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THE ROLE OF THE STUDENT IN LEARNING MATHEMATICS: THE TEACHER VIEWS

(Matematik Öğrenmede Öğrencinin Rolü: Öğretmen Görüşleri)

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Abstract

This study was conducted with the aim of determining the views of mathematics teachers on the role of the student in learning mathematics. The case study method was used in the study. The study was conducted during the fall term of 2007-2008 academic year, with four mathematics teachers working in the public secondary and primary schools in Trabzon. A semi-structured interview form composed open-ended and scenario type questions, and a scale were used as the data collection tools. In the study, two interviews were carried out with each teacher which of each took average 60 minutes. In the analysis of the interviews, firstly the audiotaped interviews were transcribed. The data obtained from interviews processed with content analysis and classified by using Magolda's Epistemological Reflection Model. By using Perry's Model, the results of scale was categorized and correlated with Magolda's levels. At the end of the study, it was found that all the participants were at the independent knowing level with respect to student role while they have some different opinions about the subject. It was also determined that altough the participants were informed about discovery learning, they did not have sufficient experience in that issue. In this context, it is believed that future comprehensive studies with the aim of removing teachers' deficiencies regarding alternative teaching methods would help teachers in planning discovery learning environment and more likely to ensure higher expectations from students to be successful.

Key Words: Teacher Beliefs, Role of Student, Teacher Training

Özet

Matematik öğretmenlerinin matematik öğrenmede öğrencinin rolü hakkındaki görüş ve düşüncelerini belirlemek amacıyla yürütülen bu çalışmada, örnek olay yöntemi kullanılmıştır. Çalışma, 2007-2008 eğitim-öğretim yılı güz döneminde Trabzon ilindeki ortaöğretim kurumlarında çalışan dört matematik öğretmeni ile yürütülmüştür. Veri toplama aracı olarak, açık uçlu ve senaryo tipi sorulardan oluşan yarı-yapılandırılmış mülakat formu ile bir ölçek kullanılmıştır. Öğretmenlerin her biriyle ortalama 60 dakika süren iki görüşme yapılmıştır. Mülakatlar önce dijital ses kaydedici ile kaydedilmiş ve sonra yazıya dökülmüştür. Mülakatlardan elde edilen veriler, içerik analizi ile çözümlenmiş ve Magolda'nın Epistemolojik Yansıtma Modeli esas alınarak sınıflandırılmıştır. Ölçekten elde edilen veriler ise önce Perry'nin gelişim modeline göre sınıflandırılmış ve sonra da Magolda'nın düzeyleriyle ilişkilendirilerek değerlendirilmiştir. Araştırmanın sonunda, öğretmenlerin görüşleri arasında birtakım farklılıklar olduğu; ancak dört öğretmenin de ilgili sınıflandırmada öğrencinin rolü açısından bağımsız bilme düzeyinde bulunduğu belirlenmiştir. Ayrıca, dört öğretmenin keşfedici öğrenme konusunda bilgilendirilmiş olmalarına rağmen, bu konuda yeterli deneyime sahip olmadıkları görülmüştür. Öğretmenlerin alternatif öğretim yöntemleri konusundaki eksikliklerinin giderilmesine yönelik yapılacak uygulamaların, keşfedici öğrenme ortamlarını düzenlemelerini kolaylaştıracağı ve öğrencilerinden daha yüksek beklenti içinde olmalarını da sağlayacağı düşünülmektedir.

Anahtar Sözcükler: Öğretmen İnanışları, Öğrencinin Rolü, Öğretmen

1. INTRODUCTION

Every person living on earth has a humanistic potential that is specific to them. One of the most important responsibilities that the growth and development requires is the discovering this potential which a person has. This means becoming aware of specific peculiarities belongs to a person. The intelligence that they have and learning style related to the intelligence are the predominant peculiarities which are also specific to the person (Tuğrul & Duran, 2003). In general, learning style is described as characteristic power and choice of a person in the process of receiving, saving, and processing of information (Veznedaroğlu & Özgür, 2005). Learning style is in close relationship with the learning theories. According to the cognitive theory, learning is the cognitive process and realizes with making off information reaches to the brain. This main idea about the learning process gets along well with the constructivist learning theory that quite adopted in recent years during the curriculum development processes (Demircioğlu, Özmen & Demircioğlu, 2004). The constructivism gives emphasize on learning against to the teaching concept and describes learning as a process of constructing information according to the self experiences, cognitive structures, and beliefs of individuals (Kılıç, 2004). According to this understanding, learning process is an individual activity and personal differences plays big role in this process.

Against to the behaviorist understanding, it has seen that the constructivist learning understanding brings individual peculiarities to the agenda such as managing the information acquisition process, processing the information, usage of cognitive strategies in this process, and information construction of the learner. These peculiarities also indicate differences depending to the individual. Teachers need to consider these kinds of student peculiarities while designing the learning-teaching processes (Veznedaroğlu & Özgür, 2005). Many researches are executed that the hardworking students in school mathematics are not doing as well as at real life situations. Approaching in same manner to all students without considering how students thinking are pointed as a proof of this. However, the researches indicate that the students have different thinking forms and reasoning styles (Dede, 2007; Umay & Kaf, 2005).

According to the abundance and variety of human requirements, the educational efforts have been becoming hard day by day, and every acquired skill makes necessary to learn one or more several new skills even after the learning. Requirements of modern world make obligatory to have thinking skills for today's individuals, and learning how to think become important instead of information exchange in teaching. For this reason, education programs have developed aimed to acquire thinking skills for the students in modern schools and trying to educate individuals that know how to think, create, produce, and ways to reach to the information (Seferoğlu & Akbıyık, 2006). The quality of these programs, that they obligated to educate teachers who would directly take role in individuals' developments, need to be improved through continual reviews also to meet social expectations. Effective usage of teaching methods, being role model with positive personal features, being proficient in his/her subject field, creating good class environment, and acquiring true decision making skills of a well teacher can be possible through high quality education-teaching process (Özkılıç, Bilgin & Kartal, 2008). Fulfilling the roles such as presenting convenient activities, making students desirous to communicate both with each other and the teacher, encouraging collaboration, developing environments for the learners to clearly explain their ideas and questions and in this way ensuring the active contribution of the students are expected from the teachers (Toptas, 2008).

As known in our country, the teacher education programs went under development and made reformist changes in 1996 to educate convenient teachers to the developing conditions. All these efforts were realized to educate qualified teachers that they can plan and actualize the teaching process in an effective way during their future professional life. The proficiencies of a qualified teacher were gathered in six groups within the Ministry of National Education Support to the Primary Education Project by the experts from different subject fields. According to this, a teacher could plan the teaching-learning process successfully via considering student peculiarities, individual differences, and requirements and the student should be in the center of this program (Özgün Koca, Yaman & Şen, 2005).

In last years, educating individuals that they can search, investigate, learning how to learn, and thinking critically grounded on the constructivist approach highly adopted also in our country (Yıldırım & Dönmez, 2008). In this direction, teachers are given an advisory role available to get help when needed or assistant that they can facilitate the learning. Teachers create facilities and environments for students that make the learning subjects meaningful and interesting. He/she provides choices that are convenient to students' individual differences and helps to make their decisions by themselves. Instead of transmitting directly information, teacher provides the environments where they could construct their own information. In this learning environment, constructing new perspectives, linking these perspectives with the former information, and participate and discuss with the other students are expected from the students (Ersoy, 2005). In brief, constructivist learning approach opened a gate to role change both for teachers and students (Yıldırım & Dönmez, 2008). Consequently, educational approach is adopted that is aimed to teach how to reach to the information against to save the information and how to draw a problem while solving it (Tarım & Akdeniz, 2003). However, with this change, there is a point need to be considered. And, it is how teachers are looking and interpreting to this reform effort. In literature, it was stated that the different interpretation of the teachers making difficult the application of this reforms to the classroom practices when the reform documents placed in classrooms (Ernest, 1991). Because, it was emphasized that individual opinions of the teachers are effective in the interpretation processes. Also in our country, it has seen that there always been a tendency to the teacher centered education instead of student centered approach. As a result of this, there cannot be reached to expected achievement from the students (Yaman, 2005).

In a study which were investigated planning, in class behaviors, and assessment qualifications of the teachers, teacher behaviors were determined as one of the most effective reason for the student failures (Oktar & Bulduk, 2000). However, individual problems faced by the teachers who has effective role during the application of the teaching programs have been taking the first row among the factors effecting the applications. However, the important thing is what teacher can do against to carefully prepared education program and wealthy sources; teacher conducts teaching applications through the teaching programs. Consequently, analyze of education-teaching environment, the requirements and features directed towards subject field needed to be better identified to develop a realistic education program whether from the point of student achievement or from the point of feasibility (Altunoğlu & Atav, 2005). In this context, the need appeared for the identification of the program applicant teacher's existing interpretations about learning and teaching. In brief, it is stated that the views of teachers about the learning and teaching affect the teaching methods that they use (Baydar & Bulut, 2002). Consequently, in present condition searching solution for the questions such as what kind of teaching techniques and methods are being used by the teachers and in relation

with this hoe do they advising to study for the mathematics are demonstrates importance. In this study, it was aimed to determine the views of mathematics teachers on the role of the students in learning mathematics also considering teaching methods that they use.

2. METHOD

In this section, model of the study, information about the participants, data collection tools, and application with the data analyze are provided.

2.1. Research Design

The case study method was used in this study. The case study is the research method which is used in the conditions that works current fact in the real life framework, when there is not a distinct border between facts and context that they are in and there is more than one proof or data source. Case studies provide opportunity to investigate deeply one or more situations, facts or events from every aspect with limited number of sample. In this process, environment, individual or processes are searched with the holistic approach and focused on roles and relationships in process (Yıldırım & Şimşek, 2005).

2.2. Participants

This study was conducted in fall term of 2007-2008 academic year with four mathematic teachers working in secondary and primary schools of Ministry of National Education in Trabzon providence who have four years teaching experience. Four teachers were coded as T1, T2, T3, and T4 in this study. In Table 1, these teachers are described in brief.

Table 1. Peculiarity of Participant Teachers

Teachers	Sex	Professional Exprience (Years)	Graduation	Degree of Education	Type of School Being Working
T1	Male	4	Faculty of Education	Master Degree without Dissertation	Multiple Program Lycee
T2	Male	4	Faculty of Education	Master Degree without Dissertation	Multiple Program Lycee
T3	Male	4	Faculty of Education	Master Degree without Dissertation	Anatolian Lycee
T4	Male	4	Faculty of Education	Master Degree without Dissertation	Primary School

2.3. Data Collection Tools and Applications

An interview form included open ended and scenario type questions and a scale developed by Katung, Johnstone, and Downie (1999) and adapted into Turkish by Şenocak (2006) was used as a data collection tool. This scale developed through considering Perry (1970)'s cognitive and ethic development model and consisting 12 items to classify individuals' views about "teacher role, student role, and nature of information and assessment". The developed, as a result of quantitative research scale, was accepted to have natural validity

and reliability deriving from the operations used to develop (Şenocak, 2006). In addition to this acceptance, the translation and language validity investigated by Şenocak (2006) and reliability studies were performed by applying to the university students in Turkey.

Approximately 60 minutes long, two interviews were realized with each teacher to obtain quantitative data during the study. Firstly, interviews were recorded via digital voice recorder and then transcribed into the text. The scale was applied to the teachers just before the pre-interviews.

2.4. Data Analyze

First, qualitative data obtained from the interviews were analyzed with content analyze and then classified according to the Epistemological Reflection Model of Magolda (1992). First, results obtained from the scale were classified according to the Perry's development model and then examined in relation with the Magolda's levels. In table 2, the relationships were presented between the levels of these two models.

Table 2. Epistemological Development Models (Whitmire, 2003)

Levels	Perry (1970)	Magolda (1992)
Low	Dualizm	Absolute knowing
Middle	Multiplicity Relativism	Transitional knowing Independent knowing
High	Commitment	Contextual knowing

Epistemological Reflection Model of Magolda (1992) was summarized in brief below Table 3.

Table 3. Epistemological Reflection Model of Magolda (1992)

	Absolute Knowing	Transitional Knowing	Independent Knowing	Contextual Knowing
Role of Learners	Knowledge is certain. Differences of opinions are differences in degrees of details.	Some knowledge is uncertain. Uncertainty is a result of the answers being unknown.	Knowledge is assumed mostly uncertain. One has one's own beliefs.	Knowledge is uncertain and can be judged as better depending on contexts and evidences.
Role of Peers	Learners obtain knowledge from instructors. Learners acquire and remember information.	In uncertain areas, learning is more complex. Learners should pay attention for understanding rather than on memorizing information.	Learners can hold their own opinions and the opinions are considered equally valid. They should create their own views and listen to others.	Learners should exchange and compare perspectives, think through problems, and integrate and apply knowledge in context.
Role of Instructor	Peers share materials and explain their learning to help with the process of acquisition.	Peers should discuss to expand ideas and do active handson activities.	Peers should share views which serve as the sources of knowledge.	Peers are expected to make worthwhile contributions.

Role of Learning Evaluation	Instructors have all answers. Instructors should ensure that they transfer knowledge to students.	Instructor should employ methods that focus on understanding and application of knowledge.	Instructor should promote independent thinking by providing contexts for students to explore and exchange knowledge.	Instructor should promote application of knowledge in context, evaluative discussion of perspectives, and opportunities for students and teacher to critique each other.
Nature of Knowledge	Students reproduce from their memory knowledge that the instructors have provided to them.	Students' understanding should be measured rather than memory.	Evaluation should reward students who think independently and not penalize ones for holding views that are different from those of authorities.	Competence should be accurately measured in context. Evaluation should be a process in which student and instructor work together toward a goal and measure their progress.

3. FINDINGS and INTERPRETATION

In this section, findings and interpretations obtained from interviews and scale are placed in scope of research purpose.

3.1. Findings Obtained from Lesson Applications and Teaching Methods of Teachers

In Table 4, sample views of four participant teachers to the study were summarized in brief about the lesson applications and teaching methods.

Table 4. Sample Participant Views Directed towards Lesson Conduction

Participants			
T1	**T2**	**T3**	**T4**
The most frequenly used method is the question-reponse method. I do not much prefer directly lecturing method. I would rather prefer to begin with the questions… For example, if I lecturing the issue of sets, what is the set? As an example, give me a set example. See! Why did you say that? Are you ok with this? Like if we do it like that there… after then teacher show slowly the way and students anyway will come after them.	Question-response is more effective in us. I mean first one and a half month I did, tried to do activities. Clearly it did not… In other words students need to have distinct information level to do these activities… Now, silent reading hours are made in schools. It is not too logical to do a student who do not know how to interpret from the readings.	The method that we used most is lecturing. We have approaches like; sometimes want students to explain wanted to find by themselves by taking them in front of the class, "How do you solve this, kids", "How do you solve this?" I mean we have a situation like this when lecturing. And off course, we are trying students to solve questions on the blackboard. This one is to make students more active, but we have not too much student centered effort for in math.	In general, I turn once around the class before students take their sits. Here, such like this what did you do yesterday or if there is a student to tease like class mascot I tease to him/her, sometimes a I will do a joke… I say take your sit. I say what we did last. Open your notebooks; I look at their notebooks to see the last solved question. I begin to the lesson. I will write and draw. If I will do a new topic, at least I will tell 10-15 minutes non-stop… If I will repeat, I do. If I will solve a question, I say write. And, I write and solve on the board. When I feel that they are bored, I give a break to the lesson… a joke… anyway immediately they aweken…
Teaching Strategy, Method, and Technique	Presentation strategy, Lecturing method, Question-response technique		

The important point need to be considered about Table 4 is that the all four teachers conducting their lesson through using lecturing method. In addition to this, teachers believe that the each student could find different solution ways to the questions, however it is seen that they do not make generilizations to learning of math issues.

On the other hand, teachers were stated that students are needed to be guided during the lesson, however it was understood that teachers implied with "being guide to the students" to the "being guide" when wanted to summarize in the format of lesson conduction, load meanings convenient to the traditional teacher role such as "comprehend the logic of the questions to the students, present practicle solution ways and true information. So, this demonstrates that the teachers have some misunderstandings about student centered teaching and discovery based learning. The teacher T1 described succesfull teacher as the teacher who could convey what he knows and stated that understanding with his words as "who can sale in stock on hand". Teacher T2 stated that instead of what ever a teacher knows, whether or not get down to the level of the student and to what extent share math with students are previligied for teaching. But, it was understood that he implied inclusion of the students against to discovery based learning from the words "share math with students". Teachers T3 and T4 made same explanations about the issue. As a result, it was investigated that the teachers have some misinformation about the discovery learning and conduct teacher centered lessons.

On the other hand, it was understood that teachers T1 and T2 were looking from the optimistic perspective to the student-student interection and talking to each other happening during the lesson time, but teacher T3 and T4 were not quite tolerant on this issue. It was seen that the teacher T3 and T4 gave permission to the student-student interaction, talking to each other, making idea exchange, and discussions only after the lecturing time during the etude times out of lesson times or question solving activities made by group. This situation came to the eye as a basic barier making hard to get adapted to the highlighted understandings belongs to the independent knowledge level expolaration based learning and to personal view development for teachers T3 and T4.

3.2. Findings Obtained from Participant Views on Student Role

The results obtained from views of T1, T2, T3, and T4 teachers about student role are given in Table 5.

Table 5. Themes and Codes Formed from the Teacher Views on Student Role

Themes	Code No	Codes	Participants
Doing math is a tallent?	1	Some students have no numerical intelligence	T1, T2
	2	Whatever do to the student who has no interest to the lesson nothing would happen	T4
	3	Environmental factors and advanteges are effective, but everybody could learn to the extent of their potential	T3
How the math should be worked?	4	Without gathering the issues, working day by day	T4
	5	Instead of memorizing, trying to understand and interpret through thinking details	T1, T2, T3, T4
	6	Solving many tests, test questions from different sources	T1, T3, T4
	7	Explaning to themselves like explaining to others	T2
	8	Argueing with their friends	T1, T3, T4
	9	Sizing the day through working properly and regularly	T2
	10	Periodical repetations to memorize	T1
	11	Carefully listening to the lessons by giving full attention, trying to understand subjects during the lesson, asking non-understandings to the teacher	T1, T3, T4

Who are the hardworking students?	12	Able to argue and produce counter ideas, able to interpret	T4
	13	Active in class, asking questions, know how to ask, desirious and diligent to learning	T1, T3, T4
	14	Convenient with their environment, peacefull, and have sample personality	T3, T4
	15	Deserve their effort by taking high scores	T1, T4
	16	Do their homeworks on time	T4
	17	Respectfull to the ethical norms of society and have dinstinctive personality	T3
	18	Listen to the lesson with full attention	T3
	19	Aware of responsibilities	T3
	20	Determine related future targets	T3
	21	Develop personal point of view	T3
	22	Find individual solutions to the problems	T2

When the Tablo 5 investigated, coded teachers with T1 and T2 believes that the math talent con not be improved.

It was investigated that this belief of teacher T1 on talent issue was developed as a result of students coming with weak fundamental preknowledges to the high school rows and lack of shared time for them from their teachers' separate time. Also, it was seen that teacher T2 complians about students coming with weak fundamental knowledges to the high school rows and lack of time sharing to students. Teachers T3 and T4 stated that there is no class fail event any more, students pass to the upper classess without learning math issues, and this situation especially produces a big problem in high school rows. It was identified that teachers T1 and T2 were believed in everybody has an intelligence type so, not all students can learn the math through misinterpreting the theory of multiple intelllegence, in addition to students coming with weak fundamental knowledges to the high school rows. Teacher T1 explained this belief with these sentences:

"… I mean with supports you can raise a zero level student until to the 40-50 level if you look over 100 point. But, according to my opinion it is not possible for this student riase until 80s. Anyway, how much is it true, but intellegences could be classified into numerical intelligence and verbal intellgence. I remember something like that… I want to say something just right here. Not everybody could, can not has a strong numerical intelligence. I mean there is a talent dimension in it, person need to have this…"

Teacher T2 explained his belief on this issue with these below sentences:

"…Sometimes, I have students that I lost hope for them. After this I say he can not go far, this kid can not do math. I connect also this to what… It is this thing that derived from intelligence type. I mean scientist discovered this…We are talking about multiple intelligence. As you know, like mathematical intelligence, verbal intelligence… we can see that like this. So, we saperated arts as fine art. I see math as a fine art."

It was seen that teacher T3 was more optimistic about math talent with respect to teachers T1 and T2. Teacher T3 was stated in addition to talent and other factors (like student experience, intelligence type, opportunities, advantages, family and school envirionment, quality of taken education) also effective in math learning. But, it was stated that sometimes some students could not possibly have mathematical talent. The reason for the decision of teacher T3 can be sometimes weak students can not find solution to understand the issue that is being teaching even if they seek for the solution ways. Because, these words of teacher T3 were supporting this decision:

"… I am inquiring my teaching method. I am trying to behave how I can teach to that student from different way. In spite of this, I feel sorry if the student can not learn. But, as I say before, because of not everybody has the same mathematical potential, I do not expect same manner from everybody. I always think how I can raise the last potential of the student. Is there different ways to raise this? I am sharing this with the students…"

It is seen that it is possible for the teacher T3 to have more positive beliefs about the talent issues and can minimize this problem if get informed and gain experience on the issue of alternative teaching methods in detail.

It was investigated that teacher T4 was more optimistic from teacher T1 and T2, but more pessimistic from teacher T3 on the issue of mathematical talent. Teacher T4 stated that not every student could learn mathematical issues, but it was seen that this belief was connected to the student interests and lack of in classroom motivation that the teacher T1 and T2 argumanted as a proof and factors that manuplative and can easily eliminated by using true teaching method against to now old fashioned external factors. This situation was come into sight in the opinions of participant teacher T4:

"… You are motivating, making desirous to the lesson, students who are not ready for the lesson if there is something in it. I mean what ever you do to the student that has no interest to the lesson nothing gonna happen. I mean my opinion is this…"

On the other hand, codes numbered 10, 11, 15, 16, and 18 were reflecting understandings to the absolute knowledge level, codes numbered 4, 5, 6, 7, 9, and 13 were reflecting understandings to the transitional level, codes numbered 8, 12, and 22 were reflecting understandings to the independent knowledge level, and codes numbered 20 and 21 were reflecting understandings to the contextual knowledge level in the above given table. As it is seen, four teachers also made emphasize to the understanding above the transmition knowledge level. However this situation was not reflected to the in class applications; it shows that teachers are also considering the students as an authority in math learning. Participants were also rated in independent knowledge level according to the result of scale. This situation is the findings that support they also consider them as an authority in math learning.

4. RESULTS and IMPLICATIONS

In this study, the views and opinions of mathematic teachers were investigated about students' role in mathematical learning. In the consent of this aim, reached results and presented implications in relation with these results are like below:

It was seen that the participant teachers to the research were only believe in also students can find individual solutions in question solving and were not make generalization over to learn mathematical issues. In performed interviews, instead of teachers stated that the students get some information from the internet, it was identified that they did not connected this with mathematical issues too much. This situation illustrates that the teachers get informed about discovery learning in detail. Beyond, it was seen that the teachers have some misunderstandings about these issues against to somewhat they are aware of the new applications. And, this was revealed the necessity for the teacher to get informed about the new applications. It was understood that

the teachers who stated that they can not conduct their lessons with the activities because of low student levels, being more time consumpting, and the structure of the Student Selection Examination (SSE), have not to much experience on the issue of discovery learning. It was seen that generally conducting their lesson through lecturing teachers come into the prominence themselves during lesson conduction and in parallel to this made empahasize on the need to listen to them very carefully and make their homeworks on time to learn math issues.

As stated in findings, it was identified that the teachers T1 and T2 believed in everybody has a intellgence type and could not every student can learn math through misinterpreting the multiple intelligence theory in addition to student coming to the high school rows with low level. It was seen that teacher T3 was more optimistic about mathematical intelligence with respect to the T1 and T2. But, sometimes teacher T3 stated that some students can not possibly have same mathematical talent. The reason to make a decision like this was identified that deriving in some cases students can not find solution ways instead of searching for the solution ways during the instruction of the math issue. As a consequence, teachers in this situation possibly seen that to have more positive beliefs about the talent issues and can minimize this problem if get informed and gain experience on the issue of alternative teaching methods in detail.

Finally, it was determined that the teacher T4 has pessimistic opinions about the mathematical talent has also some difficulties about the classroom management. This situation was revealed that teachers also need to be supported on the issue of classroom management when thought from the perspective of student achievement and teachers point of view.

REFERENCES

Altunoğlu, B. D., & Atav, E. (2005). Daha etkili bir biyoloji öğretimi için öğretmen beklentileri. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 28*, 19-28.

Baxter Magolda, M. (1992). *Knowing and reasoning in college: Gender-related patterns in students' intellectual development*. San Francisco: Jossey-Bass.

Baydar, S, C., & Bulut, S. (2002). Öğretmenlerin matematiğin doğası ve öğretimi ile ilgili inançlarının matematik eğitimindeki önemi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 23*, 62-66.

Dede, Y. (2007). Matematiğin öğretim biçimlerine ilişkin öğretmen görüşleri. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 33*, 99-107.

Demircioğlu, G., Özmen, H., & Demircioğlu, H. (2004). Bütünleştirici öğrenme kuramına dayalı olarak geliştirilen etkinliklerin uygulanmasının etkililiğinin araştırılması. *Türk Fen Eğitimi Dergisi, 1(1)*, 21-34.

Ernest, P. (1991). *The philosophy of mathematics education*. London: Falmer Press.

Ersoy, A. (2005). İlköğretim bilgisayar dersindeki sınıf yerleşim düzeni ve öğretmen rolünün yapılandırmacı öğrenmeye göre değerlendirilmesi. *The Turkish Online Journal of Educational Technology, 4(4)*,170-181.

Katung, M., Johnstone, A. H., & Downie, J. R. (1999). Monitoring attitude change in students to teaching and learning in a university setting: A study using Perry's developmental model. *Teaching in Higher Education, 4(1)*, 43-59.

Kılıç, E. (2004). Durumlu öğrenme kuramının eğitimdeki yeri ve önemi. *Gazi Eğitim Fakültesi Dergisi, 24(3),* 307-320.

Oktar, İ., & Bulduk, S. (2000). Orta öğretim kurumlarında çalışan öğretmenlerin davranışlarının değerlendirilmesi. *Milli Eğitim Dergisi, 142.*

Özgün Koca, S. A., Yaman, M., & Şen, A. İ . (2005). Öğretmen adaylarının etkin öğrenme-öğretme ortamı hakkındaki görüşlerinin farklı yöntemler kullanılarak tespit edilmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 29,* 117-126.

Özkılıç, R., Bilgin, A., & Kartal, H. (2008). Öğretmenlik uygulaması dersinin öğretmen adaylarının görüşlerine göre değerlendirilmesi. *İlköğretim Online, 7(3),* 726-737.

Perry, W. G., (1970). *Forms of intellectual and ethical development in the college years: A scheme.* San Fransisco: Jossey-Bass (Updated and reissued in 1998).

Seferoğlu, S. S., & Akbıyık, C. (2006). Eleştirel düşünme ve öğretimi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 30,* 193-200.

Şenocak, E. (2006). The adaptation of university students' intellectual development scale into Turkish. *Educational Sciences: Theory & Practice, 6(2),* 525-551.

Tarım, K., & Akdeniz, F. (2003). İlköğretim matematik derslerinde kubaşık öğrenme yönteminin kullanılması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 24*, 215-223.

Toptas, V. (2008). Geometri öğretiminde sınıfta yapılan ekinlikler ile öğretme-öğrenme sürecinin incelenmesi. *İlköğretim Online, 7(1),* 91-110.

Tuğrul, B., & Duran, E. (2003). Her çocuk başarılı olmak için bir şansa sahiptir: Zekanın çok boyutluluğu çoklu zeka kuramı. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 24,* 224-233.

Umay, A., & Kaf, Y. (2005). Matematikte kusurlu akıl yürütme üzerine bir çalışma. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 28,* 188-195.

Veznedaroğlu, R. L., & Özgür, A. O. (2005). Öğrenme stilleri: Tanımlamalar, modeller ve işlevleri. *İlköğretim Online, 4(2),* 1-16.

Whitmire, E. (2003). The relationship between undergraduates epitemological beliefs, reflective judgment and their information-seeking behavior. *Information Processing and Management. 40(1),* 97-111.

Yaman, S. (2005). Fen Bilgisi öğretiminde probleme dayalı öğrenmenin mantıksal düşünme becerisinin gelişimine etkisi. *Türk Fen Eğitimi Dergisi, 2(1),* 56-70.

Yıldırım, A., & Şimşek, H. (2005). *Sosyal bilimlerde nitel araştırma yöntemleri* (5. Baskı), Ankara: Seçkin Yayıncılık.

Yıldırım, M, C., & Dönmez, B. (2008). Yapılandırmacı öğrenme yaklaşımı uygulamalarının sınıf yönetimine etkileri üzerine bir çalışma. *İlköğretim Online, 7(3),* 664-679.

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