Metacognitive Awareness Inventory-Form B (Jr. MAI-B), a self-report inventory, was developed as a measure of general metacognitive awareness of children in grades 6-9. The Jr. MAI was developed from a previous instrument, the Metacognitive Awareness Inventory (MAI), used with adult populations (Schraw and Dennison, 1994). Jr. MAI is a 5-point likert scale ranging from (1=never; 5 =always) the frequency with which they engage in cognitive behaviours when learning and studying. The original inventory consists of 18 items ($\alpha=.82$). The Turkish version of Jr. MAI was adapted by Karakelle and Saraç (2007). The Turkish version of the inventory consisted of 18 items. The internal consistency reliability for the scale was $.80$ and test-retest reliability of the Turkish inventory was $.72$ ($N = 373$, $p < .01$). The factor analysis for the Turkish version yielded one factor solution; the authors recommended using the scale as an overall measure of metacognitive awareness. For this study, the internal consistency reliability of the scale was $.86$ ($N=211$).

2.4. Analysis of the Data

The data concerning the levels of general self-esteem and metacognitive awareness obtained for upper secondary level students were analysed by using the SPSS 18.0 program. The Pearson Correlation Coefficient was used to calculate the relationship between general self esteem and level of metacognitive awareness. Further, an independent sample t test was used to investigate general self-esteem and metacognitive awareness levels according to gender and school type.

3. Findings

This section includes the findings of the results of the statistical analysis appropriate to the aims of the study.

Table 1: Correlation Between Self-esteem and Metacognitive Awareness

	N	$\bar{X}$	S	r	r ²	p
Self-esteem	211	19.53	5.31	0.421	0.17	.000*
Metacognitive awareness	211	64.36	13.78			

*p<.01

Review of Table 1 shows that there is a significant relationship between the scores of self-esteem and the metacognitive awareness levels of 9th Grade students, $r=0.421$, $p<.01$. According to this result, it can be stated that as the level of self-esteem increases, the level of metacognitive awareness increases; however, the relationship is of a medium level. When the determination coefficient is considered ($r^2=0.17$), it can be seen that 17% of the total variance (variability) for metacognitive awareness levels is caused by the level of self-esteem.

Table 2. Comparison of Self-esteem and Metacognitive Awareness Scores According to Gender

Gender	Self-esteem						Metacognitive awareness					
	N	$\bar{X}$	S	sd	t	p	N	$\bar{X}$	S	sd	t	p
Female	120	19,75	5,33	209	,687	,493	120	66,20	12,73	209	2,23	.026*
Male	91	19,24	5,30				91	61,95	14,78			

*p<.05

Review of Table 2 shows that there is a significant difference between the levels of metacognitive awareness between genders, $t(209)=2.23$, $p<.05$. The level of metacognitive awareness of females ($\bar{X}=66.20$) were higher than that for male students ($\bar{X}=61.95$). The level of self-esteem in students was not significant between the genders, $t(209)=.687$, $p>.01$.

Table 3. Comparison of Self-esteem and Metacognitive Awareness Scores According to School Type

School type	Self-esteem						Metacognitive awareness					
	N	$\bar{X}$	S	sd	t	p	N	$\bar{X}$	S	sd	t	p
Public	100	19,66	5,27	209	.33	.738	100	66,36	10,55	209	2	.046*
Private	111	19,41	5,37				111	62,57	15,98			

* $p < .05$

Review of Table 3 shows that there is a significant difference in the levels of metacognitive awareness levels according to type of schools, $t(209)=2$, $p < .05$. The level of metacognitive awareness in students attending private schools were more positive ($\bar{X}=62.57$) in comparison with that of students attending public schools ($\bar{X}=66.36$). This finding can be considered as a significant relationship between metacognitive awareness and type of school. The level of self-esteem of students was not significant in terms of the type of students, $t(209)=.33$, $p > .05$.

4. Result and Discussion

Metacognitive awareness, knowledge and skills are essential components of successful learning since they can guide the choice of strategies, and where necessary, provide for their adjustment (Sternberg, 1997). This paper focused on self-esteem and certain aspects of knowledge of cognition components of metacognition.

According to the first finding of the study, there is a significant medium level relationship between the metacognitive awareness level and self-esteem of 9th Grade students. Studies show that the establishment of self-esteem (Efklides and Tsiora, 2002) and psychological state (Efklides and Petkaki, 2005) have an impact on the experience of metacognition. Compared with persons with low self-esteem; persons with high self-esteem prefer more challenging activities, are more confident that their efforts will lead to success, are less susceptible to emotional mood swings, are less vulnerable to depression, are more receptive to favourable feedback from interaction partners, report less negative affect and are unlikely to experience negative affect when they perceive that others rank above them socially (Yelsma and Yelsma, 1998). According to Silverstone and Salsali (2003), the most important aspect of psychological health is self-esteem, as low self-esteem leads to a lowered sense of self and psychological disorders. A perception of low self worth in teenagers is a disposition factor that may lead to various psycho-pathologies (Kuyucu, 2007). In recent years, studies investigating certain psychological disorders such as obsessive-compulsive disorders, attention deficiency, stress, anxiety and schizophrenia in terms of metacognitive functions are increasing (Karakelle and Saraç, 2010). In this scope, findings of these studies show that several metacognitive treatment techniques are developed for various psychological disorders (Clark, 2000; Mather and Cartwright-Hatton, 2004; Simons, et al., 2006; Fisher and Wells, 2008). According to Nelson (et al., 1999), metacognition can have widespread implications for research in clinical psychology, both in terms of explaining and potentially controlling the positive symptoms of clinical syndromes. Cognitive-behavioural approaches have tended to focus on a limited range of cognition in explaining psychological disorder. In particular, the focus has been dominated by a consideration of the content of thoughts and beliefs rather than cognitive processes such as attention. It is also unclear how key aspects of cognition such as beliefs and their effects on information processing should be represented in information processing terms. Beliefs about the social and physical predominantly in cognitive models of anxiety and depression and treatment focuses on modifying the content of these anxiogenic or depressogenic thoughts and beliefs (Wells and Purdon, 1999).

A further finding of the research is that there are no gender related differences in self-esteem and metacognition awareness in 9th Grade students. It was observed that there is no difference in self-esteem according to gender. Review of the study by Balat and Akman (2004) show that findings were similar and in support of the findings of this study, stating the average scores of self-esteem were high for both genders and having no difference between the genders. The study by Arıca (1995) on university students also showed no significant difference between genders in regard to self-esteem. Other studies investigating the relationship between depression and self-esteem in teenagers also found no differences in gender (Gür, 1996). Findings in

Emil (2003) and Çankaya (2007) concerning self-esteem claim no differences in the total scores between males and females. The study finds that there is a relative significant difference between female students and male students in the gender variable concerning the level of metacognitive awareness. The study conducted by Topçu and Yılmaz-Tüzün (2009) finds that females were positively correlated with knowledge of cognition and regulation of cognition in both 4th and 5th grades and 6th through 8th grades. Liliana and Laviniab (2011)'s study show that the differences between boys and girls regarding metacognitive skills seem to occur solely for specific metacognitive knowledge and skills. The findings indicate that generally both girls and boys use their metacognitive skills in learning.

Investigation of the school type variable, the study finds that the level of self-esteem shows no differences according to school type. Results of the study by Balat and Akman (2004) show similarities with this study as it was found that levels of students self-esteem do not show differences between public school students and private school students. Balat and Akman (2004) find that the level self-esteem of teenagers do not differ according to socio-economic status. However, a significant difference is found for level of metacognitive awareness of students according to school type. The average metacognitive awareness of students attending public schools are higher than that of students attending private schools. This finding should be supported with other studies. In the study by Karakelle (2012), it is stated that all variables are effective at various levels when explaining the level of metacognitive awareness; it is also stated that the variables also affected by the effects of the other variables. In conclusion, it can be stated that there is a medium level relationship between self-esteem and level of cognitive awareness of teenage 9th Grade students attending state and private schools in the Ankara district of Çankaya. Although there were no differences found in self-esteem according to gender or school type, differences were found in the level of metacognitive awareness in terms of gender and school type.

Metacognitive awareness allows the individual to identify their thoughts as their own and creates a foundation for theoretical concepts such as self-efficacy, self-regulation and self-awareness and self-assessment, which are frequently used in the field of psychology (Karakelle and Saraç, 2010). Metacognition plays a key role in effective self-managed learning and research to further understand how other dimensions of metacognition such as goal-setting, attribution, self-monitoring, resourcefulness, self-motivation and strategic choice can contribute toward effective learning is recommended (Gravill, Compeau and Marcolin, 2002). It is strongly recommended that metacognitive processes be researched according to different variables to bring new perspectives to metacognition, as it is a process which affects the daily life of individuals in many aspects.

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