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METACOGNITION AWARENESS LEVELS OF TURKİSH TEACHER CANDİDATES

ABSTRACT

The objective of this study is to determine metacognition awareness levels of Turkish teacher candidates. The investigation has the quality of survey model. Metacognition Awareness Inventory (MAI) developed by Shraw and Dennison (1994) has been used as the survey tool. For each factor of MAI, which is composed of 8 factors and 52 articles, internal consistency reliability factor was determined as .95. At the end of the study, the beliefs of prospective teachers in their cognitive objectives and personal capabilities were on an adequate level. The individual's level for using the knowledge about how the strategies will be used to solve the problems, and for using and arranging knowledge and skills was high. When and why the individual will use explanatory and procedural knowledge, the selection of appropriate learning strategies by the individual and the individual's level for setting his cognitive resources to work for effective performance were determined. It has been concluded that the individual has adequate knowledge on analyzing his performance, making estimations about his performance in the future, evaluating effectiveness of his learning strategies and finding out his performance faults. It was determined that the individual's skill levels such as evaluating his learning outputs and effectiveness, organizing, detailing and summarizing to more effectively process the knowledge in his performance and understanding were high.

Keywords: Metacognition, Metacognition Awareness, Turkish Language, Turkish Education, Teacher Candidates

TÜRKÇE ÖĞRETMEN ADAYLARININ BİLİŞÜSTÜ FARKINDALIK DÜZEYLERİ

ÖZET

Bu araştırmanın temel amacı Türkçe öğretmeni adaylarının bilişüstü farkındalık düzeylerini belirlemektir. Ölçme aracı olarak, Schraw ve Dennison (1994) tarafından geliştirilen Biliş Ötesi Farkındalık Envanteri (BFE) kullanılmıştır. Sekiz faktör ve 52 maddeden oluşan "BFE"nin her bir faktörü için iç tutarlılık güvenirlik katsayısı .95 olarak belirlenmiştir. Araştırma sonunda; öğretmen adaylarının bilişsel amaçlarına ve kişisel yeteneklerine ilişkin inançlarının yeterli düzeyde olduğu, başarımı çözümleme, gelecekteki başarıma yönelik kestirimlerde bulunma, öğrenme stratejilerinin verimliliğini değerlendirme ve başarıma yönelik yanlışları belirlemede yeterli bilgiye sahip olunduğu, problemi çözmek için stratejilerin nasıl kullanılacağına yönelik bilgi ile bu bilgi ve becerileri kullanma, düzenleme, öğrenme çıktılarını ve verimliliğini değerlendirme, başarım ve kavramadaki bilgiyi daha verimli işlemek için düzenleme, ayrıntılandırma, özetleme gibi beceri düzeylerinin oldukça yüksek olduğu sonuçlarına ulaşılmıştır.

Anahtar Kelimeler: Bilişüstü, Bilişüstü Farkındalık, Türkçe, Türkçe Eğitimi, Öğretmen Adayları

1. INTRODUCTION (GİRİŞ)

When traditional learning and teaching approaches are considered, it is seen that the teacher's role in the classroom is comprised of being a knowledge presenter while the student's role in a learning environment is not more than merely being a robot which is obliged to obtain this knowledge presented by the teacher. Today, it has emerged that the classroom is not only a centre of knowledge exchange but also a multi dimensional environment of ideas in which the paths of emergence of knowledge are inquired and developed.

The term "learning/teaching learning", which is a key concept in all activities one tries to enable the student gain, and realized in a classroom environment, summarizes contemporary education in a loud and clear way. To receive the available knowledge and remember it the next time you are faced with it is not a criterion that indicates that you have learned it. The knowledge learned is a knowledge which can also be applied in various fields and about which one can reach to a value judgment. In order for a learner to exercise his discretion on a certain knowledge, he has to know from where and how that knowledge comes from, through which stages it has passed and where and for which it can be used so that that knowledge will be an actually learned knowledge.

In this context, the quotation from American historian Henry Brooks Adams "Those who know how to learn know enough" (Ozer, 2008: 141) is very meaningful. While current technological developments cause a rapid increase in the amount of knowledge, they also revealed the problem of which knowledge can be taught to the students to what level. To overcome this problem, this quotation from Adams serves as the key. "Now, instead of the student to know all this information, how and from where to find this information and how to apply them to his own life have become more important to teach"" (Meydan, 2010: 151). If it is ensured that the student learns about the ways to obtain knowledge and achieves the ability to use the knowledge in various fields, the teacher will only act as a guide in learning- teaching process and the student will experience the opportunity to gain knowledge within the framework of his abilities.

An individual who knows how to learn something and determine where and when he will use what he knows means that he has reached a certain cognitive awareness. After obtaining knowledge, the individual who can use his metacognition awareness skills becomes aware of "how much he has learned it, how he has learned it and which ways of thinking he has followed, develops this and renders these skills a life style"(Gelen, 2004: 29). The individual who uses his metacognition awareness skills chooses the way of applying any knowledge he will face throughout his life in various fields of his life and getting efficiency from this. He obtains the achievement of analyzing in order to bring mixed and accumulated knowledge into a more systematic state and reaching a synthesis from these as the case may be. "Metacognition awareness renders it possible to gain control and make self-regulation on thinking and learning processes" (Gama, 2000: 25).

The fact that the individual is aware of his mental activities and successfully uses his metacognition awareness skills indicates that his level of metacognition awareness is high. Flavell is the first to investigate the concept of metacognition and present it to the scientific world (Khun, 2000: 178). According to Flavell, metacognition means "the individual's knowledge about his cognitive processes and outputs or anything associated with them" (Çakıroğlu, 2007: 22). If I come across a problem in any of my activities and can set forth its reasons and solution strategies, this means that I am involved in metacognition.

Metacognitive activities actually refer to a process of problem solving. In this process there are two important metacognitive skills: These are activities of self-monitoring and planning. While the skill of

self- monitoring ensures that the individual conducts his personal skills by controlling himself in the process of problem solving, the skill of planning helps the problem solver to reach a decision on which sub-targets he shall achieve in which order (Biryukov, 2004: 2). We can see the reflections of these two important skills in metacognition theory which was spread to a wide study area in modern times and set forth by Nelson and Narens (Perfect and Schwartz, 2002: 4) under the name of monitoring and control skills. The individual continues to monitor these processes while conducting his metacognition processes. Control renders it necessary to make an evaluation by looking at the results of metacognition monitoring activity. In other words, control skill is a concept related to the states of awareness and unawareness. It allows the individual to become aware of at which level the metacognitive activities are.

Flavell (2000), as a new idea, emphasizes the areas of *knowledge and processes* by dividing metacognition theory into two. Metacognition knowledge generally tries to understand how the brain works while it exclusively tries to understand how your mind works. As for planning, monitoring and arranging processes, they are generally known as *administrative processes* comprised of the interaction of two levels. In administrative processes, the first of two levels in interaction is comprised of creativity, association and a wandering mind, the other level is comprised of administration which keeps it at work (Papaleontiou – Louca,2008: 2). Shimamura suggests that metacognitive processes are comprised of the pillars of "selecting, interpreting, updating and directing knowledge" (Fernandez et al., 2000: 325) and states that these are important in terms of metacognition processes. According to these ideas set forth by Flavell and Shimamura, it is understood that one pillar of metacognitive skill is comprised of having knowledge and the other is comprised of administrating and processing knowledge.

Knowing anything and being aware of that thing you know do not mean the same; similar to the different meanings of cognition and metacognition. Metacognition means being aware of cognition and applying it according to different circumstances. While cognition meets a step of learning process, metacognition performs monitoring and control of all steps. "Metacognition teaching is based on the assumption that when the individual understands how his cognitive processes work, he will be able to inspect these processes and re-arrange them for a better quality learning and use them more effectively" (Özsoy,2008: 715).

Different approaches have been introduced to enable the students gain metacognitive skills. Paris and Winograd (1990) took the following four approaches as the basis for enabling the students gain metacognitive skills:

- Direct teaching of metacognitive skills
- Teaching metacognitive skills by structuring them within the lesson
- Teaching metacognitive skills with various strategies and techniques in the company of an expert
- Teaching metacognitive skills with cooperative learning techniques

Indeed, the most appropriate approach among these four approaches is the teaching approach in which theory and practice are conducted at the same time in class and the student can practice metacognitive skills together.

An individual who has gained metacognitive skills first asks the following questions to himself when he attempts to reach a knowledge:

- Why do I learn this knowledge?
- From where and how do I reach to this knowledge?
- Where and when can I use this knowledge?

The individual asking himself the questions above, will have the chance to make moves appropriate for his purpose by operating monitoring

and control mechanisms in each of his activities and observing his weak and strong points within the process. This is the most important factor that ensures an increase in the success level of the individual.

In studies carried out for the purpose of measuring metacognition awareness of prospective teachers in Turkey (Özsoy et al., 2010; Gürşimşek et al., 2009), while it was seen that the prospective teachers had a moderate level of awareness, it was understood that in fact this level was not enough. It is a reality that in order to bring up individuals who investigate, inquire, analyze, reach a synthesis and most importantly set forth a value judgment, the teachers should pay attention to the point of enabling the students gain metacognitive skills.

2. RESEARCH SIGNIFICIANCE (ÇALIŞMANIN ÖNEMİ)

If metacognitive skill regulations are provided, effective learning is realized on the top level. In other words, when the student knows he will learn by using which strategy, he gives feedback after checking his faults, he knows he has to believe in order to be successful and when his feeling of self-sufficiency is high, he will absolutely be successful. Conversely, the individuals with low self-sufficiency avoid doing difficult jobs which they regard as a threat to them, do not show effort and tend to immediately give up.(Akt. Akkoyunlu vd. 2005:1) This study is expected to shed light to other studies about the effect of metacognitive skills on learning. Furthermore, the importance of this study is enhanced in terms of the fact that the study of the determination of the level of metacognitive skills on prospective Turkish teachers is performed for the first time.

3. PURPOSE OF THE STUDY (ÇALIŞMANIN AMACI)

The requirement for independent learning has increased since today is a non-stop innovating information age. The students, who are in close contact with the teachers during elementary and high school ages, take lectures in crowded groups at the university and get out of the control of a teacher or a senior. In this period during which they should control their learning by themselves, they should have adopted independent learning skills and metacognitive skills which is a part thereof.(Alemdar, 2009) Based on the abovementioned knowledge, the objective of this study is to determine prospective Turkish teachers' levels of metacognitive skills.
For this purpose, the answers to the following questions have been sought:

- Up to what level do the prospective Turkish teachers included in the research use their "metacognitive skills"?
- What are the beliefs associated with "structures of learning tasks, cognitive goals and personal skills" of prospective Turkish teachers included in the research?
- What is the level of "knowledge and skills about how the strategies will be used to solve problems" of prospective Turkish teachers included in the research?
- What is the level of "knowing when to use explanatory and procedural knowledge" of prospective Turkish teachers included in the research?
- What is the level of "selecting learning strategies appropriate for themselves and setting cognitive resources to work for effective performance" of prospective Turkish teachers included in the research?

4. METHOD (Yöntem)

In this section, information about the research model, study group, data collection tools, solution and interpretation of the data are given.

4.1. Research Model (Araştırma Modeli)

In this study, prospective Turkish teachers' levels of using metacognitive skills have been investigated. With this aspect, the research was structured by using survey model which aims to describe an existing situation. In survey model, the researchers summarize the features of the individuals, groups or sometimes physical environments (Büyüköztürk,Akgün,Demirel, Karadeniz and Kılıç,2008). In this study, a survey comprised of 52 questions was applied in order to measure prospective Turkish teachers' levels of metacognitive skills.

4.2. Study Group (Çalışma Grubu)

This study was carried out on 129 people, who are prospective teachers from Atatürk University, Kazım Karabekir Education Faculty, Department of Turkish Teaching.

4.3. Data collection tools (Veri Toplama Araçları)

Data underlying the research have been prepared in order to determine levels of metacognitive skills of students who are prospective teachers. To measure metacognitive knowledge and skills of the students, Metacognition Awareness Survey, developed by Schraw ve Dennison (1994) was used. The survey has 52 items. These items were graded in 5 point likert scale in the way 'Never', ' Rarely', ' Sometimes', ' Generally' and ' Always' and such that the positive items are 1-2-3-4-5. The highest point and lowest point which can be obtained from this survey are 260 and 52, respectively. High points obtained from this survey which doesn't contain any negative items shows a high level of metacognitive skills.

Akın, Abacı and Çetin (2007) performed validity and reliability study of Turkish form of this inventory and linguistic equivalence findings showed that the correlation between original and adapted form points of the scale was . 93. As a result of the exploratory factor analysis, 8 sub-dimensions, which are under the basic dimensions of knowledge of cognition and regulation of cognition, were obtained. These sub-dimensions are explanatory knowledge, procedural knowledge, conditional knowledge, planning, monitoring, evaluating, fault picking and knowledge management.

Internal consistency reliability factors of Metacognition Awareness Survey were determined as .95 for the whole inventory. Hence this value shows that the survey is quite reliable.

4.4. Data Analysis (Veri Analizi)

SPSS 18.0 statistical software package was used to analyze the data in the study. In data analysis, frequency, percentage (%) measurements were used.

5. RESULTS (Sonuçlar)

5.1. Findings (Bulgular)

Table 1. Metacognition awareness inventory
(Tablo 1. Üst biliş farkındalık anketi)

	METACOGNITION INVENTORY	NEVER		RARELY		SOMETIMES		GENERALLY		ALWAYS		
		f	%	f	%	f	%	f	%	f	%	
1	I regularly check whether I could reach my goals.	6	4,7	12	9,3	53	41,1	34	26,4	24	18,6	Explanatory knowledge
2	I think about several alternatives before answering a problem.	0	0	5	3,9	32	24,8	70	54,3	22	17,1	
3	In case of need, I retry the strategies I have already used.	1	0,8	7	5,4	23	17,8	62	48,1	36	27,9	
4	I speed up myself during learning so that the time will be adequate.	1	0,8	9	7	21	16,3	59	45,7	39	30,2	
5	Mentally, I am aware of my strong and weak aspects.	2	1,6	5	3,9	22	17,1	45	34,9	55	42,6	
6	Before starting a duty, I think about what I need to learn it.	3	2,3	6	4,7	29	22,5	52	40,3	39	30,2	
7	I can estimate the mark I will get after an exam.	5	3,9	10	7,8	28	21,7	45	34,9	41	31,8	
8	I specify special goals before starting a learning duty.	6	4,7	21	16,3	46	35,7	35	27,1	21	16,3	Procedural knowledge
9	When I come across an important knowledge, I decrease my work tempo and focus on that knowledge.	2	1,6	11	8,5	32	24,8	49	38,0	35	27,1	
10	I can understand what kind of knowledge is important to learn something.	2	1,6	6	4,7	30	23,3	48	37,2	43	33,3	
11	While solving a problem, I ask myself whether I have considered all alternatives.	5	3,9	16	12,4	39	30,2	46	35,7	23	17,8	
12	I am good at organizing knowledge.	3	2,3	15	11,6	34	26,4	49	38	28	21,7	Conditional knowledge
13	I focus on important knowledge carefully.	4	3,1	6	4,7	23	17,8	50	38,8	46	35,7	
14	I have a special goal for each learning strategy I use.	4	3,1	22	17,1	54	41,9	38	29,5	11	8,5	
15	I learn better when I have already known a few things about the subject.	2	1,6	3	2,3	12	9,3	31	24,0	81	62,8	
16	I know what my teacher expects from me to learn.	3	2,3	8	6,2	35	27,1	60	46,5	22	17,1	
17	I am good at remembering knowledge.	8	6,2	13	10,1	41	31,8	48	37,2	19	14,7	
18	I use different learning strategies based on the situation.	1	0,8	14	10,9	45	34,9	42	32,6	27	20,9	Planning
19	After completing a job, I ask myself whether there is any easier way to do it.	9	7	8	6,2	32	24,8	50	38,8	30	23,3	
20	I can control how much I learn.	2	1,6	6	4,7	44	34,1	55	42,6	22	17,1	
21	I regularly review the works I have done to understand important relationships.	4	3,1	20	15,5	47	36,4	44	34,1	14	10,9	
22	Before starting to work, I ask questions to myself about the material I will learn.	3	2,3	20	15,5	39	30,2	44	34,1	23	17,8	

Table 1 continued

23	I think about different ways to solve a problem and choose the best among them.	3	2,3	9	7,0	33	25,6	48	37,2	36	27,9	
24	After completing my work, I summarize what I have learned.	10	7,8	6	4,7	30	23,3	57	44,2	26	20,2	
25	I ask for help from others when I don't understand anything.	6	4,7	7	5,4	28	21,7	48	37,2	40	31	
26	I can motivate myself to learn the knowledge I need.	3	2,3	4	3,1	28	21,7	54	41,9	40	31	
27	While working, I am aware of what kind of strategies I am using.	1	0,8	6	4,7	43	33,3	47	36,4	32	24,8	
28	I search for beneficial strategies while carrying out any study.	4	3,1	21	16,3	38	29,5	47	36,4	19	14,7	Monitoring
29	To cover my inadequacies, I use my mentally strong aspects.	4	3,1	14	10,9	39	30,2	39	30,2	33	25,6	
30	I focus on the meaning and importance of the new	5	3,9	5	3,9	32	24,8	55	42,6	32	24,8	
31	I create samples to render knowledge more meaningful.	4	3,1	11	8,5	42	32,6	42	32,6	30	23,3	
32	I make good decisions about how much I could understand something.	5	3,9	5	3,9	33	25,6	51	39,5	35	27,1	
33	I find myself automatically using beneficial strategies	7	5,4	19	14,7	40	31,0	45	34,9	18	14	
34	I regularly give breaks during work to check whether I understand.	3	2,3	19	14,7	34	26,4	46	35,7	27	20,9	
35	I know which strategies will be more beneficial.	2	1,6	10	7,8	52	40,3	40	31	25	19,4	
36	Before completing my works, I ask myself how I can reach my goals in a more successful way.	2	1,6	12	9,3	42	32,6	48	37,2	25	19,4	Evaluation
37	I draw pictures or diagrams to facilitate my learning.	22	17,1	22	17,1	35	27,1	28	21,7	22	17,1	
38	After solving a problem, I ask myself whether I have reviewed all the options.	11	8,5	20	15,5	41	31,8	41	31,8	16	12,4	
39	I try to convert new knowledge into a form that I can understand.	3	2,3	16	12,4	25	19,4	51	39,6	34	26,4	
40	In case I don't understand a knowledge I change the strategies I use.	8	6,2	16	12,4	32	24,8	50	38,8	23	17,8	
41	I take the text as a whole for it to help my learning.	2	1,6	11	8,5	35	27,1	48	37,2	33	25,6	Fault picking
42	Before starting a duty I carefully read the instructions.	2	1,6	15	11,6	38	29,5	39	30,2	35	27,1	
43	I ask myself whether the things I have read are related to what I have already known.	1	0,8	13	10,1	28	21,7	53	41,1	34	26,4	
44	When I am confused, I re-evaluate my assumptions.	3	2,3	11	8,5	38	29,5	46	35,7	31	24,0	
45	I organize my time to reach my goals in the most successful way.	3	2,3	21	16,3	31	24,0	41	31,8	33	25,6	
46	I learn the subjects I am interested in better.	1	0,8	10	7,8	22	17,1	22	17,1	74	57,4	Managing knowledge
47	I divide the works I will do into smaller steps while studying.	5	3,9	6	4,7	42	32,6	39	30,2	37	28,7	

Table 1 continued

48	I focus on general meanings rather than specific meanings.	3	2,3	9	7	37	28,7	49	38	31	24
49	While learning something new, I ask myself questions about how I can learn better.	6	4,7	7	5,4	34	26,4	54	41,9	28	21,7
50	After completing my work, I inquire whether I have learned well as much as possible.	1	0,8	12	9,3	39	30,2	44	34,1	33	25,6
51	If I don't understand a new knowledge, I stop working and go back to the beginning.	9	7	16	12,4	28	21,7	46	35,7	30	23,3
52	When I am confused, I go back to the beginning and read again.	11	8,5	9	7	20	15,5	42	32,6	47	36,4

- **Findings about "Explanatory knowledge" factor. (7 items)**
  - When the replies given by prospective teachers to the item **"I regularly check whether I could reach my goals."** are reviewed, it is seen that 4,7% gave the reply I never do, 9,3% I rarely do, 41,1% I sometimes do, 26,4% I generally do, and 18,6% I always do. Only 18,6% of the prospective teachers included in the study always check whether they could reach their goals.
  - When the replies given by prospective teachers to the item **"I think about several alternatives before answering a problem."** are reviewed, it is seen that 3,9 % gave the reply I rarely do, 24,8% I sometimes do, 54,3% I generally do, and 17,1% I always do. It can be concluded that the percentage of using different ways for solving a problem is quite high for the prospective teachers included in the study.
  - When the replies given by prospective teachers to the item **"In case of need, I retry the strategies I have already used."** are reviewed, it is seen that 0,8% gave the reply I never do, 5,4% I rarely do, 17,8% I sometimes do, 48,1% I generally do, and 27,9% I always do. In terms of percentage, this situation can be considered among the skills that should be improved.
  - When the replies given by prospective teachers to the item **"I speed up myself during learning so that the time will be adequate."** are reviewed, it is seen that 0,8% gave the reply I never do, 7% I rarely do, 16,3% I sometimes do, 45,7% I generally do, and 30,2% I always do. According to this item, a large percentage of the prospective teachers can control their learning speed.
  - When the replies given by prospective teachers to the item **"Mentally, I am aware of my strong and weak aspects."** are reviewed, it is seen that 1,6% gave the reply I never am, 3,9% I rarely am, 17,1% I sometimes am, 34,9% I generally am, and 42,6% I always am. Therefore, it can be concluded that a large percentage of prospective teachers included in the study is aware of their mental capacity.
  - When the replies given by prospective teachers to the item **"Before starting a duty, I think about what I need to learn it."** are reviewed, it is seen that 2,3% gave the reply I never do, 4,7% I rarely do, 22,5% I sometimes do, 40,3% I generally do, and 30,2% I always do. Metacognition means the individual is aware of his learning and controls it. This item also measures at what percentage do the prospective teachers use their metacognitive skills. Approximately 90% of the prospective teachers included in the study gave a positive reply to this

item and thus expressed that they can use their metacognitive skills.

- When the replies given by prospective teachers to the item **"I can estimate the mark I will get after an exam."** are reviewed, it is seen that 3,9% gave the reply I never can, 7,8% I rarely can, 21,7% I sometimes can, 34,9% I generally can, and 31,8% I always can. Only a small percentage of the individuals who evaluate themselves after a learning activity cannot estimate the result of their evaluation.

- **Findings about "Procedural knowledge" factor. (4 items)**
  - When the replies given by prospective teachers to the item **"I specify special goals before starting a learning duty."** are reviewed, it is seen that 4,7% gave the reply I never do, 16,3% I rarely do, 35,7% I sometimes do, 27,1% I generally do, and 16,3% I always do. This item shows that the prospective teachers significantly fulfil the function of "specifying special goal".
  - When the replies given by prospective teachers to the item **"When I come across an important knowledge, I decrease my work tempo and focus on that knowledge."** are reviewed, it is seen that 1,6% gave the reply I never do, 8,5% I rarely do, 24,8% I sometimes do, 38% I generally do, and 27,1% I always do. It can be said that most of the prospective teachers included in this study can adjust their work speed when necessary during the process of self-improvement.
  - When the replies given by prospective teachers to the item **"I can understand what kind of knowledge is important to learn something."** are reviewed, it is seen that 1,6% gave the reply I never can, 4,7% I rarely can, 23,3% I sometimes can, 37,2% I generally can, and 33,3% I always can.
  - When the replies given by prospective teachers to the item **"While solving a problem, I ask myself whether I have considered all alternatives."** are reviewed, it is seen that 3,9% gave the reply I never do, 12,4% I rarely do, 30,2% I sometimes do, 35,7% I generally do, and 17,8% I always do. It can be seen that a large percentage of the prospective teachers can inquire themselves while solving a problem.

- **Findings about "Conditional knowledge" factor. (6 items)**
  - When the replies given by prospective teachers to the item **"I am good at organizing knowledge."** are reviewed, it is seen that 2,3% gave the reply I never am, 11,6% I rarely am, 26,4% I sometimes am, 38% I generally am, and 21,7% I always am. Most of the prospective teachers included in this study expressed that they learn knowledge by organizing it.
  - When the replies given by prospective teachers to the item **"I focus on important knowledge carefully."** are reviewed, it is seen that 3,1% gave the reply I never do, 4,7% I rarely do, 17,8% I sometimes do, 38,8% I generally do, and 35,7% I always do.
  - When the replies given by prospective teachers to the item **"I have a special goal for each learning strategy I use."** are reviewed, it is seen that 3,1% gave the reply I never do, 17,1% I rarely do, 41,9% I sometimes do, 29,5% I generally do, and 8,5% I always do.
  - When the replies given by prospective teachers to the item **"I learn better when I have already known a few things about the subject."** are reviewed, it is seen that 1,6% gave the reply I

never do, 2,3% I rarely do, 9,3% I sometimes do, 24% I generally do, and 62,8% I always do. Most of the prospective teachers expressed that they can learn better when they have the infrastructure related to the subject.

- When the replies given by prospective teachers to the item **"I know what my teacher expects from me to learn."** are reviewed, it is seen that 2,3% gave the reply I never do, 6,2% I rarely do, 27,1% I sometimes do, 46,5% I generally do, and 17,1% I always do.
- When the replies given by prospective teachers to the item "**I am good at remembering knowledge.**" are reviewed, it is seen that 6,2% gave the reply I never am, 10,1% I rarely am, 31,8% I sometimes am, 37,2% I generally am, and 14,7% I always am. By looking at this results, it can be concluded that the prospective teachers have a strong memory.

- **Findings about "Planning" factor. (7 items)**
  - When the replies given by prospective teachers to the item **"I use different learning strategies based on the situation."** are reviewed, it is seen that 0,8% gave the reply I never do, 10,9% I rarely do, 34,9% I sometimes do, 32,6% I generally do, and 20,9% I always do. Prospective teachers who make a learning plan by using different learning strategies make up a large proportion.
  - When the replies given by prospective teachers to the item **"After completing a job, I ask myself whether there is any easier way to do it."** are reviewed, it is seen that 7% gave the reply I never do, 6,2% I rarely do, 24,8% I sometimes do, 38,8% I generally do, and 23,3% I always do.
  - When the replies given by prospective teachers to the item **"I can control how much I learn."** are reviewed, it is seen that 1,6% gave the reply I never can, 4,7% I rarely can, 34,1% I sometimes can, 42,6% I generally can, and 17,1% I always can. It can be concluded that the prospective teachers should improve themselves more on the subject of self-evaluation.
  - When the replies given by prospective teachers to the item **"I regularly review the works I have done to understand important relationships."** are reviewed, it is seen that 3,1% gave the reply I never do, 15,5% I rarely do, 36,4% I sometimes do, 34,1% I generally do, and 10,9% I always do. In this case, it can be concluded that the number of individuals organizing learning among the prospective teachers is high.
  - When the replies given by prospective teachers to the item **"Before starting to work, I ask questions to myself about the material I will learn."** are reviewed, it is seen that 2,3% gave the reply I never do, 15,5% I rarely do, 30,2% I sometimes do, 34,1% I generally do, and 17,8% I always do.
  - When the replies given by prospective teachers to the item **"I think about different ways to solve a problem and choose the best among them."** are reviewed, it is seen that 2,3% gave the reply I never do, 7% I rarely do, 25,6% I sometimes do, 37,2% I generally do, and 27,9% I always do. More than half of the prospective teachers expressed that they determine their learning strategies by themselves.
  - When the replies given by prospective teachers to the item **"After completing my work, I summarize what I have learned."** are reviewed, it is seen that 7,8% gave the reply I never do, 4,7% I rarely do, 23,3% I sometimes do, 44,2% I generally do, and 20,2% I always do.

- **Findings about "Monitoring" factor. (8 items)**
  - When the replies given by prospective teachers to the item **"I ask for help from others when I don't understand anything."** are reviewed, it is seen that 4,7% gave the reply I never do, 5,4% I rarely do, 21,7% I sometimes do, 37,2% I generally do, and 32% I always do. It can be said that most of the prospective teachers included in this study accept the points they couldn't learn on a subject and receive help from others.
  - When the replies given by prospective teachers to the item **"I can motivate myself to learn the knowledge I need."** are reviewed, it is seen that 2,3% gave the reply I never can, 3,1% I rarely can, 21,7% I sometimes can, 41,9% I generally can, and 31% I always can. It is seen that a large percentage of the prospective teachers included in this study motivate themselves on the subject of learning.
  - When the replies given by prospective teachers to the item **"While working, I am aware of what kind of strategies I am using."** are reviewed, it is seen that 0,8% gave the reply I never am, 4,7% I rarely am, 33,3% I sometimes am, 36,4% I generally am, and 24,8% I always am.
  - When the replies given by prospective teachers to the item **"I search for beneficial strategies while carrying out any study."** are reviewed, it is seen that 3,1% gave the reply I never do, 16,3% I rarely do, 29,5% I sometimes do, 36,4% I generally do, and 14,7% I always do. It can be concluded that the prospective teachers working on a subject generally use the methods which will contribute to them for them to learn while conducting this work, however the level of this usage is not on a required level.
  - When the replies given by prospective teachers to the item **"To cover my inadequacies, I use my mentally strong aspects."** are reviewed, it is seen that 3,1% gave the reply I never do, 10,9% I rarely do, 30,2% I sometimes do, 30,2% I generally do, and 25,6% I always do.
  - When the replies given by prospective teachers to the item **"I focus on the meaning and importance of the new knowledge."** are reviewed, it is seen that 3,9% gave the reply I never do, 3,9% I rarely do, 24,8% I sometimes do, 42,6% I generally do, and 24,8% I always do.
  - When the replies given by prospective teachers to the item **"I create samples to render knowledge more meaningful."** are reviewed, it is seen that 3,1% gave the reply I never do, 8,5% I rarely do, 32,6% I sometimes do, 32,6% I generally do, and 23,3% I always do. This result shows that a large percentage of the prospective teachers included in the study can produce their own strategies to learn any knowledge.
  - When the replies given by prospective teachers to the item **"I make good decisions about how much I could understand something."** are reviewed, it is seen that 3,9% gave the reply I never do, 3,9% I rarely do, 25,6% I sometimes do, 39,5% I generally do, and 27,1% I always do. A small percentage of the prospective teachers is insufficient in evaluating themselves.

- **Findings about the "Evaluation" factor. (6 items)**
  - When the replies given by prospective teachers to the item **"I find myself automatically using beneficial strategies."** are reviewed, it is seen that 5,4% gave the reply I never do, 14,7% I rarely do, 31% I sometimes do, 34,9% I generally do, and 14% I always do.

- When the replies given by prospective teachers to the item **"I regularly give breaks during work to check whether I understand."** are reviewed, it is seen that 2,3% gave the reply I never do, 14,7% I rarely do, 26,4% I sometimes do, 35,7% I generally do, and 20,9% I always do. It can be concluded that a large percentage of the prospective teachers give a break during the process of learning and make inquiries.
- When the replies given by prospective teachers to the item **"I know which strategies will be more beneficial."** are reviewed, it is seen that 1,6% gave the reply I never do, 7,8% I rarely do, 40,3% I sometimes do, 31% I generally do, and 19,4% I always do. It can be said that a large percentage of the prospective teachers can determine the most appropriate learning method for themselves during the process of learning and understanding.
- When the replies given by prospective teachers to the item **"Before completing my works, I ask myself how I can reach my goals in a more successful way."** are reviewed, it is seen that 1,6% gave the reply I never do, 9,3% I rarely do, 32,6% I sometimes do, 37,2% I generally do, and 19,4% I always do.
- When the replies given by prospective teachers to the item **"I draw pictures or diagrams to facilitate my learning."** are reviewed, it is seen that 17,1% gave the reply I never do, 17,1% I rarely do, 27,1% I sometimes do, 21,7% I generally do, and 17,1% I always do. It can interpreted that some prospective teachers draw pictures and diagrams to support learning and a considerable number of them do not use these.
- When the replies given by prospective teachers to the item **"After solving a problem, I ask myself whether I have reviewed all the options."** are reviewed, it is seen that 8,5% gave the reply I never do, 15,5% I rarely do, 31,8% I sometimes do, 31,8% I generally do, and 12,4% I always do.

- **Findings about the "Fault Picking" factor. (5 items)**
  - When the replies given by prospective teachers to the item **"I try to convert new knowledge into a form that I can understand."** are reviewed, it is seen that 2,3% gave the reply I never do, 12,4% I rarely do, 19,4% I sometimes do, 39,5% I generally do, and 26,4% I always do.
  - When the replies given by prospective teachers to the item **"In case I don't understand a knowledge I change the strategies I use."** are reviewed, it is seen that 6,2% gave the reply I never do, 12,4% I rarely do, 24,8% I sometimes do, 38,8% I generally do, and 17,8% I always do. It can be said that at times when learning doesn't occur, the prospective teachers generally tend to change the methods they have used to be able to understand a subject.
  - When the replies given by prospective teachers to the item **"I take the text as a whole for it to help my learning."** are reviewed, it is seen that 1,6% gave the reply I never do, 8,5% I rarely do, 27,1% I sometimes do, 37,2% I generally do, and 25,6% I always do. It is seen that most of the teachers included in this study prefer learning as a whole rather than in parts.
  - When the replies given by prospective teachers to the item **"Before starting a duty I carefully read the instructions."** are reviewed, it is seen that 1,6% gave the reply I never do, 11,6% I rarely do, 29,5% I sometimes do, 30,2% I generally do, and 27,1% I always do.

- When the replies given by prospective teachers to the item **"I ask myself whether the things I have read are related to what I have already known."** are reviewed, it is seen that 0,8% gave the reply I never do, 10,1% I rarely do, 21,7% I sometimes do, 41,1% I generally do, and 26,4% I always do. It can be said that a large percentage of the prospective teachers see themselves satisfactory on the subject of associating new knowledge with preliminary ones.

- **Findings about the "Managing Knowledge" factor. (8 items)**
  - When the replies given by prospective teachers to the item **"When I am confused, I re-evaluate my assumptions."** are reviewed, it is seen that 2,3% gave the reply I never do, 8,5% I rarely do, 29,5% I sometimes do, 35,7% I generally do, and 24% I always do.
  - When the replies given by prospective teachers to the item **"I organize my time to reach my goals in the most successful way."** are reviewed, it is seen that 2,3% gave the reply I never do, 16,3% I rarely do, 24% I sometimes do, 31,8% I generally do, and 25,6% I always do. It can be said that the prospective teachers who do not want to waste their time try to use time in an efficient way.
  - When the replies given by prospective teachers to the item **"I learn the subjects I am interested in better."** are reviewed, it is seen that 0,8% gave the reply I never do, 7,8% I rarely do, 17,1% I sometimes do, 17,1% I generally do, and 57,4% I always do. Almost all the prospective teachers included in the study expressed that they learn the subjects they are interested in better.
  - When the replies given by prospective teachers to the item **"I divide the works I will do into smaller steps while studying."** are reviewed, it is seen that 3,9% gave the reply I never do, 4,7% I rarely do, 32,6% I sometimes do, 30,2% I generally do, and 28,7% I always do. In this case, it is possible to say that the principle of small steps is significantly used by the prospective teachers.
  - When the replies given by prospective teachers to the item **"I focus on general meanings rather than specific meanings."** are reviewed, it is seen that 2,3% gave the reply I never do, 7% I rarely do, 28,7% I sometimes do, 38% I generally do, and 24% I always do. It can be said that a large percentage of the prospective teachers head towards general meanings rather than specific ones on the subject matter of their work.
  - When the replies given by prospective teachers to the item **"While learning something new, I ask myself questions about how I can learn better."** are reviewed, it is seen that 4,7% gave the reply I never do, 5,4% I rarely do, 26,4% I sometimes do, 41,9% I generally do, and 21,7% I always do.
  - When the replies given by prospective teachers to the item **"After completing my work, I inquire whether I have learned well as much as possible."** are reviewed, it is seen that 0,8% gave the reply I never do, 9,3% I rarely do, 30,2% I sometimes do, 34,1% I generally do, and 25,6% I always do. In line with the replies given by the prospective teachers included in this study, it can be said that except for a small percentage, the others continuously evaluate themselves.
  - When the replies given by prospective teachers to the item **"If I don't understand a new knowledge, I stop working and go back to the beginning."** are reviewed, it is seen that 7% gave the

reply I never do, 12,4% I rarely do, 21,7% I sometimes do, 35,7% I generally do, and 23,3% I always do. It can be said that the number of teachers, who have expressed that one can reach the result by learning the knowledge step by step, like no building can be placed on a weak ground, is on an adequate level.

- When the replies given by prospective teachers to the item **"When I am confused, I go back to the beginning and read again."** are reviewed, it is seen that 8,5% gave the reply I never do, 7% I rarely do, 15,5% I sometimes do, 32,6% I generally do, and 36,4% I always do.

6. RESULTS AND DISCUSSION (Sonuç ve Tartışma)

A large percentage of the replies given by prospective teachers studying at teaching programs where constructive learning approach is taken as the basis to the questions aiming to measure metacognitive skills were evaluated as positive. Prospective teachers studying at education faculties where it is endeavored to bring up individuals who search, inquire, plan and can make evaluations, see themselves satisfactory on the subjects of metacognitive skills and awareness.

Metacognitive skills are a learning process in which knowledge and process steps together with monitoring and control stages are important. Based on the replies given by the prospective teachers, it has been understood that they have an adequate level of knowledge about their works and are on a level where they can control the process.

In replies given by the prospective teachers to the survey questions, they expressed that they can create a control mechanism on their works and stated that when they face a problem in the point of reaching goals, they have no difficulty in inquiring this. They emphasized that they are successful at the point of specifying a strategy according to the progress of the work and if necessary, they can restart the work by using their own organizing skills. This shows how much they care about and adopt their works while performing their studies.

Another important issue noticeable in the replies of the prospective students is the fact that they stated that they are aware of their work and knowledge capacities. The fact that the individual starts work by considering his self-sufficiency while starting any study, functions as an insurance in avoiding the interruptions that may emerge in the future. From the fact that the prospective students expressed that they use these skills, we can conclude that they can work on metacognitive level and are aware of their achievements.

Giving the prospective teachers the opportunity to freely express their works by considering each of their works on any level whatsoever, is an important issue on the emergence of metacognitive skills. Therefore, the academics employed in education faculties should provide prospective teachers with necessary guidance on using metacognitive skills. Classroom environment should be open to discussion and criticizing in terms of metacognitive level. Solution strategies set forth by prospective teachers for the solution of the problem should indeed be set to work; attention must be paid to the fact that the conditions of success and failure should again be evaluated by the prospective teacher. The education faculties should be turned into live-and-learn centers by building classrooms in them.

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