



ISSN:1306-3111
e-Journal of New World Sciences Academy
2009, Volume: 4, Number: 2, Article Number: 1C0022

EDUCATION SCIENCES

Received: September 2008

Accepted: March 2009

Series : 1C

ISSN : 1308-7274

© 2009 www.newwsa.com

Osman Birgin

Tayfun Tutak

Ali Türkdoğan

University of Karadeniz technical

birginosman@hotmail.com

Trabzon-Turkiye

**PRIMARY SCHOOL TEACHERS' VIEWS ABOUT THE NEW TURKISH PRIMARY SCHOOL
MATHEMATICS CURRICULUM**

ABSTRACT

The aim of this study is to determine the primary school teachers' views related to the new Turkish primary school mathematics curriculum which was put into practice in the 2005-2006 academic years. A questionnaire developed by the researchers, consists of open-ended and closed items, was applied to 60 primary school teachers selected randomly from among classroom teachers in Trabzon, one of the cities in the west Karadeniz Regions of Turkey. Data were analyzed using descriptive analysis technique. The results of this study show that in-service training seminars administered about the new mathematics curriculum were insufficient in terms of their duration, organizations, model activities, and did not provide teachers with sufficient experiences about the new curriculum. It is found that teachers have been aware of distinguishing the new and old mathematics curriculum sufficiently but, teachers have needed knowledge and skills of developing teaching material and implementing student-centered instruction and using alternative assessment methods.

Keywords: Primary Mathematics Curriculum, Primary School, Curriculum Evaluation, Teacher, View

**SINIF ÖĞRETMENLERİNİN YENİ İLKÖĞRETİM MATEMATİK
PROGRAMI HAKKINDAKİ GÖRÜŞLERİ**

ÖZET

Bu çalışmanın amacı, sınıf öğretmenlerinin 2005-2006 eğitim-öğretim yılında uygulamaya konulan yeni ilköğretim matematik programı hakkındaki görüşlerini tespit etmektir. Bu amaçla uçlu ve kapalı uçlu sorudan oluşan bir anket geliştirilerek Trabzon'da görev yapan 60 sınıf öğretmenleri uygulanmıştır. Veriler betimsel analiz tekniği kullanılarak analiz yapılmıştır. Bu çalışmanın sonuçları özellikle hizmet içi seminerlerin sınıf öğretmenleri için süre, organizasyon ve örnek etkinlikler bakımından verimsiz olduğunu, yeterli deneyim kazandırmadığını göstermektedir. Bunun yanında öğretmenlerin eski ile yeni öğretim programı arasındaki farklarını ortaya koymada yeterli oldukları fakat, materyal geliştirme, grup çalışması ve proje etkinlikleri düzenleme, alternatif değerlendirme yöntemleri konularında bilgilendirme ihtiyacı hissettikleri belirlenmiştir.

Anahtar Kelimeler: İlköğretim Matematik Programı, İlköğretim, Program Değerlendirme, Öğretmen, Görüş



1. INTRODUCTION (GİRİŞ)

The information age, leading into the 21st century, is characterized by an infinite, dynamic and changing mass of information. Information is now exchanged very rapidly and knowledge is growing at the exponential rate. Nowadays, society asks for students who have cognitive skills (e.g. problem solving, critical thinking, analyzing data, and presenting them orally and written format and so on), and meta-cognitive competencies (e.g. self-reflection, and self evaluation), and social competencies (e.g., leading discussions, working in groups, co-operating) and affective dispositions (e.g. internal motivation, responsibility, self-efficacy, independence, flexibility) (Dochy, 2001). Traditional instruction approach mostly promotes students to memorize rules or algorithms rather than conceptual understanding, and focus on small, discrete components of the domain (Romberg, 1993), and are insufficient to foster students' higher order cognitive, meta-cognitive and social competencies, and affective dispositions (Shepard, 2000). Thus, especially theories such as constructivism and multiple-intelligence and new social trends such as changing labor market, information-age needs engendered to radical change in traditional approaches of learning, teaching and assessment (Birgin and Baki, 2007).

The rapidly changing nature of the society, economy, technology and culture called for a fundamental change in Turkish education system. Also, the fact that the results of national-based exams such as OKS, OSS which give a lots of clues about the Turkish education system and the findings of studies with international scales such as PIRLS, PISA, TIMSS (MEB, 2003; MEB, 2004b) assert that the success of students is rather low compared to the other countries make urgent reforms necessary for the Turkish education system. In this content, the primary school curricula (which includes Turkish Language, Mathematics, Social Science, Science and Technology and Knowledge of Life) which are developed at national level by The Supreme Council of National Education to make necessary changes and continuously develop the curriculum put into practice over Turkey after choosing 9 sample cities to put this program into effect and try on in teaching term of 2004-2005 (MEB, 2004).

One of the new curriculums which have been developed in primary school is mathematics curriculum. There are radical changes in the new mathematics curriculum in terms of the goals, content, teaching and learning process, and assessment approach. It seems that the new curriculums adopted a mixed model while emphasizing the subject centered model in the content development and learner centered models in the pedagogies and assessment techniques. In this respect, this can be considered a deep change in terms of both content and pedagogies but not in the way the content is developed. The content seems to be developed based on a subject centered approach (Babadoğan and Oklun, 2006). Therefore, it is seen that the traditional education approach are replaced with constructivist approach in the new mathematics curriculum. Besides, it is adopted that each student can learn better by using different intelligence type and different learning style in the new curriculum (Baki, 2008). It gives to teacher new the role such as the environment designer, guide, and facilitator instead of just the duty of teaching. The main role of teacher is to prepare the learning and teaching environment and to guide the students about the activities. In addition to the role of guidance, the teacher is also the person who provide the cooperation, health and safety, and the one who takes into consider the individual differences, and she is the one who is helper, facilitator, organizer, guide and so on (Bulut, 2004; ERG, 2005).



The contents of the new primary school mathematics curriculum are updated. Mathematics concepts and first-hand experience which are suitable to the properties of the student development are also included in the new curriculum. The content of the curriculum are appropriate for the students and their education environment. Also, the curriculum brings various characteristics of the reformist movement around the world such as considering interdisciplinary connections, and the use of technology and other instructional tools (MEB, 2004).

The new curriculum not only sets out the main fundamentals essential for the accomplishment of the philosophy of the curriculum but it also provides suggestions for learning and teaching environments. In particular, it is advocated in the new curriculum that students need to be motivated to discuss, inquire, and be curious about what is going on in their surrounding environment, including family, school and society. It is suggested that student-centered classroom environments need to be designed to increase active participation of students for their own learning (Koç, Işıksal and Bulut, 2008).

When the new mathematic curriculum in primary school is analyzed in point of its' measurement and assessment approach is seen to have attending towards assessment of learning process rather than assessment of learning output. The new curriculum especially acknowledges the contemporary belief (NCTM, 1995) that assessment must be integrated into or an essential part of classroom instruction. The new curriculum states that continuous monitoring needs to be used for curriculum evaluation, and assessing students' knowledge, skill and attitudes. The new curriculum also introduces alternative assessment methods and tools such as self/peer assessment, observation, portfolios, project, performance task, rubric, group working, checklist, journals, interviews, problem solving, presentations etc. Therefore, the assessment approaches put into effect by the new mathematic curriculum is very different from the traditional teaching and assessment approaches which is well-known by the primary school teachers in Turkey.

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

The teachers play a key role in the successful development of the innovation within the school system and adopting new ideas in their teaching (Baki, 2008). As a result, teachers' professional development needs and views are a major focus of reform initiatives in Turkey. Moreover, the evaluation of the new curriculum continually is necessary to determine the problems faced in the process of application of the new curriculum (Demirel, 2004). For this reason, it is of great importance to learn the primary school teachers' views concerning the new mathematic curriculum and to determine the problems they faced. The purpose of this research is to analyze the primary school teachers' views related to the new primary school mathematic curriculum and the problem they faced. Therefore, the following question are tried to be answered:

- What is the primary school teachers' views related to in-service training given for the new mathematics curriculum?
- What is the primary school teachers' views related to the properties of the new mathematic curriculum?



- What are the problems they faced during the application of the new mathematic curriculum?

3. METHOD (YÖNTEM)

A survey method was used in this study. The views of primary school teachers about the new mathematic curriculum are tried to be determined both in quality and in quantity in this study.

3.1. The Sample of Study (Çalışma Örnekleme)

The sample of this study is consists of 60 primary school teachers, 28 of whom are the teacher of 4th grade and 32 of whom are the teacher of 5th grade students in the primary school in Trabzon. Primary school teachers are chosen from 14 different primary schools; 4 of which is from city center, 3 of which is from country centers, 3 of which is from small town, 4 of which is from village.

3.2. Data Collection (Veri Toplama)

In this study, quantities and qualitative data were collected though a questionnaire about the new math curriculum developed by researches. The questionnaire is composed of open ended and 4 close ended questions. The opinions of two experts and 3 teachers are asked for content validity of the questionnaire.

3.3. Data Analysis (Veri Analizi)

The questionnaire is given to 66 primary school teachers who have 4th grade and 5th grade in different places of Trabzon. Six of the questionnaires are omitted from the analysis because they included deficient information. Quantitative data were analyzed through percentage, frequency whereas qualitative data were analyzed using descriptive analyze techniques. This analyze techniques enable us to organize the data according to the points asserted by the question of research and to present them considering the questions and dimension used in the interview (Yıldırım and Şimşek, 2003).

4. FINDINGS (BULGULAR)

4.1. The Views of Primary School Teachers Related to In-service Training Program Given For the New Mathematic Curriculum (Sınıf Öğretmenlerin Hizmetiçi Eğitim İçin Verilen Yeni Matematik Müfredatı Hakkındaki Görüşleri)

7% of primary school teachers report that they did not attend in-service training program, 93% of them attended in-service training program; in-service training program is conducted by the primary school supervisor and they report that one day is used for the introduction of the new mathematic curriculum.

The primary school participated in-service training program are asked the question "Do you think that you have enough information and experience? Why?". 95% of primary school teachers who answered these questions explain that they did not find in-service training adequate. Table 1 includes the reason why the primary school teachers did not find in-service training program adequate.

It is seen Table 1, 72.7% primary school teachers in working team assert that the time for in-service training program is short; 69.1% of them assert the fact that it does not make you gain enough information and skill, 63.6% of them point out the fact that the presenter in-service training program did not give enough information; 45,5% of them claim that it was boring; 43.6% said that resource



materials are nor provided; 36.4% told that sample activities suitable to the new curriculum are not utilized adequately and 32.7% of them mention that superficial information are presented. Some of them the teachers (27.3%) claim that in-service training program is not organized well; 23.6% complained about the fact that the sessions are very crowded and 18% of them stated that they did not have the opportunity to discuss the information.

Table 1. The reasons of the in-service training program is insufficient

(Tablo 1. Hizmet içi eğitim programının yeterli bulunmama nedenleri)

Reasons	f	%
The shortness of in-service training time	40	72.7
Not making gain enough information and skill	38	69.1
Not presented enough information by the supervisor in-service training	35	63.6
The boredom of presentation	25	45.5
Not given resources or materials related with the curriculum	24	43.6
The fact that presented materials are more theoretical rather than practical	22	40.0
The fact in-service training presenters are not expert or academician in his/her field	20	36.4
The fact that sample activities suitable to the new curriculum are not presented or given	20	36.4
The fact that superficial information are given	18	32.7
The fact that in-service training is not well-organized	15	27.3
The fact that crowdedness of classroom	13	23.6
The fact that there is no opportunity to discuss the presented information	10	18.2

4.2. The Views of Primary School Teachers Related to the New Mathematics Curriculum (Sınıf Öğretmenlerin Yeni Matematik Müfredatı Hakkındaki Görüşleri)

The teachers participating in the research are asked the question "What are the main differences of the new mathematics curriculum form old one?" The views of the teachers related to this question are presented in Table 2.

As it is seen in the Table 2, 86.7% of the primary school teachers express that mathematic teaching program in primary school is student-centered, the subjects are made abstract and suitable for the students' level; 83.3% of them stated that subjects are updated; 73.3% of them say that there is no place for the memorization for new curriculum; 70% of them assert that group and project work take place in the new curriculum; 60% of them speak of the fact that the number of the subjects are decreased so that there is more time for each subject and the students are provided with the change to perform their own product; 40% of them state that the curriculum gives importance to process and alternative assessment method. Some primary school teachers (13.3%) point out the fact that the new curriculum bring along new approach such as teaching with plays and 8.3% of them emphasized on new approach which is experience-based teaching.



Table 2. The views of the primary school teachers related to the differences of the new mathematics curriculum from old one
(Tablo 2. Yeni matematik öğretim programının eski öğretim programından farkına ilişkin sınıf öğretmenlerin görüşleri)

The Properties Of the New Mathematic Curriculum	f	%
Its being student-centered	52	86.7
Subjects' being made abstract and suitable for the students' level	52	86.7
Updated mathematics subject	50	83.3
No place for memorization	44	73.3
Providing project and group works	42	70.0
Less number of subject and more time for each one	36	60.0
Providing the students with the change to display their own products	36	60.0
Its giving more importance to learning process and alternative assessment methods	24	40.0
Teaching with the help of play	8	13.3
Experience-centered teaching	5	8.3

The question "Which of the following subject do you want to instructed in the in-service training programs?" is asked to the teachers. The frequency of the answer chosen by the teacher for this question is presented in Table 3.

Table 3. In Service Training Needs of the Primary School Teachers
(Tablo 3. Sınıf öğretmenlerinin hizmet içi eğitim ihtiyaçları)

In-Service Training Needs	f	%
Preparing teaching material	52	86.7
Alternative assessment methods	44	73.3
Group work and project activities	40	66.7
Preparing activities based on constructivism	34	56.7
Research method and skills	30	50.0
Being a good guide to the students	28	46.7
Teaching methods and techniques	26	43.3
Computer-assisted instruction	6	10.0
Using technology in teaching	2	3.3

According to Table 3, 86.7% primary school teachers need in-service training about preparing teaching material, 73.3% of them need to know about alternative assessment methods; 66.7% of them need to have information about group work and project techniques; 56.7% of them need to information about how to prepare activities based on the philosophy of the new curriculum. Moreover, it is seen that 46.7% of them need information how to guide the students; 50% of them need to learn about research methods and 43.3% needs to know about teaching methods and techniques. Some primary school teachers point out that they need to learn about computer-assisted instruction (%10) and use technology in teaching (%3.3).

4.3. The Problems of Teachers Faced During the Application of New Mathematics Curriculum (Yeni Matematik Müfredat Programının Uygulanması Esnasında Öğretmenlerin Karşı Karşıya Kaldıkları Sorunlar)

The question "Which of the following difficulties did you come across during the application of the new mathematic curriculum?" please put a tick is asked to the participants. The frequencies of teachers' views are shown in Table 4.

Table 4. The problems of primary school teachers faced during the application of the new mathematics curriculum (N=60)
(Tablo 4. Sınıf öğretmenlerinin yeni matematik programının uygulanması sürecinde karşılaştıkları sorunlara ilişkin görüşleri)

The problems	f	%	The problems	f	%
The lack of concrete material	42	70.0	Students' not being accustomed to the new learning environment	28	46.7
Alternative assessment methods	40	66.7	Outnumber of students	22	36.7
Inappropriate physical conditions of classrooms	38	63.3	Lack of resource books	18	30.0
Lack of enough expert support	35	58.3	Lack of using of technology	18	30.0
Lack of infrastructure of schools	34	56.7	Difficulties for students who are in integrative classrooms	8	13.3
Lack of instruction about the curriculum	33	55.0	Management of the classroom	6	10.0
Lack of time	30	50.0	Boredom of hardworking students during the lessons	5	8.3

It is seen from Table 4 that 70% of the teachers complain about the lack of concrete material; 66.7% state their lack of knowledge about alternative assessment methods; 63.3% of them speak of the inappropriate physical conditions of the classrooms and 58.3% of them complain about inadequate support of experts about the curriculum. Furthermore, 55% of them complain about lack of instruction about curriculum; 50% of them have trouble with lack of time; 46.7% point out the fact that students can not being accustomed the new learning environment; and 36.7% of them complain about the crowdedness of the classrooms. In addition to that, they state that they introduce their subject just with the help of presentation of the information because of the lack of time; that they could not use or utilize methods and techniques which are suitable to constructivist approach. And they claim that they have difficulties during the application of the curriculum because they did not have enough information about alternative assessment methods.

5. CONCLUSION AND SUGGESTIONS (SONUÇ VE ÖNERİLER)

In this research, it is found that an in-service training program enables primary school teachers to know the changes the new curriculum brought with itself; however they also show that in-service training program was very short and superficial. Moreover, the instructor in-service training program was not good enough to reflect and introduce the philosophy of the curriculum and to present sample student-centered activities. The result of various research conducted which is similar to this study support this conclusion, as well



(Gözütok et al, 2005; Özen, 2006; Coşkun, 2005; Öztaş et al, 2005; Kalender, 2006; Birgin et al., 2008; Bal, 2008).

Additionally, it is found that most of the teachers have problems about some subject such as concrete material, the lack of tools, the inappropriate physical conditions of school, the lack of expert support, the crowdedness of classroom, alternative assessment methods, group and project work, preparing activities suitable to the philosophy of the new curriculum, guidance to the students' teaching methods and practice, etc. Various studies highlight the fact that the lack of infrastructure of school and expert support (Kalender, 2006; Yılmaz, 2006), the lack of time (Kimpston, 1985; Erdal, 2007; Cansız, 2008), the crowdedness of classroom (Güven & Eskiürk, 2007; Birgin, 2003; Bal, 2008), stress of examination (Tobin, 1987; Kimpston, 1985; Erdal, 2007; Gökçek, 2008), and teacher-centered beliefs about learning and teaching (Wolf and Miller, 1997; Lock and Munby, 2000; Brighton, 2003) have negative effects on the application of the school curriculum and innovation.

Furthermore, it is determined that most of the teachers could not take enough expert support about measurement and assessment, and that they did not have enough information about alternative assessment methods. Also, the various researches conducted in Turkey shown that teachers consider themselves that they are more disqualified about alternative assessment methods, and that they have some trouble applying these methods, and that they need to in-service training program about alternative assessment methods (Özsevgeç et al, 2004; Baki and Birgin, 2004; Güven and Eskiürk, 2007; Yılmaz, 2006; Yapıcı and Leblebiciler, 2007; Gelbal and Kelecioğlu, 2007; Gömleksiz and Bulut, 2007; Aksu, 2008; Nazlıçiçek and Akarsu, 2008; Birgin et al, 2008; Cansız, 2008; Bal, 2008). Therefore, the results of this study support various researches' results, as well. Depending upon the result of this study, some suggestions can be listed as follows;

- Some urgent measure should be taken in order to settle down the problems of related with the structure of in-service training program. In this content, for the in-service training to be more effective from the point of the teacher, the cooperation of field experts who are working in the faculty of education is essential.
- The teachers should be informed about the subject they feel they are not adequate such as modern teaching methods and techniques, alternative assessment activities, etc.
- The teacher should be exposed to long term and more comprehensive in-service training program and gain experience for the curriculum to be applied in a proper way.
- The physical infrastructure of the schools should be improved and the school should be provided with necessary teaching tools.
- The prospective teacher should be well qualified with the necessary knowledge and skills in terms of characteristics of a modern teacher.

REFERENCES (KAYNAKLAR)

1. Aksu, H.H., (2008). A Study on the Determination of Secondary School Mathematic Teachers' Views on Alternative Assessment. *Humanity & Social Sciences Journal*, 3(2), 89-96.
2. Babadoğan, C. and Olkun, S., (2006). Program development models and reform in Turkish primary school mathematics curriculum.



- International Journal for Mathematics Teaching and Learning (April 13). Retrieved May 10, 2007, from <http://www.cimt.plymouth.ac.uk/journal/default.htm>
3. Baki, A., (2008). Kuramdan Uygulamaya Matematik Eğitimi. Ankara: Harf Eğitim Yayıncılığı.
 4. Baki, A. and Birgin, O., (2004). Reflections of using computer-based portfolios as an alternative assessment tools: A case study. The Turkish Online Journal of Educational Technology[TOJET],3(3),79-99. <http://www.tojet.net/articles/3311.htm>
 5. Bal, P., (2008). The evaluation of new mathematic curriculum in term of teachers' perspectives. Journal of Çukurova University Institute of Social Sciences, 17(1), pp:53-68.
 6. Birgin, O. and Baki, A., (2007). The use of portfolio to assess student's performance. Journal of Turkish Science Education, 4(2), 75-90. www.tused.org
 7. Birgin, O., (2003). Investigation of the application level of computer-based portfolios [Bilgisayar destekli bireysel gelişim dosyasının uygulanabilirliğinin araştırılması]. Unpublished Master's Thesis, Karadeniz Technical University, Trabzon, Turkey.
 8. Birgin, O., Tutak, T., and Çatlıoğlu, H., (2008). Teachers' views about in-service training programs related to the new primary school mathematics curriculum: The case of Trabzon. Paper presented the XI.International Conference on "Further Education in the Balkan Countries", Konya, Turkey.
 9. Brighton, C.M., (2003). The effects of middle school teachers' beliefs on classroom practices, Journal for the Education of the Gifted, 27(2/3), pp:177-206.
 10. Bulut, S., (2004). İlköğretim Programlarında Yeni Yaklaşımlar- Matematik (1-5.sınıf), Bilim ve Aklın Aydınlığında Eğitim Dergisi, Sayı:54-55.
 11. Cansız, M., (2008). Examination teachers' views on the measurement and assessment dimension of new secondary school mathematics curriculum [Öğretmenlerin yeni ortaöğretim programının ölçme değerlendirme boyutuna bakışlarının incelenmesi], Unpublished doctoral thesis, Karadeniz Technical University, Trabzon, Turkey.
 12. Coşkun, E., (2005). A Qualitative Research on the 4th and 5th Grade Teachers' and Students' Opinions Concerning the New Curriculum of Turkish Language Education. Educational Sciences: Theory & Practice, 5(2), pp:421-476.
 13. Demirel, Ö., (2004). Kuramdan Uygulamaya Eğitimde Program Geliştirme (4.Baskı). Ankara: Pegem A Yayıncılık.
 14. Dochy, F., (2001). A new assessment era: Different needs, new challenges. Research Dialogue in Learning and Instruction, 10(1), pp:11-20.
 15. Eğitimde Reform Girişimi (ERG), (2005). Yeni Öğretim Programlarını İnceleme ve Değerlendirme Raporu. İstanbul: Sabancı Üniversitesi, <http://www.erg.sabanciuniv.edu> (30 Mayıs 2005).
 16. Erdal, H., (2007). The investigation of measurement and evaluation parts in the new elementary school mathematics curriculum (Case of Afyonkarahisar) [2005 ilköğretim matematik programı ölçme değerlendirme kısmının incelenmesi]

- [Afyonkarahisar örneđi]], Unpublished master's thesis, Afyonkarahisar Kocatepe Univesity, Turkey
17. Gelbal, S. and Keleciođlu, H., (2007). Teachers' proficiency perceptions of about the measurement and evaluation techniques and the problems they confront. Hacettepe University Journal of Education, 33, pp:135-145.
 18. Gökçek, T., (2008). Examination of sixth grade mathematics teachers' adoption process to new elementary curriculum [6. sınıf matematik Öğretmenlerinin yeni ilköğretim programına uyum süreçlerinin incelenmesi], Unpublished doctoral thesis, Karadeniz Technical University, Trabzon, Turkey.
 19. Gömleksiz, N., and Bulut, İ., (2007). An Evaluation of the Effectiveness of the New Primary School Mathematics Curriculum in Practise. Educational Sciences: Theory & Practice, Vol:7, No:1, pp:41-94.
 20. Gözütok, F.D., Akgün, Ö.E., and Karacaođlu, C., (2005). İlköğretim Programlarının Öğretmen Yeterlikleri Açısından Deđerlendirilmesi, 14-16 Kasım 2005, Yeni İlköğretim Programlarını Deđerlendirme Sempozyumu Bildiri Kitabı, 17-40, Erciyes Üniversitesi, Ankara: Sim Matbaası.
 21. Güven, B., and Eskiürk, M., (2007). Sınıf Öğretmenlerinin Ölçme ve Deđerlendirmede Kullandıkları Yöntem ve Teknikler, 16.Eđitim Bilimleri Kongresi Bildiri Kitabı, Cilt 3, Detay Yayıncılık, Ankara, 504-509.
 22. Kalender, A., (2006). Sınıf Öğretmenlerinin Yapılandırmacı Yaklaşım Temelli "Yeni Matematik Programı"nın Uygulanması Sürecinde Karşılaştığı Sorunlar ve Bu Sorunların Çözümüne Yönelik Önerileri, Yayınlanmamış Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi, Eđitim Bilimleri Enstitüsü, İzmir.
 23. Kimpston, R.D., (1985). Curriculum Fidelity and the Implementation Task Employed by Teachers: A Research Study, Journal of Curriculum Studies, 17(2), pp:185-195.
 24. Koç, Y., Işıksal, M., and Bulut, S., (2008). Elementary school curriculum reform in Turkey. International Educational Journal, 8(1), pp:30-39.
 25. Lock, C.L. and Munby, H., 2000. Changing Assessment Practice in the Classroom: A Study of One Teachers' Change, The Alberta Journal of Educational Research, 46, 267-279.
 26. MEB, (2003). Üçüncü Uluslararası Matematik ve Fen Bilgisi Çalışması Ulusal Rapor. MEB-EARGED, Ankara.
 27. MEB, (2004). Talim ve Terbiye Kurulu Başkanlığı, İlköğretim okulu matematik dersi (1-5.sınıflar) öğretim programı [Board of Education, Elementary school mathematics curriculum (1-5th grades)]. Ankara: MEB Basımevi.
 28. MEB, (2004b). PISA 2003 Projesi. Ulusal Ön Rapor, MB-EARGED, Ankara.
 29. Nazlıçiçek, N. and Akarsu, F., (2008). Physics, chemistry and mathematics teachers' approaches to assessment tools and their assessment practices. Education & Science, 33(149), pp:18-29.
 30. NCTM, (1995). Assessment standard for school mathematics. Reston, VA: Author.
 31. Özdaş, A., Tanışlı, D., Köse, N., and Kılıç, Ç., (2005). Yeni İlköğretim Matematik Dersi (1.-5.Sınıflar) Öğretim Programının Öğretmen Görüşlerine Dayalı Olarak Deđerlendirilmesi, Yeni



- İlköğretim Programlarını Değerlendirme Sempozyumu Bildiri Kitabı (239-255), Erciyes Üniversitesi, Baskı: Sim Matbaası, Ankara.
32. Özen, R., (2006). İlköğretim Okulu Öğretmenlerinin Hizmet içi Eğitim Programlarının Etkileri Üzerine Düşünceleri (Düzce İli Örneği). Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 6(2), pp:141-160.
 33. Özsevgeç, T., Çepni, S., and Demircioğlu, G., (2004). The level of science teachers' awareness of measurement and assessment. The Congress of the 4th National Science and Mathematics Education, Marmara University, Istanbul.
 34. Shepard, L.A., (2000). The Role of Assessment in a Learning Culture. Educational Researcher, 29(7), pp:4-14.
 35. Tobin, K., (1978). Forces Which Shape the Implemented Curriculum in High School Science and Mathematics. Teaching and Teacher Education, 3(4), pp:287-298.
 36. Wolf, E.W. ve Miller, T.R., (1997). Barriers to the Implementation of Portfolio Assessment in Secondary Education, Applied Measurement in Education, 10(3), pp:235-251.
 37. Yapıcı, M. and Leblebiciler, N.H., (2007). Öğretmenlerin Yeni İlköğretim Programına İlişkin Görüşleri, İlköğretim Online Dergisi, 6(3), pp:480-490. <http://ilkogretim-online.org.tr>
 38. Yıldırım, A. and Şimşek, H., (2003). Sosyal Bilimlerde Nitel Araştırma Yöntemleri (3.Baskı). Ankara: Seçkin Yayıncılık.
 39. Yılmaz, T., (2006). Yenilenen 5.Sınıf Matematik Programı Hakkında Öğretmen Görüşleri (Sakarya ili Örneği), Yayımlanmamış Yüksek Lisans Tezi, Sakarya Üniversitesi Sosyal Bilimler Enstitüsü.