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Full Length Research Paper

Metacognitive theory and levels of History Department students, Karabük University

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This paper aims to study the levels of metacognition of students of History Department of Karabük University and whether they differ according to their variables terms. Screening model was used in this study. Basic information about the concept of metacognition and metacognitive theory from movement of national and international literature were given; and the opinions related to the level of metacognition from a sample of students were evaluated. Ideas and suggestions for increasing levels of metacognition and metacognitive levels of History Department students of Karabük University were discussed. Metacognitive strategies aim to use research and problem-solving activities based on the ability to do homework of students, fulfilling of process and content-related objectives. These entire cognitive approaches can be used successfully in evidence of history lesson and concept based on learning. Metacognitive skills of undergraduate students were analyzed in terms of gender, grade level and type of program; for descriptions of the research, frequency, standard deviation, mean square, t-test and ANOVA analyses were conducted in this context. In the evaluations, any significant difference was not found for students' metacognitive skills, gender, grade level and types of programs.

Key words: Education, history, history education, metacognition, metacognitive theory.

INTRODUCTION

Metacognitive theory is one of the theories that supply the relationship between the knowledge of students and new information; it involves the internalization, observation and use of knowledge by students on their own as well as using the metacognitive theory they have learned in new areas involved in reading and constructivist learning theory (Victor, 2004). Metacognition is defined as, "thinking about thinking" by Blakey and Spence (1990) and Candan (2005).

Eggen and Kauchak (2001), who limited metacognition as study strategies of students in the form of self-determination, examined this as "learning strategy". Gunstone and Mitchell (1998) specified that metacognitive is about recognition of cognitive processes, monitoring and control. Acikgoz (2002) determines metacognition as planning learning, managing comprehension or meaning, and as self-evaluation strategy. In the 1970s, the researchers on metacognition showed that students fail and have low-performance due to lack of metacognitive skills (Victor, 2004). Most important deficiencies of metacognitive skills are inability of students to use the appropriate strategy to work. Students are not able to move as planned when they do not determine the appropriate strategy (Feitler and Hellekson, 1993). For example, when questions are asked to students who do not know what to do and what their purpose is, they will fail to produce high-quality answers (Açikgöz, 2002). If even the appropriate strategy is determined when a new situation is met, lack of effective strategy can cause deficiency (Kirby and Ashman, 1994).

Different researches were done abroad, and it was put forth that students' learning increased in situations where metacognitive skills were used, and progress was achieved. This shows that metacognitive skill has an important role in eliminating these problems in these researches (Paris and Jacobs, 1984; Baird and Mitchell, 1986; Baird and Northfield, 1992; Beeth, 1998; Aydin and Coşkun, 2011; Aydin, 2011). Gauld (1986) concluded that students must think on their own cognitive structures and require metacognitive skills that supply thought on it for correct configuration of the information in the research done with high school students. Tüysüz et al. (2008) determined that when students' grade levels are increasing their metacognitive levels increase, and there is a statistically significant difference between metacognitive levels of boys and girls students in their research.

Table 1. Opinions of History Department licensed students about metacognitive skills.

Metacognitive skills	N	$\overline{x}$	SS
1. I read it carefully to understand a problem sentence fully, and to determine its purpose.	246	4.46	0.064
2. I can use this information for to solve the problem when I put effort to learn the concepts better.	246	4.15	0.058
3. I classify the information in the sentences and determine relevant ones.	243	4.14	0.061
4. I control the result as expected when a result is determined.	242	4.18	0.069
5. I research relationship of past situations and solve problems that I am not accustomed to.	246	3.85	0.063
6. I try to determine the formal qualifications for answer or product to be submitted.	242	3.83	0.059
7. If a problem contains many calculations, I do them separately and I check the results.	247	3.90	0.065
8. I clearly define the purpose of the problem before starting to solve it.	242	4.09	0.058
9. I pay attention to what the information needs if it is given in a problem sentence.	243	4.05	0.061
10. I try to double-check everything: I understand the problem, calculations, units and so on.	245	3.76	0.074
11.I use graphics, diagrams and so on to understand better the problems.	241	3.41	0.074
12. I get instant and in-depth insights and creativity experience when I resolve problems.	243	3.77	.064
13. Before starting to solve a problem, I write short notes about the things I know would help me in solving it.	247	4.25	0.109
14. Before I try to solve the problem, I find important relationships among concepts contained in it or factors and quantities.	244	4.01	0.057
15. I ensure that my solution is the real answer to the problem.	244	3.84	0.071
16.I do plan on how to resolve it before I actually begin to solve a problem (or even a short mental plan)	243	4.14	0.065
17. I get into things I know about the problem.	244	4.32	0.062
18. I analyze the steps of my plan and appropriateness of each step.	239	4.03	0.063
19. I try to devote chapters to find the starting point to any problem.	236	3.72	0.071
20. I spend much time on problems that I did not think previously and do not know the rules of the solutions.	247	3.19	0.083

Table 1. Cont.

21. When I solve problems and before I start with the solution, I leave to think about the concepts.	242	2.88	0.071
22.When I know how to resolve the type of problem, I do not spend more time in understand ing the concepts contained in.	243	3.19	0.082
23. To check whether your answer is not significant.	242	2.22	0.087
24. When I do not know exactly how to resolve a problem, I try to guess the answer quickly.	241	2.80	0.086
25. I start to solve without reading all the details of the problem of the sentence.	245	2.19	0.081
26. I spend more time solving the problems if I not sure of the answer.	242	2.85	0.089
27. I direct the solving to someone else and try to memorize solution procedures if I could not solve the problem after several attempts.	244	3.17	0.090

Purpose of the study

The research aims to determine the levels of metacognition of students in History Department, Faculty of Arts, Karabük University. The research question is: “do metacognitive levels of History Department students of Karabük University vary according to their gender, class, and programs under the theoretical findings?

The hypothesis of this research is that students' metacognition levels vary with sex, grade and their program.

METHODOLOGY

Model of the study

Screening model was used in this study. The screening method is a research approach that describes the past or already existing situation as it stands. The event in this study tries to determine individual or object, in its own terms, and as they are used (Karasar, 2009:77).

Working group - sample

This study was performed with 248 students of History Department in Karabük University. These students are all involved in first teaching, secondary education and distance learning programs.

Data collection tool

Metacognition event scale

"Metacognition Activity Inventory" was used for determining the skill levels of metacognition of students at the Faculty of Art. Equally spaced 5-point Likert-type scale was used in Metacognition Activity Inventory that was developed by Cooper (2008) originally, and was translated into Turkish by Tüysüz et al. (2008). In this research the reliability coefficient of the scale was calculated as Cronbach's α-internal consistency coefficient (0.732). Accepted view on this subject is that the measuring instrument is very reliable when the internal consistency coefficient is between 0.60 to 0.80; and is highly reliable if it is between 0.80 to 1.00 (Altunişik et al., 2005).

In this study, Cronbach's α-coefficient of internal consistency (0.85) item correlations was calculated within the range of 0.85 to 0.86. 0.84 item correlations were calculated, so it can be said that reliability of the scale is on high level. The scale consists of 27 items.

Data analysis

Analysis of data in this study was performed by using of SPSS / PC named statistical program’s version 16.0. The total points were calculated with the following points for evaluation of measurement tool items for positive sentences: Strongly Disagree is 1 point, Disagree is 2 points, Undecided is 3 points, 5 points for Strongly Agree, Agree is 4 points; and for negative sentences: Strongly Disagree is 5 points, Disagree is 4 points, Undecided is 3 points, I agree is 2 points, and Strongly Agree is 1 point.

The minimum point that can be taken is 27 points and the maximum point that can be taken is 135 in the scale.

RESULTS AND INTERPRETATION

When the Table 1 was examined, they showed a high participation in the followings with their scores: “I read it carefully to understand a problem sentence fully and to determine its purpose ($\overline{X}$ = 4.46) level’’, “I can use these information to solve problem because of my effort to learn the concepts better ($\overline{X}$ = 4.15)”, “I classify the information in the sentences and I determine relevant ones ($\overline{x}$ = 4.14)”, “I control the result as expected when a result is determined ($\overline{x}$ = 4.18)”, “Before starting to solve

Table 2. t-test results of total item of metacognitive activity scale by gender.

Gender	N	$\overline{X}$	SS	Sd	t	P
Mr.	106	95.96	15.56	246	0.57	0.578
Ladies	142	96.99	12.79			

Table 3. t-test results of total item of metacognitive activity scale by grade level.

Gender	N	$\overline{X}$	SS	Sd	t	P
1st Class	170	95.57	15.18	246	1.62	0.106
2nd Class	78	98.67	10.88			

Table 4. ANOVA analysis results of metacognitive skills about students' comments on the kinds of program variable.

Metacognition	Sum of squares	Sd	Mean squares	F	P
Inter-group	295,440	2	147.72	0.749	0.474
In-group	48,311,879	245	197.19		
Total	48,607,319	247			

a problem, I write short notes about the things I know would help me in solving it ($\overline{X}$ = 4.25)" and as "I agree". The high level of participation of students in metacognitive skills related to each other with expressions indicates that students agree with them. Students' low levels of participation including "To check whether your answer is not significant ($\overline{X}$ = 2.22)", "When I do not know exactly how to resolve a problem I try to guess the answer quickly ($\overline{X}$ = 2.80)" and "I start to solve without reading all the details of the sentence of the problem ($\overline{X}$ = 2.19)" is notable. This situation, that is, low level of contribution to each other expressions shows that History Department students' expressions are the same about metacognitive skills related to each other. When Table 2 was examined, it can be said that, there is no significant difference between Mr. ($\overline{X}$ =95.96) and ladies ($\overline{X}$ =96.99) students' comments regarding gender variable of the sum of item of Metacognitive Event Scale. This shows that metacognitive skill activities do not vary according to gender. When Table 3 was examined, it can be said that there is no significant difference between [$t_{(246)}$ =.106; p>0.05] 1st Grade ($\overline{X}$ =95,57) and 2nd Grade ($\overline{X}$ =98,67) students' comments regarding grade level variable of the sum of item of Metacognitive Event Scale. This shows that metacognitive skill activities do not vary according to grade level. When metacognitive skills of History Department licensed students were examined in Table 4, no significant difference was found at p>0.5 level [$F_{(2–245)}$ = 0,749; p>0.05]. Tukey-b and Scheffe tests are performed to determine which groups are different because there is no significant difference for inter-groups.

DISCUSSION AND CONCLUSION

Result of this research that aims to determine Department of History students' levels of metacognition shows that there is no difference according to gender or grade levels in their metacognitive skills.

Welton and Mallan (1999) define metacognition as the ability of students to control and redirect consciously their own thinking processes. Student must think "how to". For example, the anxiety of "should I look at all alternatives" is an event of a metacognition, a process where students think of solution to any problem (Candan, 2005). University students can complete all the steps of scientific researches and are capable of managing their research activities (having working ability to handle complex events by establishing a hypothesis, controlling variables, designing experiments, gathering information and analyzing them and drawing conclusions). These activities supply better understanding of scientific research methods and boost students' interest naturally. Constructivist learning reflects constructivist paradigm learning.

According to this information, students' metacognitive skills learning achievement can be advanced by observing clearly and accepting the concepts of sociologists and educators. Metacognitive strategies aim that students use problem-solving process and research

activities for doing their homework, performing and processing content-related objectives. All of these cognitive approaches can be successfully used for concept and evidence of learning history (Candan, 2005). In Shemilt (1980)'s study on this subject, it is emphasized that when metacognitive strategy was applied for developing and applying the thinking processes, students were able to distinguish some critical thoughts that many people are unaware of, especially of history lessons.

Butler and Winne (1995) specified that a clear modeling that will reflect both cognitive and metacognitive thought processes is necessary for developing metacognitive skills of students. But Thomas and McRobbie (2001) suggest that there is no such, as thinking language is usually in the classrooms. For this reason, primary education approach in schools needs to change the traditional approach towards constructivist learning approach for the development of students' metacognition. The constructivist model is based on the students building their own knowledge by following Vygotsky. This approach suggests active learning rather than passive learning. It can be examined in two sub-approaches: the First Individual Constructing. This approach is a process where students build knowledge by themselves. The Second is Social Constructing: is a developing process where students' relationships with social groups lead to more acquisition of knowledge, enhancing the individual. More interaction with social groups allows collaborative works (Candan, 2005).

As a result, effective use of metacognitive strategies by students in History Department will contribute positively to their academic works. In addition, high level metacognitive students will be more competent in understanding and thinking activities like using and understanding different types of evidences, having the ability to establish cause-effect relationship between events, understanding the meaning of the concept of change, seeing events with the perspectives of persons who are involved in the events (empathy), passing evidences from the evidence filter, having evidence filtering ability, performing hypotheses, drawing and expressing conclusions, summarizing events, expressing and placing events into appropriate historical context.

REFERENCES

Açikgöz KÜ (2002). Effective Learning and Teaching (third Edition). Kanyilmaz Printing: Izmir.

Altunişik R, Çoşkun R, Bayraktaroğlu S, Yildirim E (2005). Social Science Research Methods, Adapazari.

Aydin F, Coşkun M (2011). Geography Teacher Candidates' Metacognitive Awareness Levels*:* A Case Study from Turkey. Arch. Appl. Sci. Res. 3(2):551-557.

Aydin F (2011). Geography Teaching and Metacognition. Educ Res. Rev. 6(3):274-278.

Baird JR, Mitchell IJ (1986). Improving the Quality of Teaching and Learning: An Australian Case Study -The PEEL Project. Melbourne: Monash University.

Baird JR, Northfield JR (1992). Learning from the PEEL Experience. Melbourne: Monash University.

Beeth ME (1998). Teaching for Conceptual Change: Using Status as a Metacognitive Tool. Sci. Educ. 82:343-356.

Blakey M, Spence S (1990). Developing Metacognition. Syracuse, NY: ERIC Resources Information Center [ED327218].

Butler DL, Winne PH (1995). Feedback and Self-Regulated Learning: A Theoretical Synthesis. Rev. Educ. Res. 65(3):245-281.

Candan AS (2005). Metacognitive Theory and History Teaching. Kastamonu J. Educ. September 2005.13/2(327-332).

Cooper F (2008). An examination of the impact of multiple intelligences and metacognition on the achievement of mathematics students, unpublished Phd dissertation, Capella University.

Eggen P, Kauchak D (2001). Educational Psychology, New Jersey, USA.

Feitler FC, Hellekson LE (1993). Active verbalization plus metacognitive awareness yields positive achievement gains in at-risk first graders. Read. Res. Instr. 33(1):1-11.

Gauld C (1986). Model, Meters and Memory. Res. Sci. Educ. 16:49-54.

Gunstone RF, Mitchell IJ (1998). Metacognition and Conceptual Change. In: J.J.

Karasar N (2009). Scientific Research Methods, Ankara: Nobel Publication Distribution.

Kirby JR, Ashman AF (1984). Planning Skills and Mathematics Achievement: Implications Regarding Learning Disability. J. Psychol. Educ. Assess. 2:9-22.

Paris SG, Jacobs JE (1984). The Benefits of Informed Instruction for Children's Reading Awareness and Comprehension Skills. Child. Dev. 55:2083- 2093.

Shemilt D (1980). Schools Council History Project 13-16, London.

Thomas G, McRobbie CJ (2001). Using a Metaphor for Learning to Improve Students' Metacognition in the Chemistry Classroom. J. Res. Sci. Teach. 38:222-259.

Tüysüz C, Karakuyu Y, Bilgin İ (2008). Determining of Metacognition of Candidate Teachers, Abant İzzet Baysal University. J. Inst. Soc. Sci. 17(2):147-158.

Victor AM (2004). The Effects of Metacognitive Instruction on the Planning and Academic Achievement of First Grade and Second Grade Children. Unpublished PhD Thesis. Illinois Institute of Technology, from 23.02.2005 dated ProQuest Digital Dissertations.

Welton AD, Mallan JT (1999). Children and Their World. Strategies for Teaching, H. Mifflin Company, USA.