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Muammer Calik
KTU

Suat Unal
KTU

Bayram Costu
KTU

Faik Ozgur Karatas
Purdue University

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Trends in Turkish Science Education

Muammer Çalık

KTU

Department of Primary Teacher Education

Suat Ünal

Bayram Coştu

KTU

Department of Secondary Science Education

Faik Özgür Karataş

Department of Curriculum and Instruction

Purdue University

Abstract

The aim of the study is to determine the trends in Turkish Science Education on the basis of both master and doctoral theses involved. The researchers reviewed the online databases of the Higher Education Council and Proquest as well as the web page of graduate school of each university in Turkey which presents thesis archive and investigated 444 graduate theses abstracts/fulltexts in regard to their created matrix (*Year, Research Interest, Research Methodology and Sample*). The document analysis has pointed out that in terms of research interest two general trends are apparent in Turkish science education research: (1) introducing science education between 1990 and 2000 (2) keeping up with new perspectives in the line of international trends. Also, in view of research methodology although interpretive research methodology has also been preferred since 1997, descriptive research design has still dominated in this context. Some suggestions were made for future research.

Introduction

The notion '*The more the teacher knows the better she/he teaches*' has been changed in early 1990s (Ayas, Çepni, Johnson & Turgut, 1997). In other words, Turkish science educators noticed that subject matter knowledge differs from pedagogical content knowledge. Unfortunately, Turkey is little late to concentrate on science education. However, we must appreciate that Turkish science educators' efforts have been progressing day by day to keep up with the new trends in the world. To highlight what trends in our science education studies have been occurred provides us to capture insights of the studies and to refrain from replicated studies in the same context. Therein, we can not only show a better creative effort but also yield our own new trends.

Only three studies have been conducted within this perspective (Bağ, Kara & Uşak, 2002; Çakmakçı, 2007; Şimşek, Özdamar, Becit, Kılıçer, Akbulut & Yıldırım, 2008). In fact, Şimşek et al. (2008)'s study is relevant with educational technology, not Turkish Science Education. Further, Çakmakçı (2007) and Bağ et al. (2002) only listed the titles of the studies published. In other words, there is no science education study which investigates thematically graduate thesis despite the fact that there is a book chapter that concentrates on developments

in science education in the last thirty years (Sözbilir & Canpolat, 2006). This study fills in this gap.

We assumed that the best way to identify the mentioned issues is to focus on graduate thesis since each one attempts to generate original aspects. Thereby, the aim of the study is to determine trends in Turkish Science Education on the basis of both master and doctoral thesis involved.

Method

Firstly the researchers reviewed the online databases of The Council of Higher Education of the Republic of Turkey (YÖK) and Proquest Digital Dissertation as well as the web page of graduate school of each university in Turkey which presents thesis archive. When enough information about a graduate thesis was not obtained by means of these processes, the researchers sent e-mail to both author of thesis and his/her advisor to clarify the matrix. Finally, the researchers obtained most of them (n= 444, *see Appendix 1*) despite minority of them, which is named '*missing data*', were not retrieved for highlighting the matrix. The matrix, created by the researchers to identify trends in Turkish Science Education, comprises of; *Year, Research Interest, Research Methodology* and *Sample*. Since the dissertations accepted in 2008 have not been published yet, the paper does not incorporate in them.

To highlight what research interests mean, the following definitions are presented. In fact, descriptive study may overlap some of scientific literacy, measurement and assessment, science curriculum study and environmental education. However, taking their first aims into account, the researchers created such categories and excluded from descriptive study.

Research interest	Definition
Descriptive study	Research that has no other purpose than to describe phenomena and is not intended to intervene the existing case or alternative conceptions
Intervention	The purpose of intervention is to overcome the existing case (i.e. alternative conceptions or conceptual change) rather than identifying them
Teacher Education	The goal of teacher education is to enhance teacher's skill (i.e. understanding or informing catching new approaches) by means of in-service education, workshop etc.
Computer Aided Instruction	Computer Aided Instruction is primarily concerned with using computers for teaching purposes to afford students or student teachers to capture a better learning by means of animation, internet, website, information-communication-technology (ICT), hypertext, educational games and so forth
Scientific Literacy	Scientific literacy is not only knowing the scientific content knowledge but also holding accurate views on the ' <i>nature of science</i> ' involving in its reliance on inquiry. This category incorporates in both scientific literacy and nature of science
Measurement and assessment	Measurement and assessment contain both alternative and traditional manner to determine either what is known or how it influences. This category incorporates in both alternative/traditional measurement and assessment
Science Curriculum Study	Science curriculum study can compare new curriculum with old one or describe development of science curricula. Further, it includes what teachers or students thought about their effectiveness or deficiencies.
Environmental Education	This category includes in the studies of students'/teachers'/student teachers' attitudes and consciousness as well as interventions which have attempted to enhance their mentioned virtues

Findings

As can be seen from Table 1, whilst the number of intervention studies is 172, that of descriptive study is 168. Whereas frequency of teacher education studies is 18, that of computer aided instruction is 36. The number of studies focusing on scientific literacy, measurement and assessment and science curriculum study are 14, 15 and 16 respectively. The number of environmental education studies within science education is only 5.

Table 1. Frequencies of graduate theses in regard to research interest

RI	DS	I	TE	CAI	SL	MAA	SCS	EE	TN
1990	4								4
1991						1	1		2
1992	1		1						2
1993			1	2				1	4
1994		1					1		2
1995	2	1					1		4
1996	2	2					1		5
1997	4	4							8
1998	7	5							12
1999	5	3			1				9
2000	7	5		1		2			15
2001	18	9		1			1	1	30
2002	16	26	3	4	2	1			52
2003	17	20	4	4			3		48
2004	12	11	1	2	5	1	1		33
2005	19	20		5		3	2	2	51
2006	36	37	6	15	4	1	4		103
2007	18	28	2	2	2	6	1	1	60
TN	168	172	18	36	14	15	16	5	444

Key note: **RI:** Research interest; **DS:** Descriptive study; **I:** Intervention; **TE:** Teacher Education; **CAI:** Computer Aided Instruction; **SL:** Scientific Literacy; **MAA:** Measurement and assessment; **SCS:** Science Curriculum Study; **EE:** Environmental Education; **TN:** Total number

As can be seen from Table 2, the number of studies whose research methodology is experimental design is 194, while that of survey design is 98. Whereas that of studies that employed case study research design is 30, frequency of the studies using a combination of qualitative and quantitative methods is 24. Whilst that of studies within comparative research design is 19, the number of document analysis is 18. Moreover, while that of qualitative method is 10, the only one study for each of meta-analysis, action research and phenomenographic study has been conducted. Meanwhile, the number of missing data the researchers were unable to access is 48.

Table 2. Frequencies of graduate theses in regard to research methodology

RM	CoS	S	ES	CaS	DA	MA	ACOQM	AR	QM	PS	MD	TN
1990		2			1						1	4
1991					2							2
1992	1				1							2
1993	1	1	1								1	4
1994											2	2
1995			1								3	4
1996		1									4	5
1997	1	2	3	1	1							8
1998		1	6	2	2						1	12
1999		2	2	1			2		1		1	9
2000	1	2	2	2	1	1	2				4	15
2001		11	7	1	4						7	30
2002		10	30	5	1			1			5	52
2003	5	4	24	4	2		2				7	48
2004		8	12	2	1		1		5		4	33
2005	2	16	24	5			2				2	51
2006	5	25	53	4	1		10		4	1	6	103
2007	3	13	29	3	1		5				6	60
TN	19	98	194	30	18	1	24	1	10	1	48	444

Key note: **RM:** Research Methodology; **CoS:** Comparative Study; **S:** Survey; **ES:** Experimental Study; **CaS:** Case study; **DA:** Document Analysis; **MA:** Meta-Analysis; **ACOQM:** A combination of qualitative and quantitative methods; **AR:** Action Research; **QM:** Qualitative method; **PS:** Phenomenographic study; **MD:** Missing data; **TN:** Total number

As seen from Table 3, (which can be found on page 45, located at the end of this manuscript), the number of studies whose sample is grade 7 is 97 whilst the frequencies of studies whose samples are grade 8, student teachers/undergraduate students and science teachers /primary teachers are 81, 79 and 79 respectively. Whereas the number of studies with grade 6 students is 68, that of studies whose sample is grade 5 students is 44. The number of missing data the researchers were unable to access is 33, frequency of the studies whose sample is grade 4 students is 27. The number of studies whose research methodology is document analysis, named *not applicable* for grade, is 22 while that of studies whose sample is grade 9 students is 8 (despite our research does not contain samples between grade 9 and 11, these frequencies are a consequence of cross-age studies or comparative studies). The number of studies with academic staffs (faculties) is 7 whereas frequencies of the sample in grade 10 students and gifted students are the same ($f=3$). Further, the numbers of studies with grade 11 students, kindergarten teachers, graduate students and school administrators are 2 for each one whilst there is only one each study for each of kindergarden children, grade 3 students, English preparing class students and students' parents.

Discussion

Because Turkish science education has been introduced as a research field since 1990, it is not surprising that there are two popular trends as descriptive study and intervention. It is obvious that determining what is known or what the existing case is is very crucial for adjusting a new attempt. As a matter of fact, since the last two decades, science educators have been attempting to integrate identifying existing case with intervention to give students with an opportunity for better science learning. As a consequence of the results, it can be deduced that despite the fact that Science Education has been studied since 1990, it has been paid more attention since 2001 (see Table 1 and Table 2). Also, the most important year when science education studies have been submitted has been 2006 (see Table 1).

The most studied research methodology has been *experimental design*. This may result from statistical evidences where readers can compare new attempt with old one. In fact, it is

clear that experimental group or design performs better than traditional one since each material such as teaching, measurement and assessment instruments is devised and implemented for their features. Trochim (2001) view this issue as the main validity threat, i.e. the very fact of being involved in an 'experiment' may of itself result in an apparent improvement in intervention or conceptual change. Furthermore, this may stem from structures of pure sciences. That is, as a result of reconstruction in Turkish teacher education, most of pure scientists has been changed their research interests towards science education. Therefore, their prior habits in pure sciences may have influenced their science education studies. Moreover, since descriptive study and conceptual change or intervention are very common, the most widely-used way to elicit the mentioned issues is to exploit *survey* design as in case of Turkish science education (see Table 1). Meanwhile, this may come from structures of educational sciences where using survey is very common. Unfortunately, there is only one each study for meta-analysis, action research and phenomenographic study.

Why grade 7 is the most important for science education can be explained with two reasons. Firstly, grade 6 students are used to adapting new science curriculum and environment. That is, they only meet one primary teacher through their first five schooling years, but they introduce several teachers who teach them different disciplines in grade 6. Therefore, they are already dilemma or disequilibrium, so that most of Turkish Science Education studies whose sample are grade 7 students may have considered within this context. Further, grade 8 students initially focus on a national summative examination, the Selection and Placement of Students in Secondary Schools (OKS), which is used to select students for enrollment in the nation's elite schools (Çalık & Ayas, 2008). Therein, the students and their teachers are reluctant to participate in a research study which is far away from traditional method and multiple-choice questions. That is, they have considered they do not make any contribution for their summative examination. Since motivation is an important issue for learning process (e.g. Feng & Tuan, 2005; Hein, 1991; Tuan, Chin, Tsai & Cheng, 2005; Valanides, 2000), the researcher may have taken into account the crucial issue.

Despite some disadvantages of grade 6 and grade 8 students, it must be implied that a larger proportion of Turkish science education studies has conducted with them (68 for grade 6 and 81 for grade 8). Since primary/science teachers and student teachers play an important role for teaching science education, the significant ratio of the studies has been paid more attention for these samples. Furthermore, trends in Turkish science education points out that there is a shortage in making a triangulation amongst students' parents, school administrators and students since they can create an interactive environment for a better learning process (Shymansky, Yore & Anderson, 2000). Since kindergarden and grade 3 curricula incorporate in science education implicitly, it is not astonishing that there are few studies in these levels. Since students are firstly introduced with science education at grade 4 and grade 5, a significant proportion of the studies has concentrated on them. An outstanding result is that few studies are available for academic staffs (faculties) and graduate students even though they have academically been interested in science education. Trend reveals that although science education is far away from grade 9, grade 10 and 11 (secondary science or lycée), similar disciplines such as physics education, chemistry education and biology education tend to study with primary education by means of cross-age studies or comparative studies which tackle to portray changes in students' understanding or ideas or motivation and so forth in a spirall manner. Since science education is a cornerstone for these related disciplines, interlinks amongst these disciplines is, of course, not surprising.

In terms of research interest two general trends are apparent in Turkish science education research: (1) introducing science education between 1990 and 2000 (2) keeping up with new perspectives in the line of international trends. The former not only includes in breaking resistance for a new change but also gets Turkish scientists to accept science education as a new research field. This can also contain the process adapting different science education studies in developed countries to Turkish one. That is, the Turkish science education studies were very new for national manner, but they were obsolete for international level between 1990 and 2000. Secondly, Turkish science education studies have extensively been spreading day by day to keep up with new perspectives rather than adapting them since 2001 (see Table 1).

Whereas studies between 1990 and 1996 were descriptive in terms of research methodology, interpretive research methodology has also been preferred since 1997. However, descriptive research design has still dominated in this context. Otherwise, a clear trend for samples used in Turkish science education cannot be yielded because the sample changes based on research interest and research methodology. However, science education studies' samples have incorporated in an extensive level ranging from kindergarden to school administrators.

Now the third trend for research interest should be created to reflect our characteristics virtues. Further studies should be undertaken on environmental education within science education since the newly structured science curriculum has focused on interrelationships amongst other disciplines (a spiral manner). Some qualitative methods such as phenomenography study, action research are supposed to be used more to make a deeper investigation. Future studies ought to focus on how to integrate these significant researches with development of science curricula and teacher education. That is, science educators should rescue these graduate studies from leaving them out or stowing them to library. An example planning model has been recommended by Çalık and Ayas (2008).

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Appendix 1. Graduate thesis in regard to chronological and alphabetical order

No.	Year	University	Title	Author
1	1990	Ankara University	The degree to which objectives of the courses 'social sciences' and 'science' in grade 5 are achieved [<i>İlkokul beşinci sınıf sosyal bilgiler ve fen bilgisi derslerinin amaçlarının gerçekleşme düzeyi</i>]	Ragıp Candan
2	1990	Gazi University	The difficulties of doing experiment on biology subjects of sciences	Halil Aşıcı
3	1990	Hacettepe University	A general evaluation of science teaching in Turkey, conclusions and implications [<i>Türkiye'de fen öğretiminin genel bir değerlendirilmesi, sonuçları ve öneriler</i>]	Ayhan Yılmaz
4	1990	Hacettepe University	Science education and problems of secondary schools conducting foreign language instruction in Turkey [<i>Türkiye'de yabancı dille öğretim yapan orta öğretim kurumlarında fen öğretimi ve sorunları</i>]	Emine Erdem
5	1991	Columbia University	Educational change and politics in Turkey, 1946-1971	Fatma Gök
6	1991	Hacettepe University	Investigating psychometric characteristics of science high school entrance exam's questions in 1989 [<i>1989 yılı fen lisesi giriş sınavı sorularının psikometrik özelliklerinin incelenmesi</i>]	Nesrin Yıldız
7	1992	Boston University	A study of the professional development system of the Turkish Ministry of National Education	Sezai Kaya
8	1992	Middle East Technical University	The effect of water conservation unit integrated into sixth grade junior high school science curriculum on the water related and environmental attitudes of the students	Sibel Arkis
9	1993	Ankara University	Evaluating primary school teachers' educational technology efficacy of science teaching [<i>İlkokul öğretmenlerinin fen öğretimine ilişkin eğitim teknolojisi yeterliliklerinin değerlendirilmesi</i>]	Şeniz Koruyan
10	1993	Hacettepe University	The relations between attitudes toward their science lessons of the second stage students in elementary school	Meral Oruç
11	1993	Middle East Technical University	A pilot study on the effect of soil conservation unit integrated in to 7 th grade junior high school science curriculum	Meryem Doğan
12	1993	Middle East Technical University	Effects of computer assisted instruction on students chemistry achievement, attitude toward CAI and chemistry and their perception about the CAI environment at the secondary school level	Serpil Yalçınal
13	1994	Dokuz Eylül University	Alternative education methods that can be implemented in teaching the course 'science' in grade 6 [<i>Ortaokul 1.sınıf fen bilgisi dersinin öğretiminde uygulanabilecek alternatifli eğitim yöntemleri</i>]	Hülya Hamurcu
14	1994	Hacettepe University	Managers' and teachers' views of science curricula in primary school [<i>İlköğretim kurumları fen bilgisi dersi öğretim programlarına ilişkin yönetici ve öğretmen görüşleri</i>]	Hülya Delikoyun
15	1995	Anadolu University	Effectiveness of instruction with small groups in science education [<i>Fen öğretiminde küçük gruplarla öğretim yönteminin etkinliği</i>]	Sedat Sümbül
16	1995	Ankara University	An evaluation of laboratory activities in primary science education [<i>İlkokullarda fen öğretiminde laboratuvar etkinliklerinin değerlendirilmesi</i>]	Zehra Özçınar
17	1995	Hacettepe University	Approaches to improve the level of relevant achievement and the retention of what is learned in elementary school science	Selma Moza (Parlıt)
18	1995	Marmara University	Effectiveness of science curricula in elementary ones [<i>İlköğretim programlarında fen bilgisi programlarının etkinliği</i>]	Esra Macaroglu
19	1996	Dokuz Eylül University	Cooperative learning, science achievement, retention, student attributions and interaction in cooperative learning groups	Kasap Hale
20	1996	Dokuz Eylül University	Achievement effect of cooperative learning on teaching science in basic education	N. Selma Akın
21	1996	Marmara University	A comparison of science curricula in Azerbaijan, Bulgaria and Turkey (Pressure topics) [<i>Azerbaycan, Bulgaristan ve Türkiye'deki ilköğretim fen programlarının karşılaştırılması (basınç konuları)</i>]	Vahide Yılmaz
22	1996	Middle East Technical University	The perceptions of teachers on the development of the science process skills at 4 and 5 grades	Elif Birten Ercan
23	1996	Middle East Technical University	Promoting teachers awareness of students misconceptions in introductory mechanics	Erdat Çataloğlu
24	1997	Ankara University	The application of cognitions which were learned in the lessons of science, mathematics, painting in elementary school in to work instruction teaching and effectiveness of these cognitions	Ramazan Koç
25	1997	Dokuz Eylül University	A comparative evaluation of occupational expectations of undergraduate students attending in Science and Social Science [<i>Fen ve sosyal bilim eğitimi gören üniversite gençliğinin mesleklerine yönelik beklentileri üzerine karşılaştırmalı bir değerlendirme</i>]	Nesrin Bülbül
26	1997	Hacettepe University	Analyze the psychometric characteristics and multiple choice test items which were prepared according to the curricula for secondary education	Zafer Ünal
27	1997	Marmara University	The effect of group working with reward or without reward from	Abdullah Türkmen

28	1997	Marmara University	teaching methods	
29	1997	Marmara University	Effects of models and games on teaching the unit "our earth and sky" at class 4 of primary schools	Dilek Ercanlı
30	1997	Marmara University	Effects of students' working habits and teachers' teaching methods on student achievement in 'Light' unit in united classes <i>[Birleştirilmiş sınıflar fen bilgisi dersi ışık ünitesinde öğrenci başarısına öğrencilerin çalışma alışkanlıkları ve öğretmenlerin ders işleme yöntemlerinin etkisi]</i>	Gülten Uçar
31	1997	University of Reading	In private courses, effects of teaching with experiments of the unit (let's learn the matter) in sciences courses for acquiring concepts and remembering	Zehra Kılıç
32	1998	Boğaziçi University	Models and explaining dissolving	Yasemin Gödek
33	1998	Çanakkale Onsekiz Mart University	Science (biology, chemistry and physics) teachers views on the nature of science as a dimension of scientific literacy	Buket Yakmacı
34	1998	Çanakkale Onsekiz Mart University	The effects of the use of concept maps on student conceptualizations on science teaching in primary school	Hülya Altınok
35	1998	Hacettepe University	The adequacy of science training curriculum in practice in primary schools	Sibel Ceyhan
36	1998	Karadeniz Technical University	Evaluation and proposals of chemistry experiment of science lessons in primary education	Aysun Doğan
37	1998	Marmara University	Grade 5 students' understanding level of underlying chemistry concepts <i>[İlköğretim-V öğrencilerinin temel kimya kavramlarını anlama seviyeleri]</i>	Miraç Sağlam
38	1998	Middle East Technical University	Effect of laboratory experiments in grade 4 and grade 5 on students' attainment of 'mechanics' topic and their comprehension of the concepts <i>[İlköğretim okullarının 4. ve 5. sınıflarında laboratuvar deneylerinin öğrencilerin mekanik konusundaki başarısına ve kavramları kazanmasına etkisi]</i>	Öner Yavru
39	1998	Middle East Technical University	Effects of conceptual change texts accompanied with laboratory activities based on constructivist approach on understanding of acid-base concepts	Ayşe Yavuz
40	1998	Middle East Technical University	Effect of instruction on students' understanding of electric current concept using conceptual change text at sixth grade	Bugrahan Yalvaç
41	1998	Middle East Technical University	Effect of conceptual change approach accompanied concept mapping on understanding of solution	Esen Uzuntiryaki
42	1998	Middle East Technical University	A qualitative assesment of departmental effectiveness from the perspectives of teachers and department heads: A case study of Turkish and science departments in a private middle school	Gülsüm Eryalçın
43	1998	Selçuk University	Effect of science process skill oriented lesson on understanding of fluid force concepts	Pınar Doğruöz
44	1999	Çanakkale Onsekiz Mart University	A transition issue from first stage to second one in science curricula in the city of Konya <i>[Konya ilinde ilköğretimde uygulanan fen bilgisi ders programlarının I.kademeden II.kademeye geçiş durumu]</i>	Osman Çardak
45	1999	Gazi University	To discover the utilisation of practical methods in science lessons by class teachers during in the first five years of primary education that is when the children are in the 6-11 year age bracket	Bülent Güven
46	1999	Hacettepe University	The effect of physics lessons supported by lab experimenes to student's success and modern mathematics and science programmes conducted in Turkey between 1962-1985	Şimal Algan
47	1999	Karadeniz Technical University	Perception and understanding levels related with process steps of the experiments caried out in science lesson of the five grades students at elementary school	Fatma Gümtüş
48	1999	Marmara University	The 8 th grade students'levels of understanding of the introductory physics concepts	Uğraş Bektaş
49	1999	Marmara University	The relationship between students attitudes toward their science lessons and their achievement in science	Dilek Tepe
50	1999	The Pennsylvania State University	Science education with method of "discovery teaching" at level of elementary education	Lütfi Üredi
51	1999	The University of Nebraska	Pre-service elementary teachers' understanding of scientific inquiry and its role in school science	Esra Macaroğlu
52	1999	Vanderbilt University	A study of undergraduate science education major students' attitudes towards science and science teaching at four-year teachers colleges in Turkey	Lütfullah Türkmen
53	2000	Dokuz Eylül University	Merging curriculum design with chemical epistemology: A case of teaching and learning chemistry through modeling	Sibel Erduran
54	2000	Gazi University	The usage of educational equipment by elementary science teachers and the evaluation of educational resource center services (Izmir-sample)	Hülya Hamurcu
55	2000	Gazi University	Identifying and removing 8th grade student' misconceptions of matter, its particulate-empty space-kinetic structure	Dilek Yeğnidemir
56	2000	Gazi University	The problems faced in the methods of science teaching	Mustafa Doğru
57	2000	Hacettepe University	A research onto determine the ways primary school (5th, 6th and 7th grade) students concepts concerning light and its properties	Özlem Cansüngü
			An investigation of the effects of different item-option scoring	Oylum Akkuş

58	2000	Hacettepe University	methods on item and test parameters An assessment of the attainability levels and antecedence precedence relationships of the goals and behaviors in relation to the cognitive domain of basic education school fifth grade science issues course programme	Özlem Işıklı Demirkayık
59	2000	Karadeniz Technical University	The 6th class students' misconceptions in light subject	İlhami Yıldız
60	2000	Karadeniz Technical University	The levels of students' understanding of basic concepts in reproduction and inheritance in the living things unit at 8th grade	Ömer Özcan
61	2000	Marmara University	Factors affecting academic achievement of undergraduate students who attended 'science' [<i>Fen alanında öğrenim gören üniversite öğrencilerinin akademik başarılarını etkileyen zihinsel olmayan faktörler</i>]	Ahmet Kaymaz
62	2000	Ohio University	A meta-analysis on the effectiveness of computer-assisted instruction in science education	Şule Bayraktar
63	2000	Middle East Technical University	Effect of conceptual change text instruction on students' understanding of chemical change and conservation of mass concepts	Gülsüm Bayır
64	2000	Middle East Technical University	The Fit of one, two and three-parameter models of item response theory (IRT) to the ministry of National Education-Educational Research and Development Directorate's (MNE-ERDO) science achievement test data	Müfide Çalışkan
65	2000	Middle East Technical University	The effect of conceptual change texts in students' achievement of atom, molecules matter concepts	Selda Ünlü
66	2000	Osmangazi University	Using in physic education of the equipments	Ömer Dalkıran
67	2000	The American University	Academic quality assessment in Turkish undergraduate institutions	Hasan Arslan
68	2001	Ankara University	The factors effected on the science achievement of fourth and fifth graders	Fatma Hazır Bıkmaz
69	2001	Atatürk University	Importance of teaching with model in science education	Şenol Kaya
70	2001	Balıkesir University	Effectual teaching of science	Özlem Aslan
71	2001	Boğaziçi University	Radical constructivism in science education	Ebru Zeynep Aktürk Muğaloğlu
72	2001	Boğaziçi University	Scientific thinking skills among prospective science teachers	Kerban Hanöz
73	2001	Celal Bayar University	An experimental study at concept maps of science instruction	Bahadır Taş
74	2001	Celal Bayar University	The effects of instructional program applied on students academical self-concept in hard-science teaching department	Fatma Şaşmaz
75	2001	Celal Bayar University	The evaluation of the student's opinions who are at the second grade of the primary schools about the experimental studies in science education	Hasan Said Tortop
76	2001	Celal Bayar University	The evaluation of the student's manner who are the second grade of the primary schools about the science	Murat Genç
77	2001	Celal Bayar University	In the primary school science teacher of second grades professional knowledge and deftness should test by some variable	Murat Özkaya
78	2001	Dokuz Eylül University	The problems faced in the curriculum of science lesson in the fourth and fifth classes of the elementary schools and the solution suggestions according to the opinions of the teachers	İlhan Kozandağlı
79	2001	Dokuz Eylül University	Comparison of science students whom are attending Celal Bayar University and Dokuz Eylül University attitudes with some variables	Uğur Serin
80	2001	Gazi University	Concept of atom and molecule on the primary and secondary education students	Aynur Gündüz
81	2001	Gazi University	Determination of misconceptions about mole concept which are held by science teacher candidates and proposals related to instruction on the subject	Gürsoy Meriç
82	2001	Gazi University	Adequacies for the laboratory practices in second stage primary education basic sciences teaching	Kamile Semerci
83	2001	Gazi University	Identifying some misconceptions of elementary school students (6 th, 7 th and 8 th grades) about environmental problems	Orçun Bozkurt
84	2001	Hacettepe University	Evaluation of chemistry topics in the textbooks of 6, 7, 8, grades of basic education	Hüseyin Merdeşe
85	2001	Karadeniz Technical University	The student's level of understanding and misconceptions of basic concepts in the unit " Living Things and Life " at the grade 4th	Burçak Nevzat Arslan
86	2001	Marmara University	The effect of constructivist teaching approach based activities on student academic achievement and concept learning in primary education science lesson	Halil Turgut
87	2001	Marmara University	The effect of dramatization method 6th grade students' academic achievement in science	Hatice Elif Güzel (Sağırlı)
88	2001	Marmara University	Effect of science course of student instructed with cooperative learning on student's success, concept learning and remembering	İşıl Kurt
89	2001	Marmara University	The effect of teaching with concept map and constructing concept map as groups on success and remembering of students in science lesson in primary schools	Mehmet Kürşad Duru
90	2001	Middle East Technical University	The effect of the asynchronous web based course on the pre-service teachers' achievement, metacognition, and attitudes towards computer, www and web based course	Abdullah Toprak

91	2001	Middle East Technical University	Remediation of seventh grade students' misconceptions related to ecological concepts through conceptual change approach.	Özlem Özkan
92	2001	The Pennsylvania State University	A case study of a novice college student's alternative framework and learning of force and motion.	Mehmet Fatih Taşar
93	2001	Uludağ University	Hands on science	Mızrap Bulunuz
94	2001	Uludağ University	The effects of previous science, experiences of pre-service teachers on confidence in science teaching	Nermin Bulunuz
95	2001	Yüzüncü Yıl University	An approach to the elementary science education in 6. , 7. and 8. grades by the using science processes	Gönül Araç
96	2001	Yüzüncü Yıl University	Scientific processes and conceptual themes in teaching introductory science	M. Ali Karaarslan
97	2001	Yüzüncü Yıl University	The methods which are used in chemistry of the programme of nature science in the second stage of primary education	Mehmet Yetim
98	2002	Abant İzzet Baysal University	Examining the difference of learning styles between the undergraduate students who study in science, social and educational science fields	Altay Eren
99	2002	Ankara University	The effectiveness of conceptual change texts on overcoming students misconceptions	Mine Gökçe
100	2002	Atatürk University	Investigations of effectiveness of conceptual change approach on understanding of solubility concepts	Tacettin Pınarbaşı
101	2002	Atatürk University	Different socio-economic primaryschool fourth class realization the target level in science lesson programme in Erzurum	Yusuf Kalmaz
102	2002	Celal Bayar University	Teaching of eighth level science course including "multiplying and heredity in living beings" unit, the effects of the method of computer assistance teaching method and traditional method on students' success	Cenk Yoldaş
103	2002	Celal Bayar University	Teacher evaluations on the program and material relationship for achieving program targets of elementary education science class	Feride Argun
104	2002	Celal Bayar University	Usage of practical and technological methods in science teaching	Suat Türkoğuz
105	2002	Çukurova University	The effects of multimedia courseware designed based on dual coding theory in science teaching on academic achievement, performance level and retention of learning	M. Emre Sezgin
106	2002	Çukurova University	Teaching "biological variety and erosion" on the base of meaningful learning theory and it's effect on academic succes and retention in primary school, third grade	Şule Ersoy
107	2002	Dicle University	An evaluation of science teachers' perceptions of 'Science Teaching' [Fen Bilgisi Öğretmenlerinin Fen Bilgisi Öğretimine İlişkin Algılarının Değerlendirilmesi]	Bestami Dağlı
108	2002	Dokuz Eylül University	The problems in the science topics based on mathematics at sixth and seventh grades in the primary education, the role of mathematics in such problems and the role of technology in solving problems and solution suggestions	Bülent Çavaş
109	2002	Dokuz Eylül University	The views of teachers relation to the primary science curriculum in 1992 and 2001 (sample of İzmir)	Dilek Akpınar
110	2002	Gazi University	Examining the effect of hands-on teaching method on student achievement in teaching certain science topics by using simple machines	Ali Telli
111	2002	Gazi University	Primary school science education the use of concept maps in 6th grade biology subjects and their effect on success	Devrim Akgündüz
112	2002	Gazi University	A survey study of 6th, 7th and 8th grade students misconceptions in electricity	Halil İbrahim Yıldırım
113	2002	Gazi University	Teaching methods foolowing by teachers and the effects of these methods to student's succens in science teaching of primary school	Nalan Savaş
114	2002	Gazi University	The effect of the multiple intelligences theory on grade-7 students achievement, retention on their knowledge, attitude and perceptions in the topic of atom and atomic structure	Osman Nafiz Kaya
115	2002	Gazi University	A survey study of primary education 6 th, 7 th and 8 th grade students misconceptions about photosynthesis	Önder Şensoy
116	2002	Gazi University	The determination of misconceptions and understanding level of heat and temperature subject at primary teaching science lessons	Seyhan Mert Meriç
117	2002	Gazi University	The effect of computer assisted instruction on sixth grade students academic achievement in the teaching of flowery plants in science course at primary education	Süleyman Akçay
118	2002	Hacettepe University	The effects of project based learning on creative thinking ability, problem solving ability and level of academic risk taking in science education	Hünkar Korkmaz
119	2002	Hacettepe University	The effects creative problem solving method on success level and attitude educational science knowledge lesson	Meltem Oğuz
120	2002	Marmara University	Influence of concept maps constructed in group cycles on academic success and conceptual development	Aysun Öztuna
121	2002	Marmara University	Character development process by means of developing students motivation in the education of science	Derya Baykent
122	2002	Marmara University	Effect of classroom activities about cell division on improvement of problem solving skills of 8th grade students	Feride Kor
123	2002	Marmara University	The effect of active learning methods on learning how 8th grade	Hatice Mertoğlu

124	2002	Marmara University	elementary school students learn nutrition concept Determine the primary science teachers understandings about on the nature of science	N. Yücel Oyman
125	2002	Marmara University	The effect of using analogy on the succeed in science instruction	Selman Sağırıcı
126	2002	Middle East Technical University	Preservice science teachers' efficacy beliefs regarding science teaching and their classroom management beliefs.	Ayşe Savran
127	2002	Middle East Technical University	Implementation of multiple intelligences based instructional techniques in developing and teaching buoyancy concept to 7th grades	Berna Güneş
128	2002	Middle East Technical University	Contribution of conceptual change instruction accompanied with concept mapping to students understanding of state of matter.	Candan Yılmazoğlu
129	2002	Middle East Technical University	The assessment of the biology items in the 1998-2001 secondary school institutions student selection and placement tests	Ela Ayşe Köksal
130	2002	Middle East Technical University	Prospective science teachers perceptions about the nature of science	Elvan Kahyaoğlu
131	2002	Middle East Technical University	The role of refutational text supported with discussion web in overcoming difficulties with electric current concepts of 6th grade students	Gamze Sönmez
132	2002	Middle East Technical University	Effectiveness of conceptual change instruction on overcoming students' misconceptions of fluid force at 7th grade level	Hülya Yeşilyurt Karadağ
133	2002	Middle East Technical University	Effect of the conceptual change oriented instruction through cooperative learning accompanied by concept mapping on 4th grade students' understanding of earth and sky concepts	Okşan Çelikten
134	2002	Middle East Technical University	The development, implementation and evaluation of a case-based method in science education	Özlem Sıla Çakır
135	2002	Middle East Technical University	Improving conceptual change concerning diffusion and osmosis through a combined strategy: Concept mapping and conceptual change text	Pınar Doğru
136	2002	Middle East Technical University	The effects of instructional strategies based on the principles of multiple intelligence theory on understanding of "diversity of livings things"	Pınar Özdemir
137	2002	Middle East Technical University	The development of some components of scientific literacy in basic education	Tunç Erdal Akdur
138	2002	Karadeniz Technical University	A study about the evaluation of the science student teachers' scientific literacy and application of science-technology-society course	Ahmet Bacanak
139	2002	Karadeniz Technical University	The role of science teachers professional experiences on students learning of science in an effective way	Fatma Doğan
140	2002	Karadeniz Technical University	Developing teaching activities for determining the cognitive levels of the middle school students: A case study	Gonca Abuzeroğlu
141	2002	Karadeniz Technical University	Implementation of an in-service action research course program for science teachers: A case study	Mehmet Küçük
142	2002	Karadeniz Technical University	The implementation of faculty-school partnership program and the difficulties encountered in practice	Serkan Sevim
143	2002	Karadeniz Technical University	Determination of the relationships between middle school student's profiles and their cognitive development levels in the selected science topics	Tuncay Özsevgeç
144	2002	Selçuk University	The effect of different learning strategies used by the 7th class primary school students in science courses to their success	Ayşegül Derman
145	2002	Selçuk University	The evaluation of the methods which is used in science teaching from the 4th classes teachers point of view	Işıl Sönmez
146	2002	Selçuk University	An analysis of the effect of computer assisted instruction technique prepared according to Gagne's instruction theory to teach science in primary education	Şemseddin Gündüz
147	2002	The Pennsylvania State University	Development and validation of an achievement test in introductory quantum mechanics: The quantum mechanics visualization instrument (QMVI)	Erdat Çataloğlu
148	2002	Uludağ University	The understanding level of knowledge and concepts in the electricity chapter among fourth and fifth grade primary school students	Şirin İlkörücü Göçmençelebi
149	2002	Uludağ University	To investigate the effect of the hands-on chemistry activities on pre-service teachers attitudes and achievement towards chemistry course	Zehra Özdilek
150	2003	Afyon Kocatepe University	5th grade primary school student's misconceptions related to force and motion	Aysel Candan
151	2003	Atatürk University	Level of reaching cognitive objectives by fifth grade public and privative primary school students in science course	Erdal Bay
152	2003	Central Michigan University	The relationship between paranormal beliefs and the personality trait openness to experience: A comparison of psychology majors with students in other disciplines	Eric Doğan Özkan
153	2003	Çukurova University	Primary education 4th and 6th class students levels of forming of concept mapping	Erkan Akkayüz
154	2003	Dokuz Eylul University	Teaching science with discovery approach focusing on energy: The unit of matter and energy for living things	Ercan Akpınar
155	2003	Dokuz Eylul University	Discovery approach in science education: Unit of magnetism	Hilal Aktamış Aşkar

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156	2003	Gazi University	Teacher's views at the subject of new curricula programme's relevance in realization of the elementary science education goals	Ahmet Karatepe
157	2003	Gazi University	The problems encountered during the physics experiments are being done in elementary science education	Aykut Emre Bozdoğan
158	2003	Gazi University	New improvements in science education and its (1960-1985 period) applications in Turkey	Engin Baysen
159	2003	Gazi University	Some factors influencing grade 8 students' achievement in science education [<i>İlköğretim 8. sınıf öğrencilerinin fen bilgisi başarısını etkileyen bazı faktörler</i>]	Fatma Turhan
160	2003	Gazi University	The effect of the method of computer aided education of science lessons instruction on student success: Nucleicacids	Filiz Arkan
161	2003	Gazi University	Determination of misconception of science teacher candidates by means of concept map	Kamil Karamusaoğlu
162	2003	Gazi University	Determination of characteristics of the science teacher's guide book according to teacher's opinions	Nihal Yıldırım
163	2003	Gazi University	The effect of poster presentation activity on science education 3rd grade students' learning gene cloning	Nilay Keskin
164	2003	Gazi University	The influence of science education based on creative thinking on learning products	Özlem Canstingü Koray
165	2003	Gazi University	The effects on the learning outputs of problem based learning in science education	Süleyman Yaman
166	2003	Gazi University	The fixing of instruction methods of the teachers use on teaching science	Zeliha Erdoğan
167	2003	Hacettepe University	The creative activities which class teachers apply in the science lectures	Bilge Öztepe
168	2003	Hacettepe University	Effects of the active learning approach on the achievement, the retention and the attitude	Cavide Demirci
169	2003	Hacettepe University	Evaluation of forth-grade science curriculum	Ceren Erktan
170	2003	Hacettepe University	Relationships between fen lycee students student selection and placement examination for secondary education institutions scores and their academic successes	Mustafa Durak
171	2003	Hacettepe University	Cross age (between 11-14 years old) study regarding the comprehension of mixture, matter's change of state, density, physical-chemical change and pressure subjects in chemistry	Nuray Zan Yörük
172	2003	Hacettepe University	Surveying of science teachers poinions on constructivist learning approach	Şeyda G. Özmen
173	2003	Karadeniz Technical University	Prospective science teachers level of understanding of some basic chemical concepts and their misconceptions	Hülya Demircioğlu
174	2003	Karadeniz Technical University	A cross-age study of level of students' understanding related to concepts in solution chemistry	Muammer Çalık
175	2003	Karadeniz Technical University	The organization of environments for reflecting expected skills from science and physics prospective teachers	Orhan Karamustafaoğlu
176	2003	Karadeniz Technical University	Determination of the science teachers needs and development the guided materials for gwering some needs	Seldem Kop
177	2003	Karadeniz Technical University	Developing guide material based on simple tools related to the unit 'travel to inner structure of matter' and it's effectiveness on teaching process	Sevilay Karamustafaoğlu
178	2003	Marmara University	The effects of computer assisted science instruction materials on students achievement in heat and the journey of heat in the matter unit	Arif Çömek
179	2003	Marmara University	The environmental knowledge and attitudes of science and biology trainees before and after an university ecology course	Aynur Can Engin
180	2003	Marmara University	The Improvement and the conceptualization of biotechnology in the students of primary education	Burcu Sağlamer
181	2003	Marmara University	Determining the learning level of concepts about natural resources and conservation of natural resources of 4th -8th students in Turkish primary schools	Canan Polat
182	2003	Marmara University	The effects of mathematics pre-knowledge, logical reasoning abilities and consept mapping teachiques on the success of students about solving science problems	M.Ceyhun Vural
183	2003	Marmara University	The effect of cooperative learning hethod and achievement of teaching the structure of atom in sience course and the subject of periodic table	Emel Oğuz
184	2003	Marmara University	The effect of teaching classification and conversion of matters subject with learning cycle model on achievement	Hatice Ünal
185	2003	Marmara University	Concepts and students knowledges about animals of biological richness for schedule of primary schools science 4-7 classes	Lütfullah Balcı
186	2003	Marmara University	The effect of concept maps on remediation of students misconception and remembering in science lesson in primary schools	Ömer Faruk Özata
187	2003	Marmara University	The effect of concept mapping tecnique on the success of students about soluing multiple choice test questions	Pınar Üstün
188	2003	Marmara University	Impact of the family participation on the 4th class primary school students sucess of the subject environment we live	Şebnem Atcı

189	2003	Middle East Technical University	The acquisition of science process skills through problem based instruction	Ayşe E. Köksal
190	2003	Middle East Technical University	The relationships between seventh and tenth grade students' self-estimated intelligence dimensions, and their science or physics achievement	Emel Uysal
191	2003	Middle East Technical University	Modeling of the factors affecting science achievement of eighth grade Turkish students based on The Third International Mathematics and Science study-repeat (TIMSS-R) data	Ertuğrul Özdemir
192	2003	Sakarya University	Determination of impact on academic success and attitude with applying constructivist approach in science teaching	Fatime Balkan
193	2003	Selçuk University	The effect of strategy of problem solving applied 7th classes of science courses in elementary schools on understanding conceptual meaning and problem solving performances	Seyit Ahmet Kiray
194	2003	Yıldız Technical University	Effect of the application of a constructivist learning environment on student achievement, prevention of misconceptions, knowledge recall and students subjective learning experiences when applied to 7 th grade students the science topic of forces	Murat Dinçer
195	2003	Yuzuncu Yıl University	The place and importance of the applications in science lesson	Turgut Kurt
196	2003	Yuzuncu Yıl University	The research of children's ideas in some science subjects	Sabri Kan
197	2003	Yuzuncu Yıl University	The ascertain of subject chemistry in primary school's lesson's curriculum program and the comparison with the previous years' curriculum	Tekin Artunç
198	2004	Celal Bayar University	Misconceptions of the candidate science teachers belongs to main physics subject and it's reasons	Ahmet Yumuşak
199	2004	Çukurova University	The effect of computer assisted instruction on the success of the 6th grade class primary school students on teaching 'discovering the space unit' of science lesson	Özgür Öner Öz
200	2004	Dokuz Eylül University	Teaching science by using different laboratory techniques	Eylem Yıldız
201	2004	Gazi University	A research for effect to learning of science teachers' graduated faculty and programe	Erhan Ekici
202	2004	Gazi University	The effect of learning cycle on the pre-service students of science education in the physics laboratory	Hasret Nuhoğlu
203	2004	Gazi University	The effect of the 4MAT teaching model on students' attitudes and success in science lesson during teaching photosynthesis-cellular respiration subject of a 8 th grade science lesson	Mehmet Mutlu
204	2004	Kafkas University	The determination of misconceptions related energy concept in the eight-level students and comparing the differences between schools	Necati Hırça
205	2004	Karadeniz Technical University	A study of developing a model for the education of science teachers of gifted children	Murat Gökdere
206	2004	Karadeniz Technical University	A study for science teachers to develop their information and skills about designing and using instruction sustaining materials	İlknur Çakır
207	2004	Karadeniz Technical University	Effectiveness of conceptual change texts accompanied with concept mapping instructions on overcoming prospective science teachers' misconceptions of photosynthesis and respiration in plants	Sacit Köse
208	2004	Marmara University	The effects of Roundhouse diagram based study on students' achievement and concept learning in "heat and the journey of heat in the matter" unit	Arzu Alemdar
209	2004	Marmara University	The effect of project studies in science on students' science perceptions and science process skills [<i>Fen bilgisi dersinde proje çalışmalarının öğrencilerin bilim anlayışına ve bilimsel süreçleri algılamalarına etkisi</i>]	Ayşegül Kınık
210	2004	Marmara University	The examination of science teachers' abilities to ask questions	Burcu Özüygun
211	2004	Marmara University	The effect of formative evaluation on learning products in science teaching	Cüneyt Ulu
212	2004	Marmara University	The second grade level primary school students' perceptions of the concepts of "science" and "scientific process"	Gülfem Muşlu
213	2004	Marmara University	To overcome the misconceptions of the 7th grade students in primary school education about "the transformations and classifications of the matters" by means of experiment method and concept map method	Nilgün Ersoy
214	2004	Marmara University	The effect of using games and models on teaching the topic of "atomic structure and periodic table" in science achievement	Nur Yıldırım
215	2004	Middle East Technical University	The effects of multiple intelligences based instruction on sixth graders' science achievement and attitudes towards science	Aydın Akbaş
216	2004	Middle East Technical University	Effect of analogy-enhanced instruction accompanied with concept maps on understanding of acid-base concept	Candan Yılmazoğlu
217	2004	Middle East Technical University	Gifted students' attitudes towards science and classroom environment based on gender and grade level	Fulya Cürebal
218	2004	Middle East Technical University	Preservice elementary teachers' science knowledge, attitude toward science teaching and their efficacy beliefs regarding science teaching	Hilal Sarıkaya
219	2004	Middle East Technical University	Modeling the relationship between the science teacher characteristics and eighth grade Turkish student science achievement in TIMSS-R	İbrahim Yaman

220	2004	Middle East Technical University	Eight grade students' perceptions of their science learning environment and teachers' interpersonal behavior	Nazan Rakıcı
221	2004	Middle East Technical University	Investigation of the preservice science teachers' views on nature of science	Rahşan Erdoğan
222	2004	Middle East Technical University	The effect of activities based on role-play on ninth grade students' achievement and attitudes towards simple electric circuits	Yadikar Küçüker Tunçer
223	2004	Pamukkale University	In-service and pre-service science teachers views about effective science teaching and effective science teacher	Kadir Bilen
224	2004	Sakarya University	Teacher training in computer based instruction (for 6-8. grade, math and science)]	Zekeriya Karadağ
225	2004	The Florida State University	Science teachers' worldviews: A way to understand beliefs and practices	Yalçın Yalaki
226	2004	The Ohio State University	The effect of using the history of science in science lessons on meaningful learning	Hayati Şeker
227	2004	The Pennsylvania State University	Exploring prospective secondary science teachers' understandings of scientific inquiry and Mendelian genetics concepts using computer simulation	Mustafa Çakır
228	2004	University of Illinois at Urbana-Champaign	An empirical investigation of the validity of Secondary School Institutions Student Selection and Placement Test (SSISSPT) in Turkey	Özlem Yeşim Özbek
229	2004	Université Louis Pasteur	Formation et développement du contenu conceptuel: du sensoriel au catégoriel et des particules aux phénomènes	Kemal Yürümezoğlu
230	2004	Yüzüncü Yıl University	The evaluation of the chemistry topics presented in the science curriculum of the elementary education 4th and 5th classes	İbrahim Ateş
231	2005	Ankara University	Evaluation of portfolio application in seventh grade science lessons	Nuray Okan
232	2005	Çanakkale Onsekiz Mart University	The effect of inquiry teaching on student achievement in 7th grade science course	Betül Timur
233	2005	Celal Bayar University	Environmental educations applications supported by multiple intelligence theory on the 7th grade students in primary school	Fatih Çolak
234	2005	Celal Bayar University	The effects of constructivist learning approach on science education and according to constructivist intelligence secondary school students' perceptions of science	Kadriye Erfidan
235	2005	Celal Bayar University	Teaching "mitosis and meiosis division" subjects in unit "generation and evolution in living beings" by computer supported education system and developing material related to this	Seda Kara
236	2005	Celal Bayar University	Comparison of Minilabor method and traditional method in teaching of 8th class science course's chemistry chapters	Senem Cankurt
237	2005	Celal Bayar University	Teaching of atomic structure and periodic table unit within journey through interior structure of substance for 7th grade in prime education on computer with educational games and modelling	Serap Obut
238	2005	Celal Bayar University	Determining measurement and evaluation techniques which is appropriate for active education models used for primary school 7th grade science knowledge lecture	Serap Poyraz
239	2005	Celal Bayar University	Comparison of the science curriculum between some of European Union countries and our country	Zafer Akkaya
240	2005	Çukurova University	The influence of learning together techniques, one of the cooperative learning techniques on the academic success and friendship bonds of the 5th grade science class students	Ebru Kollu
241	2005	Çukurova University	The effects of team search technique on primary school fifth grade students' academic achievements and attitudes towards science course	Mustafa Emre
242	2005	Dicle University	The effect of multiple intelligence implementations supported by mastery learning on achievement, retention and attitudes of science lesson	Meral Öner
243	2005	Dokuz Eylül University	Designing learning environment integrated with technology in primary science education	Bülent Çavaş
244	2005	Dokuz Eylül University	Deep learning in science teaching: Modelling for "pressure"	Gül Ünal
245	2005	Gazi University	The successes of the eight grade students of a primary school the retention of knowledge which they learn, attitudes and perceive of "chemical connection" according on the theory of multiple intelligences the teaching affections	Havva Bayrak
246	2005	Gazi University	The effects of Inquiry method on middle school (level 7) students' achievement, conceptual change, scientific process skills and attitude toward science about the atomic structure	Melek Nur Erdoğan
247	2005	Gazi University	Prospective elementary science teachers' pedagogical content knowledge about flowering plants	Muhammet Uşak
248	2005	Gazi University	The effect of the teaching methods based on constructive learning approach on the successes in the subject of acids-bases and their conceptional variations, and the attitudes against the science lessons of eighth class students primary school	Selda Çolak
249	2005	Gazi University	Investigation of prospective science teacher's mathematical sufficiency in function concept context and their to apply their mathematical knowledge in this context in solving science problems	Yıldırım Sarıkaya
250	2005	Indiana University	Attitudes of pre-service elementary teachers towards science: A	Nihal Buldu

			cross-national study between the United States of America and Turkey	
251	2005	Kafkas University	Evaluating how public primary schools and private establishments contributed high school entrance exam (LGS) [<i>Kamu ilköğretim okulları ve özel dersanelerin LGS sınavlarına katkısının değerlendirilmesi</i>]	Murat Özcan
252	2005	Kafkas University	Primary school teachers' and students' attitudes of environment, their competency and regional diversity in environmental education (A case study for Kars) [<i>İlköğretim öğretmen ve öğrencilerinin çevreye karşı tutumları, yeterlilikleri ve çevre eğitiminde bölgesel farklılıklar (Kars ili örneği)</i>]	Mustafa Ürey
253	2005	Kafkas University	Competency of educational faculties for science teachers in improving laboratory skills for chemistry topics in grade 7 and grade 8 [<i>Fen bilgisi öğretmenlerinin ilköğretim 7. Ve 8. Sınıftaki kimya konularına yönelik laboratuvar becerilerini geliştirmede eğitim fakültelerinin yeterliliği</i>]	Nesli Kala
254	2005	Kafkas University	Developing and implementing teaching materials of 'genetic' unit in grade 8 science curriculum (A case study for Kars) [<i>İlköğretim 8. Sınıf fen bilgisi müfredatında yer alan genetik ünitesi ile ilgili öğretim materyallerinin geliştirilmesi ve kullanılması (Kars ili örneği)</i>]	Zeynep Korkmaz
255	2005	Karadeniz Technical University	Developing activities based on constructivist learning theory about the unit called "heat and the travel of the travel of heat" 5th class students	Fatma Bayar
256	2005	Karadeniz Technical University	Developing guide material based multiple intelligences theory for the unit "The interaction with living things and nature" and its effectiveness on teaching process	Nesrin Türkmen
257	2005	Karadeniz Technical University	Determining the levels of understandings and misconceptions about the concept of particulate nature of matter of primary students at different stages	Osman Kenan
258	2005	Marmara University	Using computer-assisted materials in science lesson teaching	Ayşe Gürkan
259	2005	Marmara University	The effect of case study method on academic achievement, remembering and progression of metacognitive skills with regard to a voyage to inner structure of the living things unit in science of 8th class	Elif Pehlivanlar
260	2005	Marmara University	The removing of students misconceptions about pressure with constructivist approach in elementary school	Fatma Önen
261	2005	Marmara University	The effect of songs and poems to academic achievement, remembering and students attitudes towards science lesson on "circulation and digestion systems" in 6th years students	Melike Kahyaoglu
262	2005	Marmara University	The effect of the narrative and experimental teaching techniques to the conceptual understanding and achievement of the science students	Meltem Dincel
263	2005	Marmara University	Self-efficacy beliefs of science teachers	Murat Say
264	2005	Marmara University	Determining the misconceptions of the elementary school students	Yavuz Çakır
265	2005	Muğla University	The comparative views of the undergraduate students of education and art and science faculties of Muğla University about education art and science faculties	Canses Tican
266	2005	Mustafa Kemal University	The effect of the 4th grade science and technology draft primary program on students academic achievement and the opinions of primary school teachers related to the new primary science and tech. programme	Aylin Bağdatlı
267	2005	Mustafa Kemal University	Effect of case-based method on the 5th grade elementary school students academic achievement and attitudes toward science while teaching viruses, bacteria, fungi and protists	Belgin Adalı
268	2005	Middle East Technical University	Effectiveness of conceptual change instruction accompanied with demonstrations and computer assisted concept mapping on students' understanding of matter concepts	Ayşe Yavuz
269	2005	Pamukkale University	Primary school teaching department sophomore students' attitudes toward environment and environmental problems	Gül Hanım Erol
270	2005	Purdue University	Investigation of prospective teachers' knowledge and understanding of models and modeling and their attitudes towards the use of models in science education	Mustafa B Aktan
271	2005	Sakarya University	Determination of science teachers' level to realize activities of laboratory (Adapazarı example)	Gülten İnan
272	2005	The Florida State University	Development and validation of an instrument to evaluate science teachers' assessment beliefs and practices	Evrin Genç
273	2005	The Florida State University	The perceptions of professors at colleges of education about instructional interactivity	Murat Kahveci
274	2005	The Ohio State University	Surveying American and Turkish middle school students' existing knowledge of earthquakes by using a systemic network	Ayşe Oğuz
275	2005	The University of Oklahoma	Educational technology usage and needs of science education in Turkey	Hakan Türkmen
276	2005	University of Florida	Factors influencing exemplary science teachers' levels of computer use	Meral Hakverdi

277	2005	Uludağ University	A study on the curriculum design for the organization and the teaching on the subject "reproduction and growth" in primary education science courses	Dilek Zeren
278	2005	Uludağ University	Environmental education: A study for elementary school students' environmental attitude and knowledge	Emin Atasoy
279	2005	Yüzüncü Yıl University	An analysis of the attitudes of science education teacher candidates towards branches of sciences	Hasan Bakırcı
280	2005	Yüzüncü Yıl University	The some difficulties faced in the laboratory practices of natural science lessons	Kelimetullah Geçer
281	2005	Yüzüncü Yıl University	Determining the change in the attitude of teacher candidates in primary education towards the field of sciences	Mehmet Kazım Demir
282	2006	Ankara University	Evaluation of science teacher candidates' knowledge and skills about active learning approach	Sevilay Atmaca
283	2006	Arizona State University	The role of contextual sensitivity in the conceptualization of force	Gökhan Özdemir
284	2006	Atatürk University	The effect of model teaching on "digestion and related structures", "excretion and related structures" and "recognizing of flowery plants" subjects in 5th grade students of primary education on the success of students	Emek Koçak
285	2006	Atatürk University	A study on the fifth class pupils' levels of attainment towards the cognitive purposes of the teaching programme of science and technology lesson in terms of various variables	Mehtap Vural
286	2006	Balıkesir University	Evulation of the inner valume of the science and technology curriculum and teacher's guide and the problems faced in the practice (Balıkesir example)	İlkay Gökçe
287	2006	Boğaziçi University	Effects of guided and semi-guided investigations on sixth grade students' conceptualization levels	Aylin Günay
288	2006	Boğaziçi University	The effectiveness of demonstrative computer animation in developing intuition: a case for gravitational acceleration	Gülşah Diyarbekir
289	2006	Boğaziçi University	The effect of instructional support on learning gains from two simulated laboratory experiments on the relationship between two variables	Nuray Sönmez
290	2006	Celal Bayar University	Provide the envioremental sensibilitiy with ethnobotany works in 7th class students	Emrehan Tüfenkçi
291	2006	Celal Bayar University	A study on implementing the technique of caricature in science and environmental education	Işıl Özalp
292	2006	Celal Bayar University	Effect of active teaching methods based on constructivist theory on students' science achievement and attitude about flowing electricity unit	Nuray Şengül
293	2006	Celal Bayar University	The effect of the use of models in chemistry subject of science lesson in secondary schools on students' success	Orhan Zeynelgiller
294	2006	Celal Bayar University	Researching of the candidate science teachers, who are the education faculty in the fourth class for their sufficiency in the technological assisted education	Ramazan Çiçek
295	2006	Çanakkale Onsekiz Mart University	The effects of cooperative learning on student success in 7th grade primary education science course	Serkan Timur
296	2006	Çukurova University	The effect of the software based on meaningful learning approach and assisted computer prepared for science course on the seventh grade students' academic achievement and retention	Arife İnci Kurt Korkmaz
297	2006	Çukurova University	The effect of project based learning approach to the logical thinking ability and attitude of students in science lesson	Ayşe Sert Çıbık
298	2006	Çukurova University	The effect of using concept maps on scholar succes of student and their learning of new concepts when teaching genetics unit of science on eighth grade	Çiğdem Çağlayan
299	2006	Çukurova University	Evaluation of to be arrangement form of content components which are used by teachers in the unit "if there was no pressure" which is one of the primary education 7th grade science lesson's units teaching	Halil Kamışlı
300	2006	Çukurova University	The effect of using active learning approach in primary school sixth grade science course on academic achievement, attitude and retention of learning	Meryem Nur Aydede
301	2006	Çukurova University	As based on constructivist approaching science and technology lesson, on subject heat-temperature prepared primary education fifth class writing effect academic succes and retention of students	Oğuzhan Atam
302	2006	Dicle University	A research on the effects of students' success computer assisted to science teaching six to eight grades of primary schools (in Sehit Namik Tumer Primary School sample)	Aynur Demirer
303	2006	Dokuz Eylül University	Identification of variables effecting science process skills in primary science and technology course	Bülent Aydoğdu
304	2006	Dokuz Eylül University	The effect of cognitive support given by concept mapping on achievement, retention and attitude in primary science education	Efe Güçlüer
305	2006	Dokuz Eylül University	Computer assisted instruction in constructing of abstract concepts in science teaching: The unit electricity in our life	Ercan Akpınar
306	2006	Dokuz Eylül University	Preservice science teachers' self-efccacy beliefs in teaching biology	Hatice Özenoğlu Kiremit
307	2006	Dokuz Eylül University	The effect of instruction the life event which enables continuity of	Özben Özdemir

			species (reproduction) subject through worksheets on primary school eighth grade students' achievement and retention	
308	2006	Dokuz Eylül University	The effect of Web based teaching support to the 8th grade elementary school students' during science lesson	Tuğba Cüez
309	2006	Dokuz Eylül University	Effect of the network based teaching towards the students' problem solving skills and the attitudes of science	Uğur Çelik
310	2006	Dokuz Eylül University	The effect of high interactive computer assisted instruction softwares on student achievement in primary school science teaching	Zehra Kibar
311	2006	Firat University	Competency of secondary school science teachers in laboratory practices and the problems they face with applications	Özer Akdemir
312	2006	Gazi University	The effect of homework studies to the success of the students who attend science lesson in the second degree of primary education	Burcu Gündoğan Özben
313	2006	Gazi University	An experimental study of comparison of student centered teaching to traditional method in science education about 8th grade magnetism in our lives unit	Burcu Korkut
314	2006	Gazi University	Comprasion research of students attitudes on science and technology curriculum between pilot primary schools and normal primary schools	Ceyda Dalkıran
315	2006	Gazi University	Researching the effects of student's success and attitude in learning the subject magnet and its properties for the primary education at level 8	Emine Aylin Turhan
316	2006	Gazi University	The effect of multi-intelligence over successes, understandings and behaviours of students in terms of growth and development in primary education eighth grade science course	Emre Kara
317	2006	Gazi University	Comparison of the middle school science curriculum with science questions of high school entrance examinations with consideration of students personal knowledge	Esra Koç
318	2006	Gazi University	The effect of multiple intelligence model to the understanding of photosynthesis and respiration subjects and attitude to science of eighth class students	Fatma Nur Dilek
319	2006	Gazi University	Multiple intelligence basic education's effect on students success attitude and permanence of learned knowledge in primary schools 7th students' undertanding the issue of presure	Gülşah Gazioğlu
320	2006	Gazi University	Comparing the science and techonology curriculum of the 2004 with the science curriculum of the 2000 in their effects on developing the students' scientific process skills	Güzide Başdağ
321	2006	Gazi University	Teaching the subject which ecosystems are there in our environment and what is happening here by using the concept maps and their effect upon student's success and behaviour in science lesson for 7 th grade	Nevruz Yener
322	2006	Gazi University	The effect of inquiry-based learning approaches in the education of science in primary school on the science process skills, academic achievement and attitude	Nilgün Tatar
323	2006	Gazi University	Effects of some variables on knowledge levels and ideas of preschool teachers about science and nature studies	Özgül Aykut
324	2006	Gazi University	Multiple intelligence basis education` s effect on student` s success, permanence and attitude of learned knowledge in primary school` s 6th class students understanding the issue of five senses	Rabia Sultan Güneş
325	2006	Gazi University	The effects of navigation structures based upon learning styles on the success of the student in hypermedia environments	Rıdvan Kağan Ağca
326	2006	Gazi University	Satisfactorinnesses of the preschool teacher about the science activities in preschool	Saide Özbek
327	2006	Gazi University	The effect of the multiple intelligence theory on the success of a student in understanding " the genetics unit " in science teaching	Ümit Demiral
328	2006	Gazi University	The evaluation of prospective elementary science teachers' subject matter knowledge on some biology subjects	Zerrin Özdemir
329	2006	Gazi University	The investigations to identify the misconceptions of elementary education (sixth, seventh and eighth grade) students about cell	Zeynel Gençer
330	2006	Georgia State University	Understanding of earth and space science concepts: Strategies for concept building in elementary teacher preparation	Nermin Bulunuz
331	2006	Indiana University	A look within individual cases into Turkish elementary teachers' beliefs and practices of writing instruction and underlying influences in shaping these beliefs and practices: Comparison of findings with the writing process as presented in writing workshop	Demet Seban Dumlu
332	2006	Indiana University	Pre-service elementary education teachers' beliefs about teaching and learning in Turkey	Sibel Duru
333	2006	İnönü University	Appropriatenessof instructional principles in learning-teaching procedure in grade 4 and grade 5 science curricula (Teachers' views) [<i>İlköğretim 4. ve 5. sınıf fen bilgisi programındaki öğrenme-öğretme yaşantılarının öğretim ilkelerine uygunluğu (öğretmen görüşleri)</i>]	Ali Aktaş
334	2006	Iowa State University	Instructional computer use by COE faculty in Turkey: Application of diffusion of innovations theory	İsmail Şahin
335	2006	Iowa State University	Investigating the impact of teachers' implementation practices on	Murat Günel

			academic achievement in science during a long-term professional development program on the science writing heuristic	
336	2006	Kafkas University	Encountered problems and solution suggestions in laboratory studies of science teachers and teacher candidates	Muhammet Baltürk
337	2006	Kafkas University	The effects of classroom attendance and irregular attendance undergraduate science students' cognitive, sensual and psychomotor behaviour	Vedat Akça
338	2006	Karadeniz Technical University	The effect of 5E model on removing science student teachers' misconceptions about genetics	Arzu Saka
339	2006	Karadeniz Technical University	The problems faced by the science teachers graduated from different branches	Arzu Üney
340	2006	Karadeniz Technical University	Developing, implementing and evaluating of a Web designed science material	Erol Taş
341	2006	Karadeniz Technical University	The effect of using drama method on determining the misconceptions and motivation in science and technology teaching	Hatice Başkan
342	2006	Karadeniz Technical University	Developing determining the effectiveness of a computer aided instruction material for 8th grade students	Kerim Kürşat Güney
343	2006	Karadeniz Technical University	A study toward teaching the nature of science for seventh grade primary students	Mehmet Küçük
344	2006	Karadeniz Technical University	Teaching the "discovering the space" subject of 6th class of primary education using interactive video	Sema Nur Demirkan
345	2006	Karadeniz Technical University	The evaluation of computer-based biology teaching material for the topic of mitosis and meiosis	Servet Zaman
346	2006	Karadeniz Technical University	Effects of materials developed according to the constructivist learning approach in removal of conceptual errors seen in unit "electricity in our life" by 5th grade students in primary school	Sevim Ayas Kör
347	2006	Marmara University	A case study: How prospective science teachers' epistemological beliefs inform their practice teaching	Aysun Öztuna Kaplan
348	2006	Marmara University	The effect of homework to success of students and learning concepts in unit of electricity which directs our life style	Burcu Kaplan
349	2006	Marmara University	Primary school 4-8th level student's knowledge about plants as biological wealth	Çiçek Eylem Avcı
350	2006	Marmara University	An attempt to construct a model to explain preservice science teachers views of nature of science	Ebru Muğaloğlu
351	2006	Marmara University	Taking note with mind map technic affect on learning concept and successful in scientific education	İtır Zeynep Yaşar
352	2006	Marmara University	The effect of the case-questioning on students' approach towards dogmatic cases about science	İlker Karadağlı
353	2006	Marmara University	I. and II. level primary education teachers' perceptions about teaching profession according to their styles preference	Lütfi Üredi
354	2006	Marmara University	The effects of problem based active learning on the student's academic achievement and learning concepts on science education	Ruhan Özkardeş Tandoğan
355	2006	Marmara University	Assesing primary students success in science courses via primary years programme: Portfolio	Seda Selma Karamanoğlu
356	2006	Marmara University	The effect of inquiry-based learning on students' establishing relations among science-technology-society-environment	Yasemin Ortakuz
357	2006	Marmara University	The effect of active learning on remediation to misconception in science education	Zihni Özhan Palut
358	2006	Ondokuz Mayıs University	Effect of life and social science courses presented in primary school curriculum on preparation of students for science courses	Sibel Demir
359	2006	Middle East Technical University	Investigating students' motivational traits	Fatma Yavuz
360	2006	Middle East Technical University	Evaluation of the science and technology curriculum at grade levels 4 and 5: A pilot study	Gözde Pekiner
361	2006	Middle East Technical University	The impact of computer games on students motivation	Memet Üçgül
362	2006	Middle East Technical University	The effect of 7E learning cycle model on the improvement of fifth grade students' critical thinking skills	Özlem Mecit
363	2006	Middle East Technical University	A needs analysis to develop an astronomy program for Turkish elementary and secondary schools	Oktay Kahraman
364	2006	Middle East Technical University	Relative influence of cognitive and motivational variables on genetic concepts in traditional and learning cycle classrooms	Pınar Doğru Atay
365	2006	Muğla University	Effect of sound and light unit prepared using multiple intelligence theory to the student success, level of retaining, attitudes towards science and multiple intelligence theory	Derya Gök Altun
366	2006	Muğla University	The effects of laboratory method on students' success, recalling level and affective characteristics in primary school science education	Nevin Kozcu
367	2006	Muğla University	Identification of the misconceptions of the 8th grade students about meiosis and mitosis cell divisions in science courses and solution proposals of science teachers about this topic	Ramazan Adıgüzel
368	2006	Purdue University	A phenomenographic case study: Concept maps from the perspectives of middle school students	Yılmaz Sağlam
369	2006	Sakarya University	Views of teachers on renewed education programme which practiced since 2005-2006 education year	Ramazan Subaşı

370	2006	Sakarya University	The opinions of teachers about multiple intelligence theory applications in the first grades of schools	Semra Canbay
371	2006	Syracuse University	College science professors' understanding and use of nature of science	Mehmet Karakaş
372	2006	The Ohio State University	Examining the effects of a DNA fingerprinting workshop on science teachers' professional development and student learning	Duygu Sönmez
373	2006	The Ohio State University	Science teacher beliefs and classroom practices related to constructivist teaching and learning	Funda Savaşçı
374	2006	The University of Iowa	The effect of different levels of constructive teaching practices on teacher question asking behaviors	Ibrahim Erdoğan
375	2006	The University of Iowa	Preservice elementary teachers' alternative conceptions of science and their self-efficacy beliefs about science teaching	Işıl Koç
376	2006	Trakya University	The attitudes of seventh grade towards the science course and learning strategy use	Gökhan Ilgaz
377	2006	Trakya University	Discipline types which teachers in primary and secondary schools use	Hasan Esen
378	2006	Uludağ University	Comparing the academic achievements and the intelligence domains of the 6th, 7th and 8th grade students have at the primary school according to the multiple intelligence theory	Kemal Akar
379	2006	Uludağ University	Instructional design of a travel to inner structure of matter units' at science course in primary education	Zehra Özdelek
380	2006	University of Illinois at Urbana-Champaign,	Evaluation of textbook difficulty and adaptation strategies used in Turkish elementary schools	Mustafa Ulusoy
381	2006	University of Missouri - Columbia	Alternative certification science teachers' understanding and implementation of inquiry-based instruction in their beginning years of teaching	Abdulkadir Demir
382	2006	Yeditepe University	Managers' views of change in science curricula [<i>Fen müfredatındaki değişikliklere eğitim yöneticilerinin bakış açısı</i>]	Demet Hamarat
383	2006	Yüzüncü Yıl University	The teachers' opinions about assessment activities in science instructions (Example for Van)	Azize Begtaş Doğan
384	2006	Yüzüncü Yıl University	Determining of understanding of biological concepts of science and examining of the causes of not understanding for 6th 7th and 8th classes at the primary education	Serdal Ös
385	2007	Afyon Kocatepe University	Middle school students learning styles: the relationship between student science achievement and attitudes (Ione of afyonkarahisar)	Derya Koç
386	2007	Atatürk University	Research of environmental sensitivity among teacher candidates of science course	Tuğba Akbaş
387	2007	Balıkesir University	The effect of usage of V-diagrams and worksheet in science experiments on grade 6 students' achievement [<i>Fen bilgisi deneylerinde V-diyagramları ve çalışma yapıları kullanımının ilköğretim 6. Sınıf öğrencilerinin başarıları üzerine etkisi</i>]	Ayşe Çınkır
388	2007	Balıkesir University	The effect of instruction based on constructivist learning theory on grade 7 students' achievement and attitudes in 'Pressure' topic [<i>Yapılandırmacı Öğrenme Kuramına Dayalı Öğretimin İlköğretim 7. Sınıf Basınç Konusunda Öğrenci Başarısı ve Tutumuna Etkisi</i>]	Hicran Baytok
389	2007	Balıkesir University	Science student teachers' conceptual understanding of proteins and synthesis [<i>Fen bilgisi öğretmen adaylarının proteinler ve protein sentezi ile ilgili kavramsal anlamaları</i>]	Olcay Sinan
390	2007	Boğaziçi University	The effects of state ideology, politics, educational policies and philosophy on the science curricula of primary education 1919-1938	Aslı Sezen
391	2007	Celal Bayar University	The effect of hands-on science learning method in the education of science in primary school on the science process skills, academic achievement and motivation	Erdal Başdaş
392	2007	Çanakkale Onsekiz Mart University	A comparative evaluation of 'objectives' dimension of science curricula in 2000 and 2004 in regard to teachers' views [<i>İlköğretim fen ve teknoloji (2004) dersi ile fen bilgisi (2000) dersinin öğretim programlarının kazanımlar boyutunun öğretmen görüşlerine göre karşılaştırmalı olarak değerlendirilmesi</i>]	Sevcan Doğan
393	2007	Çukurova University	The effects of worksheets on the logical thinking abilities on the education of science lessons	Ayşegül Bozdoğan
394	2007	Çukurova University	The effects of computer assisted instruction along with internet for 5th grade primary school students acquisition in science and technology lessons light and voice unit	Bahattin Salgut
395	2007	Çukurova University	The views of teachers relation to the primary science curriculum in 2001 and 2005 (sample of Adana)	Berna Öz
396	2007	Dokuz Eylül University	Criteria and rubric scale used for evaluating scientific creativity [<i>Bilimsel yaratıcılığı değerlendirmede kullanılan kriterler ve dereceleme ölçeği</i>]	Hilal Aktamış
397	2007	Gazi University	Role and importance of science and technology in education	Aykut Emre Bozdoğan
398	2007	Gazi University	The comparison between the effects of constructivist approach and traditional teaching method at teaching photosynthesis subject to science teacher candidates	Ahmet Turan Orhan
399	2007	Gazi University	Teaching methods followed by science teachers and opinions of	Ayşe Solmaz

400	2007	Gazi University	students about how these methods are used	Bariş Çaycı
401	2007	Gazi University	Examining of the effectiveness of conceptual changing approach on concept learning	Canan Laçın Şimşek
402	2007	Gazi University	Ideas of primary school students on the fundamental concepts of science	Dilek Erduran Avcı
403	2007	Gazi University	The effect of brain-based learning approach to achievement, attitude and retention of knowledge in seventh grade students science classes of elementary school	Elvan İnce
404	2007	Gazi University	The effectiveness of the portfolio technique on the students' positive attitude in sixth grade science and technology lesson in elementary school	Emel (Ünlü) Saratlı
405	2007	Gazi University	The qualification of mentoring serves that presented to the secondary school science student teachers during school experience-I training	Emine Selcen Darçın
406	2007	Gazi University	Experimental planning of biotechnology training for trainee science-technology and trainee biology teachers	Ezgi Güven
407	2007	Gazi University	The effectiveness of the portfolio on the students' achievement in "the systems of body structures" unit in sixth grade science and technology lesson in elementary school	Fatih Candur
408	2007	Gazi University	Determining teachers' views about science and technology education, used student evaluation and assessment methods and their importance in the educational processes	Fatma Gözde Demirel
409	2007	Gazi University	Effect of cooperative learning to the student succes and their attitudes to the lesson in the "world, the sun and the moon" unit of science and technology class for 5'th grade of the primary education	Mehmet İkbâl Yetişir
410	2007	Gazi University	Preservice science teachers' and preservice primary school teachers' level of science and technology literacy	Mutlu Pınar Demirci Güler
411	2007	Gazi University	Analogies used in science teaching, the investigation of effect of analogy on students' achievement, attitude and knowledge retention	Metin Demir
412	2007	Gazi University	The factors affecting the pre-service primary teachers' adequacies on science process skills	Neslihan Sifoğlu
413	2007	Gazi University	The effects of constructivism and problem-based learning on students' success in the teaching the topic heritage` at the 8th grade	Nur Gökçek
414	2007	Gazi University	The effect of the multiple intelligences theory on grade-8 students' achievement in the topic of acid and base	Osman Erşahan
415	2007	Gazi University	Defining the effective instruction methods (role play and 5e instruction method) for teaching science-technology-society-environment skills in the learning area of substance and it's evolution for 6 th grade students	Ramazan Çeken
416	2007	Gazi University	The effect of activities on student success in teaching physical and chemical changes at the degree of third class in secondary school	Selda Demirçalı
417	2007	Gazi University	Developing and implementing supplementary activities based on sts approach in secondary 8. grade science lesson in the unit of genetics	Serap Demiral
418	2007	Gazi University	In primary school science education course tour to element inside structure, collaborative learning methods effect on student success, information permanence and their attitude toward course	Selami Yangın
419	2007	Gazi University	The perceptions of science and technology teachers and students regarding science and technology course according to 2004 curriculum	Uygar Kanlı
420	2007	Gazi University	The effects of a laboratory based on the 7E model with verification laboratory approach on students' development of science process skills and conceptual achievement	Ufuk Değirmenci
421	2007	Gazi University	Teachers' view about practising new teaching curriculum of science and technology lesson of 4th, 5th and 6th grades in elementary school	Yasemin Zeybek
422	2007	Georgia State University	A research on the determine misconceptions of primary school candidate teachers' in force, motion and sound subjects	Mızrap Bulunuz
423	2007	Kahramanmaraş Sütçü İmam University	Development of interest in science and interest in teaching elementary science: Influence of informal, school, and inquiry methods course experiences	Zeynel Abidin Erdemir
424	2007	Karadeniz Technical University	Searching for the secondary education teachers' competence of being able to use the techniques of measurement and evaluation (example of Kahramanmaraş)	Esra Keleş
425	2007	Karadeniz Technical University	Developing and assessing effectiveness of web supported instructional material based on brain based learning for 6th grade force and motion unit	Serkan Sevim
426	2007	Karadeniz Technical University	Preparation and application of conceptual change texts on solution and chemical bonding concepts	Tuncay Özsevgeç
427	2007	Karadeniz Technical University	Determining effectiveness of guided materials about force and motion unit based on the 5E model for elementary students	Zeynep Doğan
			Concept development at the primary level and the gifted students: The concepts of evaporation, condensation and boiling	

428	2007	Marmara University	The effect of students' experimental studies using hands-on materials on their attitudes to science and their learning of the concept of force - energy	Gülden Öztürk
429	2007	Marmara University	The effect of STS class on the views of the pre-service science teachers about the nature of science	Mehmet Cihad Ayar
430	2007	Middle East Technical University	Needs assessment with special emphasis on individual differences based on teaching and assessment methods in science and technology classes by primary school teachers	Pınar Özdemir
431	2007	Middle East Technical University	Finding anchoring analogies to help students misconceptions in physics	Serkan Yılmaz
432	2007	Muğla University	The effect of application of portfolio in primary school science teaching on the students' academic achievements and attitudes towards the lesson	Gülcan Mıhladız
433	2007	Muğla University	Investigation of the effects of using project works to teach the unit "getting to know and protecting our planet, we share with all the other creatures" in science course on student success and attitude	Meryem Görecek
434	2007	Mustafa Kemal University	The effect of know-want-sample-learn strategy, which is developed by using problem based learning and know-want-learn strategy, towards the 5th grade students' attitudes in science and technology lesson and towards to remove their misconceptions	Müge Yurd
435	2007	Pamukkale University	The effect of truesdale on academic achievement and retention in 'Science and Technology' course [<i>Fen ve Teknoloji Dersinde Truesdale'in (Tüm Vücut ile Dinleme Yönteminin) Akademik Başarı ve Hatırda Tutma Üzerindeki Etkisi</i>]	Gülcan Güzel
436	2007	Pamukkale University	The effect of instruction based on constructivist learning approach on academic achievement in 'Pressure' topic in grade 7 science curriculum [<i>İlköğretim 7. sınıf fen bilgisi dersi "basınç" konusunun yapılandırmacı öğrenme yaklaşımına dayalı öğretiminin akademik başarıya etkisi</i>]	Sevgi Kirişcioğlu
437	2007	Sakarya University	Evaluation of achievement level of secondary school students in science and technology lesson in Sakarya	Şenay İyican
438	2007	Selçuk University	The effects of the problem based learning approach on the higher level thinking skills and levels of academic risk taking in primary science education	Derya Çınar
439	2007	Süleyman Demirel University	The level of primary school teachers' fulfillment of constructivist teachers roles in science and technology lessons	Ercan Tatlı
440	2007	The Florida State University	Understanding the challenges to the implementation of assessment reform in science classrooms: A case study of science teachers' conceptions and practices of assessment	Mehmet Aydeniz
441	2007	The Ohio State University	Using inquiry-based instruction with web-based data archives to facilitate conceptual change about tides among preservice teachers	Sedat Uçar
442	2007	The University of Iowa	The influence of the history of science course on pre-service science teachers' understanding of the nature of science concepts	Behiye Akçay
443	2007	The University of Iowa	The impact of a STS/Constructivist learning approach on the beliefs and attitudes of preservice science teachers	Hakan Akçay
444	2007	University of Minnesota	The impact of science methods courses on preservice elementary teachers' science teaching self-efficacy beliefs: Case studies from Turkey and the United States	Murat Bursal

Table 3. Frequencies of graduate theses in regard to grade (the study's sample)

G	K	G3	G4	G5	G6	G7	G8	G9	G10	G11	EPC	GiS	ST/US	ST/PT	KT	GuS	AS/F	SP	SA	NA	MD	TN
1990				1										2						1		4
1991																				2		2
1992					1								1									2
1993						2			1				1									4
1994					1								1						1			3
1995																				1	3	4
1996			1	1					1	2										1	2	8
1997			4			2			1											1		8
1998			1	2	3	1	1		1	1										2	1	13
1999				2		1	1		2	1											2	9
2000				1	3	3	4	2	2				3							2	2	22
2001			2	2	5	5	3						6	5							8	36
2002		1	5	2	8	12	10	1					8	9		1	1			4	6	68
2003			6	9	4	12	11	2					7	9						2	4	66
2004				1	3	4	8	2	1	1	1	2	7	7						2	1	40
2005	1		3	8	7	16	13						10	8		1	2	1		1	1	72
2006			3	9	21	28	22	1					15	21	2		3		1	1		127
2007			2	6	12	11	8					1	18	11			1			2	3	75
TN	1	1	27	44	68	97	81	8	3	2	1	3	79	79	2	2	7	1	2	22	33	563

Key note: G: Grade; K: Kindergarten; G3: Grade 3; G4: Grade 4; G5: Grade 5; G6: Grade 6; G7: Grade 7; G8: Grade 8; G9: Grade 9; G10: Grade 10; G11: Grade 11; EPC: English Preparing class; GiS: Gifted students; ST/US: Student teachers/undergraduate students; ST/PT: Science teachers /Primary teachers; KT: Kindergarten teachers; GuS: Graduate students; AS/F: Academic Staffs/Faculties; SP: Students' parents; SA: School Administers; NA: Not applicable; MD: Missing data; TN: Total number

*Since some of the studies contain more grades rather than one grade (some of them also include in document analysis as well as grade), total number of them may exceed the numbers of studies presented in Appendix.