

*Full Length Research Paper*

# The assessment of the studies associated with the latest syllabus of physics course: The case of Turkey

Kismen Firend

Turkish Military Academy, Bakanlıklar, Ankara, 06654, Turkey.

Accepted 2 May, 2013

The aim of this study is to state the points when choosing a method in studies concerning physics course new curriculum by evaluating researches whose topics are secondary physics course curriculum (in Turkey) in terms of subject, objective, method and consequences. 24 researches conducted within the lines of secondary physics course curriculum have been analyzed for this purpose. The data are collected by qualitative method and content analysis of data analysis is adopted. The study is conducted by teacher trainees, quantitative research methods are used because they benefit more frequently and data are gathered by surveys in light of findings gained in the survey. The research is done with teachers who actively teach in classes. The number of teachers with whom the research is done is inadequate; there is no sufficient number of studies in which the views of pupils and parents are considered. It has been also advocated that the number of books designed in line with the new curriculum is regarded insufficient by teachers and pupils. Either quantitative or qualitative study was usually conducted in the studies examined. The studies in which both of them are applied together are needed. An application needs to be initiated in which the curriculum is evaluated by all of the physics teachers and students in all provinces. The curriculum is absolutely revised and edited according to the most crucial result of the analyzed in this study.

**Key words:** Physics education, secondary physics new course curriculum, the views of teachers, curriculum evaluation researches.

## INTRODUCTION

The rapid change in science and technology today brought about the change in the definition of qualified persons. There have been changes and improvements in science education; in other words, physics education in schools in the dimensions of objective, method and evaluation, which are parallel with the progress in science and technology (Aksoy, 2011). The importance of physics in science and technology instruction cannot be over emphasised. Physics is applied to almost every human activity and virtually every profession involves some element of physics (Omiola et al., 2012). This change made it compulsory that physics courses are to educate qualified people and content must be re-determined (Şafak, 2010). In the area of physical sciences education,

certain tools have appeared, and they are nowadays almost essential to communicate with students, evaluate them and take full advantage of the classes (Rodríguez and Antón, 2011). Grier (2005) states that needs assessment is a valuable tool that can provide curriculum developers with the essential information on which curricular decisions are based. In the curriculum in use, physics contents have been organized in a spiral form, that is, the sections occur every year in order to aid learning. As much as possible, mathematics is to be used to clarify the physics objectives and guided discovery method of teaching has been recommended. The spiral approach to content organization has been used in the new curriculum. Also, like the one in use, the guided

discovery method of teaching has been recommended (Daramola and Omosewo, 2012). The present senior secondary school physics curriculum is built on the conception of science as both product and process (Onah and Ugwu, 2010). Science teachers have the potentials for enhancing the quality of education by bringing life to the curriculum and inspiring students to curiosity and self directed learning (Aderonmu and Adolphus, 2012). Therefore, in many countries special programmes for talented science students have been started including master classes enrichment projects and special science high schools (URL-5).

Structure of New Secondary Curriculum in Turkey is examined. Secondary physics course curriculum has been applied by stages since 2008. The process of curriculum development and its delivery has to be in consonance with the national policies on education and aims to be achieved through education (Tahir and Ulah, 2010). The vision of the secondary physics course curriculum in Turkey implemented is to raise individuals who adopted that physics is life itself, is able to solve problems via science, is able to analyze interaction between physics-technology-society and environment, develops positive attitude and behavior for himself/herself and his/her surrounding, owns literacy skill which is required by information society, expresses ideas objectively and effectively, is in peace with himself/herself and his/her surrounding and is productive (Güneş et al., 2007).

According to the program learning occurs at learning environments where students can check their prior knowledge, where the context they are to deal with in real life is regarded as the basis and where there are activities that students may participate in real life. Besides, these learning environments are supposed to offer opportunities in which students can reinforce items that have just been grasped.

In this respect, it is pretty crucial to choose the most convenient instruction method or methods which enable students to configure their acquisitions meaningfully and benefit from them when needed. There are affirmative and negative aspects of methods which are categorized as student-centered or teacher-centered. However, teaching methods based on interrogating and searching (exploration, discovery and interrogating research method) and methods based on conceptual change (conceptual change texts, 5E and 7E) have been put into prominence more compared to the others (MEB "The Ministry of National Education", 2007). Deciding on the best measurement method during learning and teaching period changes according to the purpose of measurement, the nature of the course and the subject, what is to be taught and how to teach. Secondary physics course new curriculum's measurement and evaluation approach is an approach which measures a process, is regarded as a part of learning, requires densely use of techniques measuring skills while measuring information rather than

being applied at mid-term or at the end of the term or just measuring information and the result (MEB "The Ministry of National Education", 2007; URL-1; URL-2).

Life-based approach is predicated during the preparation of the curriculum. It advocates that physics concept and laws should be made a necessity by starting to teach facts directly in life rather than looking for examples in life just after learning physics concepts and laws by classical approach; in other words, life-based approach is adopted. The curriculum does not put any of the learning methods and approaches into the centre instead it advocates that all of them are to be beneficial according to content, method time and opportunities. It highlights that in order for meaningful and permanent learning to happen, students must be active mentally and physically and the approaches which aim the importance of rapid feedback and conceptual improvement (Yolbaşı, 2010).

Erden (1998) advocates that all of the students must reach the objectives planned in the curriculum in order for a curriculum to be successful; however this may not happen all the time. Therefore, the curriculum must be evaluated after being applied to understand whether there are insufficient or falsely functioning or not, to determine the source of the malfunction in the curriculum and to regulate the curriculum if necessary. In this context, it can be alleged that evaluation consists of gathering data about the efficiency of the curriculum, interpreting the data gathered by comparing them with the criteria and steps to decide on the efficiency of the curriculum. It is revealed that each pattern of the curriculum must be analyzed in detail while curriculums are evaluated.

Deficiency and malfunction problems may definitely occur during application period. Therefore, it is a necessity to evaluate curriculums constantly, to solve rising problems and to make regulations accordingly. The core component for curriculums to be put into practice is teachers; in other words, teachers are the main applicators of the curriculums (Akdeniz and Paniç, 2012). In order for a teaching curriculum to be successful and carried out its objectives, the curriculum must be grasped and internalized by teachers in terms of aims, treats, acquisitions, content, learning-teaching cases and measuring-evaluation patterns. In this respect, it is possible by the preparation of course books which will guide teachers and students during teaching activities (Kavcar, 2012).

In the light of data stated above, the studies conducted between 2008-2012 on secondary physics course curriculum have been analyzed and it has been determined that studies are usually conducted on teachers, quantitative research method benefit more and they are gathered via surveys. It has also been advocated that the course book prepared in line with the new curriculum is regarded as inadequate by teachers and students and it must be improved. Both qualitative and quantitative

methods are used together as needed. It is concluded in this research that the curriculum must absolutely be revised and edited. Moreover, the suggestions are presented accordingly. This study is rather crucial since it may be beneficial as a drastic feedback to re-edit the curriculum.

### **The purpose of the research**

The purpose of this study is to state the points in choosing the method for studies conducted at secondary physics course curriculum by evaluating them in terms of subject, objective, method and results. The studies conducted between the years 2008-2012 on the field of secondary physics course new curriculum have primarily been analyzed and then evaluated in terms of their subject, method and results.

### **The importance of the research**

The source of all physical sciences is physics. Therefore, teachers who teach physics are supposed to instruct for the purpose of demolishing students' prejudice against this class and they are supposed to benefit from the most convenient methods and instruction environment (Gücüm, 2006).

Teachers have a crucial role in the preparation, application and evaluation processes of a curriculum. However well-prepared the curriculum is, the teachers who are the core applicators of the curriculum are supposed to be educated and they must grasp the curriculum (Akpınar, 2002).

Attempt has been made to determine the scientific content of the curriculum, the process of teaching and learning (instruction strategies), positive aspects and malfunction in the process of preparation and application, course book's convenience to the curriculum and the evaluation of the curriculum by teachers. The studies in which course books are analyzed, it is crucial that the teachers who benefit from course books must present their opinion on the course book in the research. Since course books are one of the core points of curriculums, the evaluation of course books will enable one to determine the malfunctions, despite being in an indirect way (Çakır, 2009; Adibelli, 2007).

The curriculum was first applied in 2008-2009, so it is a new curriculum (MEB (The Ministry of National Education, 2007; MEB, 2008; MEB, 2009). Therefore, it is nearly certain that there will be malfunctions and deficiency at each curriculum applied. This research is crucial in that it determines the deficient and mal-functioning aspects of the new curriculum as a whole and combines the results. This study will enable one to throw light on the analysis of the opinions of teachers on the new secondary physics course curriculum for 9th,10th, 11th,12th graders, the patterns of the curriculum, the application of the

curriculum, the usability of the course books edited according to the curriculum, the studies on the books edited in line with the curriculum will be presented as a whole, so it will ensure the re-preparation of the curriculum. All the data obtained will contribute to the researchers and concerned authority for determining deficiencies and improvement of the curriculum.

### **METHODOLOGY**

Information on the pattern, data gathering process and data analysis of the study are available in this part.

#### **The pattern of the study**

Qualitative research method is adopted in the research. It is challenging to make a definition of qualitative research agreed by anybody. The reason is that the concept of qualitative research is accepted as an umbrella term and many terms which may be under this umbrella are in close relationships with many disciplines (Künbet, 2010). It is possible to describe qualitative research as a research in which qualitative data gathering methods such as observation, interview and document analysis benefit, and a qualitative process is managed where perceptions and events are proved in a realistic and total way in their natural environment (Yıldırım and Şimşek, 2008). The research is done by adopting case-study model which is one of the models of qualitative research models. Case study is a strategy which aims to understand a social event and studies the events in the environment itself (Bloor and Wood, 2006; Kaşkaya, 2012). It can be expressed that study is treated with instrumental case-study which is one of the types of case-study since the studies done on secondary physics new curriculum are analyzed in terms of subject, aim, method and results. Instrumental case-study is the analysis of an event in order to get a result from an example, clarify a state or re-define a theory (Fraenkel and Wallen, 2006; Kaşkaya, 2012).

#### **Data collection process**

The data are gathered by document analysis in the research. Document analysis includes the written documents which contain phenomenon aimed to be researched (Bogdan and Biklen, 1982; Patton, 2002; Kaşkaya, 2012). 24 studies (thesis, article, notification) whose subject is secondary physics course curriculum have been examined in this study. The studies examined in this research are Master's Degree and PhD theses between 2008 and 2012, articles published in national and international journals with referees, and notifications presented in certain congresses. Secondary physics course new curriculum has been acknowledged by institution of education and discipline. Regulated 9th graders' physics course curriculum was applied in 2008-2009, 10<sup>th</sup> graders' physics course curriculum was applied in 2009-2010, 11<sup>th</sup> graders' physics course curriculum was applied in 2010-2011, and in the last phase, 12<sup>th</sup> graders' physics course curriculum was applied in 2011-2012. Therefore the studies conducted between 2008 and 2012 are approached in this study (MEB "The Ministry of National Education", 2007; MEB, 2008; MEB, 2009).

The thesis, periodicals, conferences and authors of the studies beneficial in this research are not made public due to ethic concerns in a separate table. This is because the purpose of this study is to be included in discussions on method problem in researches for secondary physics course curriculum rather than

**Table 1.** The study subjects of authors whose studies are examined in the research, their titles when their study was published and the type of the studies.

The subject of the study	Notification	Article	Master's Degree Thesis	PhD Thesis	9 <sup>th</sup> Graders	10 <sup>th</sup> Graders	11 <sup>th</sup> Graders	12 <sup>th</sup> Graders	Master's Degree	PhD	Assistant Professor	Associate Professor	Professor	Total
The evaluation of secondary physics new curriculum	2	11	6	1	22	10	9	4	11	10	10	7	4	107
The evaluation of course books prepared according to secondary physics new curriculum	1	-	2	-	2	-	1	-	2	-	-	1	2	11
The evaluation of secondary physics new curriculum and course books prepared according to secondary physics new curriculum	-	1	-	-	1	1	-	-	-	1	-	-	1	5
Total	3	12	8	1	25	11	10	4	13	11	10	8	7	123

academic evaluation released (Kaşkaya, 2012).

The studies examined in the study are about secondary physics course new curriculum patterns (concerning 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup> graders) (acquisitions, content, teaching-learning, measurement and evaluation facilities), the applicability of the new curriculum at class and school environment, and teachers' views on the course books edited according to the new curriculum. Besides studies of the authors which are published, their titles in the period when their studies are published and the type of their studies are indicated in Table 1.

The studies analyzed in this research are categorized as: The evaluation of secondary physics new curriculum, the evaluation of books edited in line with secondary physics new curriculum. The highest numbers of article and PhD thesis are written on Secondary Physics New Curriculum; 9th graders' curriculum is analyzed more since it was first applied; master graduates, PhD graduates and Assistant professors studied on 9th graders' curriculum the most. Two master theses and a notification are analyzed on course books edited in line with Secondary Physics New Curriculum and this analysis is done for 9th and 11th graders; two academics with the titles of doctorate and professor did those studies. An article from Secondary Physics New Curriculum and the evaluation of course books edited in line with Secondary Physics New Curriculum have been examined; the curriculum of 9<sup>th</sup> and 10<sup>th</sup> graders has been analyzed by two academics.

### Data analysis

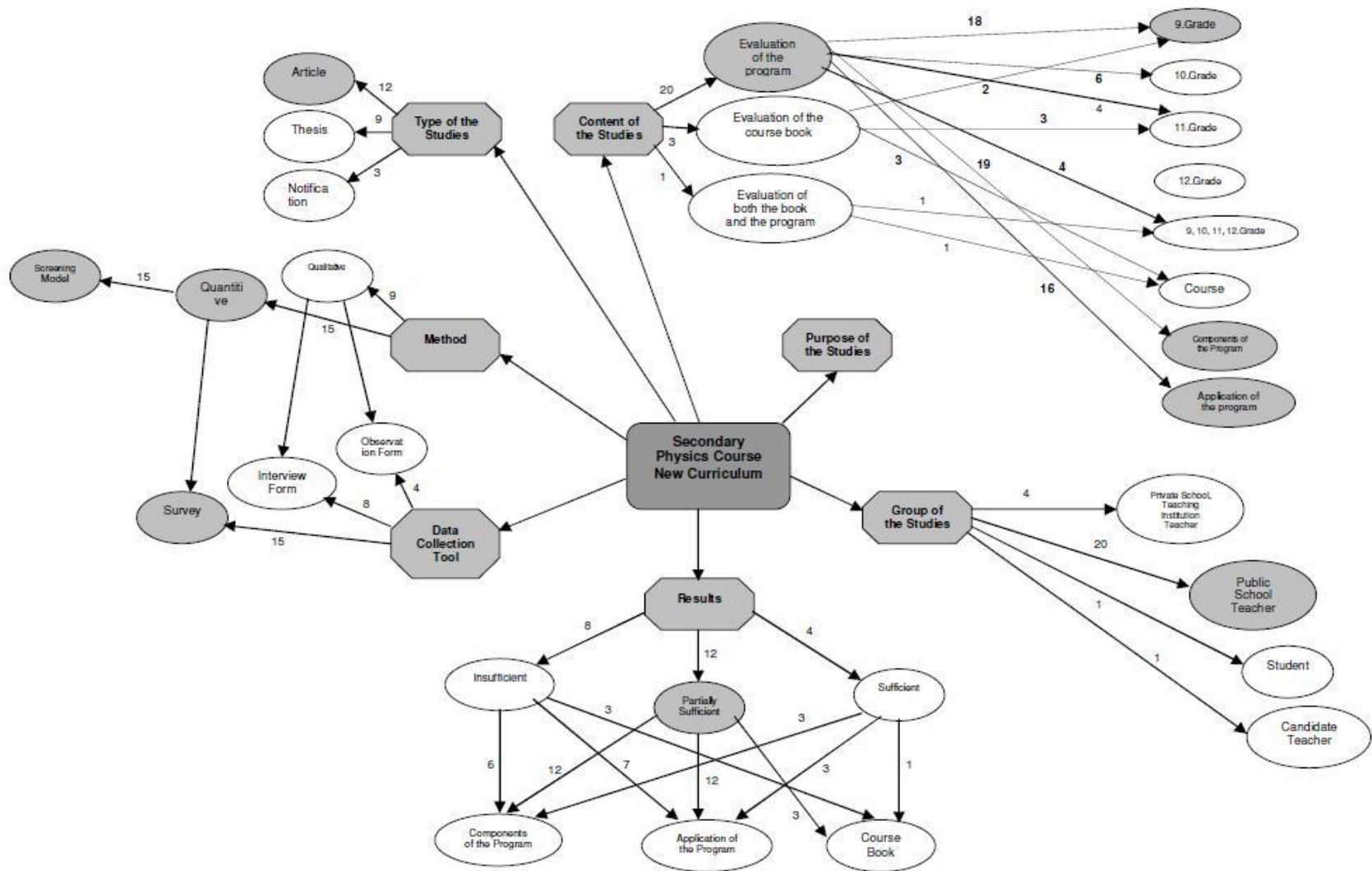
Content analysis approach is adopted for the evaluation of data gathered. The purpose of content analysis is to avoid subjective factors in understanding and interpreting a discourse. Content analysis is based on inference. Content analysis can be defined as the whole of certain methodological tools and techniques applied on various discourses (Bilgin, 2006). Content analysis requires analyzing the data gathered deeply and it enables certain themes and aspect which were not marked previously to come up. The core process in content analysis is gathering corresponding data within the framework of certain concepts and terms and interpreting them by regulating to the point where readers are able to understand them (URL-3). Expert review method makes sure that the study is reliable and valid. In this context, two instructors were advised concerning qualitative research process. The research process on the secondary physics curriculum is conducted by consulting two instructors. Terminal categorization to be used in content analysis process at the end of analysis by two experts was determined. The conformity of the research method adopted is queried in terms of educational sciences by analyzing the studies examined in the research in terms of type, date, subject, objective, method, workgroup (globe and sample), and data gathering methods, data analysis, consequences and suggestions. The reliability and validity of the data are

ensured by two instructors' code harmonization (instructors have PhD degree in physics). The state depicted in Figures 1-2 emerged after this application.

Models stated as simulation method by Moles (1990) are used for the declaration of the findings. Related studies are analyzed in terms of their type, date, subject, objective, method, workgroup (globe and sample), and data gathering methods, data analysis, consequences and suggestions and at the end schemas are composed. Thinking is making schemas in Moles's opinion (1990). Models integrate certain concepts and compose an opinion economy in researches. Composing a model is becoming one of the most majors and the most general methods in science. Explanation does not resolve; it is building a model from now on (URL-4). Model method is not arbitrary. It is, at a two-stage manner, reasoning and clarifying a matter, on one hand, and finding a resemblance between the two phenomena of the nature and benefit of this resemblance, on the other hand; it is categorizing model patterns according to acceptance and rejection (Kaşkaya, 2012).

### FINDINGS AND DISCUSSION

The publication about secondary physics course new curriculum between the years 2008-2012 is



**Figure 1.** Chart describing scientific studies discussed in the research.

examined and evidence is indicated in Figures 1 and 2. The concepts and relations with bolded

type in these figures indicate the concepts and the relationship between these concepts with high

frequency. The connection between the concepts is indicated with conceptual frequency and arrows.

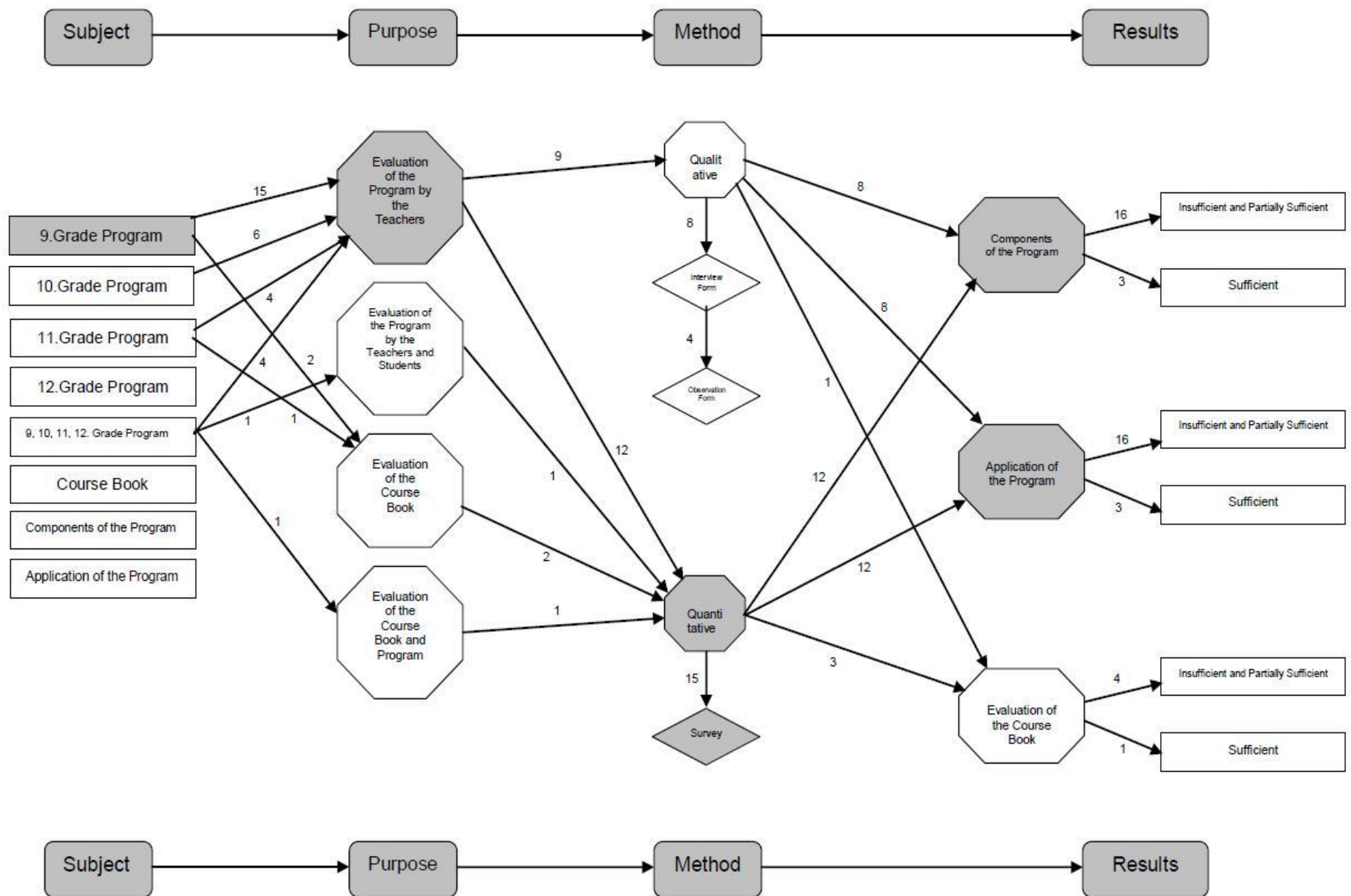


Figure 2. Analyzing the studies in the research in terms of subject, content, purpose, method and results.



## General features of the studies analyzed in the research

The results acquired from the studies about the scientific research conducted to determine the sufficiency of Secondary Physics Course New Curriculum and its subjects, purposes, study groups, methods and data collection tools are presented in Figure 1.

As seen in the figure, when we consider the main titles of the research, they are grouped as evaluation of program, evaluation of the books that are prepared, evaluation of program and the books that are prepared. The program of the 9<sup>th</sup> grade is analyzed most because it was completed in 2007 and first applied in this grade, followed by 10<sup>th</sup> and 11<sup>th</sup> grades. Since the program of 12<sup>th</sup> grade has been applied very early, there has not been any research about it. 15 of the studies are quantitative and 9 of them are qualitative studies in terms of method. These quantitative studies are generally performed in survey model. In the research, quantitative method has been adopted and this is why the data gathering tools are mainly parallel to this fact. In quantitative studies, surveys are usually used as data gathering tools. Data are obtained by applying these surveys mostly for in-service education courses. These surveys that are used have generally been formed by researchers. In the first part of the survey, there are personal details. In the second part, there are questions about the parts of the program (acquisition, content, learning-teaching and surveying-assessment activities). In the third part, there are questions about the application of the program in school and class. These questions are intended to determine the ideas of teachers about the application of the program. Qualitative studies have been generally applied by using meeting and observation forms which means observing the teachers in the classes and then interviewing them. The studies which are studied have been applied to the teachers in the Ministry of National Education; however, there have been a very few application to the teachers in private schools and private teaching institutions. In quantitative studies that are studied, SPSS Program is usually used in analyzing the data. In qualitative studies, the answers for open-ended surveys have been evaluated and content analyzed has been completed. They have been categorized and put in a chart in terms of field notes taken during the studies, intraclass activities, education policy that was used, methods and techniques, roles of teacher and student, features of the learning environment, social aspect, areas of acquisition, use of technology and resources, assessment and evaluation. The course book that was prepared according to the Secondary School Physics Class New Education Program has been analyzed in terms of its visual design, content, language and expression, assessment and evaluation scale. According to the results of the studies, it was stated that it is necessary to review the whole program, some subjects

may be removed and some others might slightly be changed, class activities must be reduced, but leaving the activities that can be applied effectively and efficiently in a shorter time and increasing the weekly course hours. It has been determined by the teachers that the course book does not completely represent the program in terms of visual design, content, language and expression, assessment-evaluation scale. As a feedback of all these studies observed, The Board of Education and Discipline is now reviewing and reforming the program.

## Evaluating the studies observed during the research in terms of their types, subject, purpose, method and results

Consistency and relevancy between the results, subject, purpose and method of the studies that were analyzed as a part of the research are shown in Figure 2.

The figure is analyzed under the following:

1. When we consider the types of the studies in the research, 12 articles, 8 postgraduate thesis, 1 PhD thesis and 3 papers have been published. Most of the studies which were analyzed are articles because the program is a very new one and the feedback about the program has been evaluated by the articles prepared in a short time.
2. The studies analyzed in the research cover the studies between 2008 and 2012 because the program was first completed in 2007 and applied in the following years. One of the studies which was observed is from 2008, one of them is from 2009, nine of them are from 2010, four of them are from 2011 and nine of them are from 2012. Studies from 2008 and 2009 are few because the program was first practiced in these years. When we consider the content of the studies in the research, new program of the physics class, only the course book, both the course book and course program of the 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> grades have been evaluated together. 13 of the studies were evaluated with 9<sup>th</sup> grade program, 2 of them with 11<sup>th</sup> grades, and 9 of them with all of the classes (two, three or four of the 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> grades). 3 of them were evaluated with the book analysis, one of them with the book and the programs.
3. Considering the purpose of the studies analyzed in the research, most of them want to evaluate the elements of Secondary School Physics Class New Program (acquisition, content, and learning-teaching and assessment-evaluation activities) and some of them want to evaluate the application of the program in school and class environment. In one of the studies, the purpose was to evaluate the program by the students and the teachers. In some of the studies, approaches in the program, strategies in teaching and using education technologies have been studied. In some studies, structure of the program, thought and reliance of physics teachers for this program have been studied with their ideas about the

application and their ability to show these opinions in the classroom. In some other studies, opinions of the teachers about the course books have been evaluated in terms of visual design, content, language and expression, assessment-evaluation. Secondary school new physics program in our country was compared to the programs in other countries in one of the studies. In another study, opinions of the teachers working in private teaching institutions about the secondary school new physics teaching program were analyzed. Evaluation of associating new physics teaching program with everyday life by the teachers was intended in another study. In all these studies that have been assessed, the purpose was to evaluate secondary physics course new curriculum, course book characteristics and positive or negative aspects during the application.

4. When we consider the methods used in the studies analyzed in the research, quantitative and qualitative methods were used. In the quantitative method used in the studies, data were gathered and interpreted by conducting surveys. In the studies, a descriptive research survey model was used in order to determine the situation. In the qualitative method, a survey model based on qualitative research technique by analyzing documents, a special case study in the research approach, special case methodology, multiple-case study and descriptive method were all used.

5. When we look at the study group (universe and sample) examined in the research, the studies have been assessed after taking the opinions of the teachers. The teachers who gave opinions are the ones who also gave a lesson. In one of the studies, opinion of the students was also included.

6. In general, surveys were conducted in in-service training courses that are performed in certain regions and some of them were conducted on the teachers chosen from certain schools.

7. When we look at the data collection tools in the studies, surveys were used in most of the quantitative studies. On the other hand, in qualitative studies open-ended surveys, semi-structured interviews, classroom observation and interview forms were used in qualitative studies.

8. Considering the analysis of the data from the studies, SPSS program was used in quantitative studies and percentage, frequency calculations were completed. Their answers to the open-ended survey questions in qualitative studies were gathered and observed one by one according to qualitative data analysis. At the end, the data were put into a chart and presented.

9. According to the results of the studies analyzed in the research, it was stated that in half of the studies there are not many problems in the program and the program is applied even though not as much as it was purposed. On the other hand, according to the results of other studies there are some problems such as; new program is not sufficient in class, course hours are not enough and activities cannot be practiced efficiently, teachers,

students and parents do not know much about the program, the program is not performed in the determined standards in every school, most of the teachers and students are not satisfied with the course books and they want course books to be updated.

10. The suggestions of the studies analyzed in the research emphasize that course hours of the physics should be increased, course book should meet the expectations of students for the university entrance exam and in the exam there should be questions according to the new program. It was suggested that there should be a sufficient pre-service and in-service training and teachers, students and parents should always be informed about the program.

## CONCLUSION AND SUGGESTIONS

While discussing secondary physics course new curriculum, opinions, troubles and suggestions of teachers who use the program are the most important factors that should be considered. If we look at the diversity of the opinions of physics teachers who participate in the research, it can be seen that there is not an exact standard in the application of the program. These regional and individual diversities in a program covering all Turkey mean that it has not been fully understood; so there are doubts whether it can achieve its purposes. It is also understood that most of the teachers and students are not satisfied with the available physics program and it should be updated.

Some teachers stated that the subjects were more difficult for students to understand, while some others believe that the subjects are explained superficially. These teachers are responsible for teaching the same subject; however, they differ in explaining the content they teach and it proves that the subjects are explained in various perspectives. In a program that lets students question, research, organize events, discover new information by using the former ones, which is in short a program that gives student and more active role, too many activities might distract the students. Opinions stating that there is no need for a laboratory while teaching physics or the experiments are more difficult for students make people think of how can students learn through experience. Besides, some teachers think that there are too many experiments on certain subjects, while others disagree. Teachers have stated negative opinions about the difficult subjects which are above the level of the students, insufficient periods, lack of time and material to conduct the experiments.

It was determined that the teachers spend too much time for preparations and evaluations. Physics teachers who participated in the studies stated that they were not stuck with the course book and they always needed to prepare before the course.

All of the teachers state that in physics teaching program students are in the centre, but only half of the



teachers think that in a student centered approach students should control the course.

All physics teachers should be given a seminar about the secondary physics course new curriculum or in-service training event. According to the studies that have been examined, there are studies that show there is not a significant difference between the statements of teachers who participate in a seminar about the new program and those who do not. As a result, these seminars are not sufficient in content to explain the philosophy, vision, structure, basic approach, assessment and evaluation activities, transfer of knowledge and talent of the program and they should be improved. According to the studies of Balta and Eryılmaz (2010), Eke (2010), Kapucu (2010) and Yolbaşı (2010), teachers need in-service training about the new program.

The relation between the opinion of teachers who participate in the studies about the secondary physics course new curriculum and various factors such as; their sex, term of service, socio-economic environment of the school they work, participating in a in-service training and education level has been examined. However, a statistically significant effect has not been found. In some studies, a higher education level (such as master's degree, PhD) causes a positive approach to the program.

In some of the studies which have been analyzed, educational attainment in the program has also been reflected in the book. Complexity of the education program and course book draws attention as a matter to be criticized. The book is a good guide for the students, but it is not a guidebook and it was seen that it cannot serve as a guidebook for the teacher.

It was stated that according to the studies that had been analyzed, most of the physics teachers could not adopt physics education program and they teach it in accordance with their own ways. It can be stated that teachers do not leave their past habits. They also do not know much about the structure of the program and this is why they have to teach on their own ways. Most of them criticized the complexity of the program. They also stated they needed more time to catch up with the schedule and this is why they prefer to teach on their own ways in order to eliminate this problem. While the secondary physics course new curriculum targets physics activities and experimental learning, their active role in teaching is regarded as a problem in achieving the purpose of the program.

On the other hand, some teachers stated that they try to teach certain difficult concepts with computer-aided physics methods and they conduct physics experiments as demonstration experiment. In other words, it is understood that teachers use computers so that they can gain control easily and attract students' attention in order to save more time. Teachers use computer-aided education and that means they are trying to pay attention to information and communication talents in physics education programs. This situation shares similarities with the studies of Aktamış et al. (2010), Akbulut and Akdeniz

(2010) and Azar and Şengüleç (2011).

It was also seen that teachers in these studies focus on questions about the city-wide exams and university entrance exam and this is why they disregard the warnings and achievements available in the program. Since teachers do not know what kind of questions will be asked in city-wide and university entrance exams, this situation prevents them to catch up with the achievements in the program; in other words it prevents them to catch up with the program. In Sözbilir et al.'s study (2012), it was stated that physics program and available testing system do not have any coherence and testing system consists of a rote-learning system. However, when we consider the program, it is seen that it presents various assessment and evaluation opportunities to the students by which they can express their knowledge, talent and attitudes. Moreover, some teachers stated that the assessment and evaluation techniques in the program are limited and they wanted to see more technical samples. For the new well laid curriculum to have the desired impact, it is very important for the country to see to the training of physics teachers (Daramola and Omosewo, 2012).

In analyzing studies, qualitative research technique is preferred mostly. The number of teacher, who participated in this study, is also cramped. Studies about the students are also limited in number.

Baybarsa and Kocakulah (2009), Marulcu and Doğan (2010), Ayvaci (2010), Sadi and Yıldız (2012), Akdeniz and Paniç (2012), Ergin et al. (2011), Kapucu (2012), Arslan et al. (2012), Kavcar (2012), Yolbaşı (2010), Şafak (2010), Karal (2010), Dülgeroğlu (2010), Tatar (2010), Taşçı (2011), Tortop (2012), Ayvaci et al. (2012), Kümbet (2010), Aksoy (2011), Ergin (2012a, b), Ad and Er (2011), Engin and Bülbül (2009) and Tanuğur et al. (2012) support the results of the studies conducted in this study.

Based on the outcomes of the analyzed studies, the following are suggested:

1. In the studies, aimed at productivity and practicability of Secondary Physics Course New Curriculum and determination of the effectiveness of the book, prepared according to this system, qualitative and quantitative approaches should be used together; especially, quantitative research should be given more focus.
2. It is seen that a study, which is narrower-scoped and aimed at a specific class, will bring more valid results than a study, engaged in evaluation of all the books and curriculums in all the classes (9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup> grades) together.
3. In studies that will be made, It is reclaimed that using data collection tools, such as observation forms, observation of given lesson, open-end survey, rather than surveys whose limits are determined beforehand, will be more appropriate and their outcomes will be more accurate.
4. Education programs should be followed and, if needed,

be updated for the sake of meeting the need of changing time. Remarks of teachers, who play vital role for program's success, should be received by doing these types of scanning study. Problems that are faced during the application should be determined and, in a short time, studies should be carried out in order to solve those problems. Sequence of the topics and content of the program should be reorganized regarding the stages of cognitive development. Seeing that teachers and students find the course hours left for the program short, the level of acquisition should be balanced well with course hours. The levels of students must be kept in mind while events are prepared. It is seen that in order to prevent not performing events due to shortage of material, events should be designed to be made with ordinary equipment.

5. Books, prepared for the curriculum, should be re-analyzed for their sufficiency of the scientific data.

6. It is seen that teachers do not have necessary information about the curriculum and, they do experience some problems during the application because physics course curriculum have recently been introduced. Without receiving an education before or during service, teachers start to apply the physics course curriculum. This can be the reason why they do not apprehend the nature of this curriculum. During-service course, which is being done, should be revised; they should be adapted to the changes swiftly, and activities in order to accelerate the adaptation of the teachers. Secondary Physics Course New Curriculum, which will be revised, should be prepared in a way that leads the teacher. Instead of using general expressions that will create ambiguities, sharper and more detailed expression should be used. The instructors, who work in education faculties, initially, should be open to innovations themselves and should teach in this way, in regard to educate teacher-to-be. Curriculum examples should be put on the MEB (The Ministry of National Education) webpage and to the service of teachers. Feedbacks about curriculum should be provided, making them available for all the teachers.

7. Teachers should care about themselves and the students of tomorrow and should prepare themselves and the students for the future and for what the future will bring because teachers shape the future; they should make a positive change. From this point, they should exchange knowledge in their own fields in order to follow the developments. This knowledge exchange should be available via internet. The course materials should be available also on the internet. So, one can save time during preparation for the class or can enhance the existing materials.

## REFERENCES

Aderonmu TSB, Adolphus T (2012). Problems militating against the effective teaching of gravitational force: a study of secondary school physics teachers in cross river state, Nigeria. *Int. J. Asian Soc. Sci.* 2(7):1012-1017.

- Ad VNK, Er KO (2011). The comparison of physics curricula in Turkey and Malaysia. *Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi (EFMED)* 5(2):312-336.
- Adıbelli S (2007). The evaluation of the physics course book prepared according to the new programme for high school first year students in terms of educational, visual, linguistic and explanatory aspects. *Yüksek Lisans Tezi, Selçuk Üniversitesi, Fizik Eğitimi Anabilim Dalı, Konya.*
- Ayvaci HŞ, Ülkey E, Mert Y (2012). Determining the teachers' views on the applicability of the technology design objectives in 9th grade physics curriculum. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi* 31(1):20-43.
- Akbulut ÖE, Akdeniz AR (2010). Fizik öğretiminde bağlam temelli yaklaşımın bilgisayar destekli uygulanması üzerine öğrenci görüşleri. *IX. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi, İzmir.*
- Akdeniz AR, Paniç G (2012). Teachers' opinions about new physics education program and its implementation. *Milli Eğitim Dergisi*, 41(196):290-307.
- Akpınar D (2002). The Views of teachers relation to the primary science curriculum in 1992 and 2001 (sample of İzmir). *Yayımlanmamış Yüksek Lisans Tezi. Dokuz Eylül Üniversitesi, İzmir.*
- Aksoy Z (2011). The situation of the technology used by physics education and the effect of success by students in high school (sample of Ankara). *Yayımlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi Eğitim Bilimler Enstitüsü, Ankara.*
- Aktamış H, Feyzioğlu B, Özenoğlu Kiremit H, Delioğlu Y (2010). 9. sınıf fizik öğretim programına göre hazırlanan ders kitabının deney türleri ve bilimsel süreç becerileri açısından değerlendirilmesi. *9. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi Özet Kitapçığı, Eylül, İzmir.*
- Arslan A, Ercan O, Tekbıyık A (2012). Fizik dersi yeni öğretim programına ilişkin öğretmen görüşlerinin çeşitli değişkenler açısından değerlendirilmesi. *Niğde: X. Ulusal Fen Bilimleri ve Matematik Eğitim Kongresi (Niğde Üniversitesi, 27-30 Haziran 2012)'nde sunulan bildiri.*
- Ayvaci HŞ (2010). Views of physics teachers about context based approach. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi* 15:42-51.
- Azar A, Şengüleç AÖ (2011). Computer-Assisted and Laboratory-Assisted Teaching Methods in Physics Teaching: The Effect on Student Physics Achievement and Attitude towards Physics. *Eurasian J. Phys. Chem. Educ. Jan(Special Issue):43-50.*
- Balta N, Eryılmaz A (2010). Yeni fizik öğretim programı: Öğretmen görüşleri ve ihtiyaçları. *9. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi (9. UFBMEK) sözlü bildirisi, Özet Kitapçığı, Eylül 2010, Buca Eğitim Fakültesi, İzmir s.81:23-25.*
- Baybarsa MG, Kocakulah MS (2009). Evaluation of grade 9 physics curriculum based on teacher's views. *Procedia Soc. Behav. Sci.* 1:1121-1126.
- Bilgin N (2006). Sosyal bilimlerde içerik analizi: Teknikler ve örnek çalışmalar. *Ankara: Siyasal Kitabevi.*
- Bloor M, Wood E (2006). *Keywords in qualitative methods: A vocabulary of research concepts.* London: Sage.
- Bogdan RC, Biklen SK (1982). *Qualitative research for education: An introduction to theory and methods.* Boston: Allyn and Bacon.
- Çakır İ (2009). The evaluation of the fifth grade mathematics textbooks of the primary education according to the views of the teachers and students. *Yayımlanmamış Yüksek Lisans Tezi, Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.*
- Daramola SO, Omosewo EO (2012). An appraisal of the new nigerian senior secondary school physics curriculum. *J. Educ. Pract.* 3(8):191-195.
- Dülgeroğlu İ (2010). The evaluation of 9<sup>th</sup> class's course book of physics which was prepared according to new teaching programme with considering the views of teachers: example of Kocaeli. *Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü.*
- Engin AO, Bülbül MŞ (2009). The evaluation of physics teaching curriculum according to the teachers' point of views at secondary education. *Kafkas Üniversitesi Fen Bilimleri Enstitüsü Dergisi* 2(1):47-65.
- Eke C (2010). Türkiye'de fizik eğitimi alanındaki tecrübeler, sorunlar, çözümler ve öneriler, çevrimiçi çalıştay pp.76-81.
- Ergin İ (2012a). Teachers views about the components of secondary

- physics course curriculum. *Energy Education Science And Technology Part-B: Soc. Educ. Stud.* 4(Special Issue-1):378-384.
- Ergin İ (2012b). Teachers' views about the application of secondary physics course curriculum. *Int. J. Phys. Sci.* 7(45):5981-5990.
- Ergin I, Kandil IS, Şafak EM (2011). Ortaöğretim 9. sınıf fizik dersi öğretim programının kazanımlar, içerik, öğrenme-öğretme süreci, ölçme değerlendirme boyutlarına ilişkin öğretmen görüşleri. 2nd International Conference on New Trends in Education and Their Implications, 27-29 April, 2011 Antalya-Turkey, www.iconte.org Siyasal Kitabevi, Ankara, Turkey, 2011.
- Erden M (1998). Eğitimde program değerlendirme (3. baskı). Ankara: Anı Yayıncılık.
- Fraenkel JR, Wallen NE (2006). How to design and evaluate research in education. Boston: McGraw Hill.
- Grier AS (2005). Integrating needs assessment into career and technical curriculum development. *J. Ind. Teach. Educ.* 42(1):59-66.
- Güçüm B (2006). Fen bilimlerinin oluşumu, gelişimi ve fen bilgisi, Ankara: Anadolu Üniversitesi Yayınları.
- Güneş B, Mutuş H, Saçlı ÖA, Akyüz Ö, Ateş, S, Eryılmaz A, Kanlı U, Serin G (2007) Millî Eğitim Bakanlığı Talim ve Terbiye Kurulu Başkanlığı fizik dersi öğretim programı Ankara: özel ihtisas komisyonu.
- Karal A (2010). The evaluation of the curriculum for the new 9<sup>th</sup> grade physics lesson by the physics teachers (example of Mersin). Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Kapucu S (2010). Türkiye'de fizik eğitimi alanındaki tecrübeler, sorunlar, çözümler ve öneriler, çevrimiçi çalıştay pp.30-37.
- Kapucu S (2012). Physics teachers beliefs related to Turkish high school physics curriculum: A multiple case study. Yayınlanmamış Doktora Tezi, Orta Doğu Teknik Üniversitesi Fen Bilimleri Enstitüsü, Ankara.
- Kaşkaya A (2012). Evaluation of the research in the scope of the proficiency of teachers in terms of subject, aim, method, and results. *Educational Sciences: Theory&Practice (Kuram ve Uygulamada Eğitim Bilimleri)* 12(2): 789- 805.
- Kavcar N (2012). Ortaöğretim fizik 11 ders kitabının öğretmen adayları raporlarıyla değerlendirilmesi. Niğde: X. Ulusal Fen Bilimleri ve Matematik Eğitim Kongresi (Niğde Üniversitesi, 27-30 Haziran 2012)'nde sunulan bildiri.
- Künbet S (2010). Course teachers views 9<sup>th</sup> and 10<sup>th</sup> physics curriculum. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Marulcu İ, Doğan M (2010). Physics teachers' and their students' opinions about the current physics curricula and textbooks in Afyonkarahisar. *Sosyal Bilimler Enstitüsü Dergisi* 29(2):193-209.
- MEB (2007). Ortaöğretim fizik dersi 9. sınıf öğretim programı. Ankara.
- MEB (2008). Ortaöğretim fizik dersi 10. sınıf öğretim programı. Ankara.
- MEB (2008). Ortaöğretim fizik dersi 11. sınıf öğretim programı. Ankara.
- MEB (2009). Ortaöğretim fizik dersi 12. sınıf öğretim programı. Ankara.
- Moles A (1990). *Les sciences de l'imprécis* (çev. N. Bilgin). İstanbul: Y.K.Y.
- Omiola MA, Enuwa MR, Awoyemi SO, Bada AA (2012). Effect of developed video instructional package on the performance of senior secondary school physics students in Ilorin metropolis, Br. J. Sci. 45, 6(1):45-54.
- Onah DU, Ugwu EL (2010). Factors which predict performance in secondary school physics in Ebonyi north educational zone of Ebonyi State, Nigeria. *Adv. Appl. Sci. Res.* 1(3):255-258.
- Patton MQ (2002). *Qualitative research and evaluation methods* (3<sup>th</sup> ed.). Thousand Oaks, CA: Sage.
- Rodríguez GS, Antón AJM (2011). The use of ICT tools in physical sciences education. *Int. J. Phys. Sci.* 6(4):944-947.
- Sadi Ö, Yıldız M (2012). Physics teachers opinions on new applied 11<sup>th</sup> grade physics course at 2010-2011 academic year. *Kastamonu Eğitim Dergisi* 20(3):869-882.
- Sözbilir M, Kutu H, Yasar MD (2012). Science education research in Turkey: A content analysis of selected features of papers published. In: Jorde D & Dillon J (Eds). *Science Education Research and Practice in Europe: Retrospective and Prospective* Rotterdam: Sense Publishers pp.341-374.
- Şafak EM (2010). Teacher views on secondary 9<sup>th</sup> grade physics course curriculum. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Tahir AQ, Ulah I (2010). Reborn curriculum efforts in pakistan: a comparative analysis of physics curriculum. *Pak. J. Sci.* 62(4):216-223.
- Tanuğur B, Bekiroğlu FO, Gürel C, Süzük E (2012). Teachers' views on the association of new physics curriculum with daily life. *Yalova Sosyal Bilimler Dergisi*, 4(1):167-187.
- Taşçı Ş (2011). Evaluation applications of physics curriculum. Karadeniz Teknik Üniversitesi, Eğitim Bilimleri Enstitüsü, Ortaöğretim Fen ve Matematik Alanları Anabilim Dalı Fizik Eğitimi Bilim Dalı, Trabzon.
- Tatar B (2010). The views of teachers' for the book of physics of 9<sup>th</sup> class written according to new curriculum. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Tortop HS (2012). Adaptation of physics teachers on new physics curriculum: A case study. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* 5(10):419-438.
- URL-1: <http://www.fizikprogrami.com> (Accessed on: 09 April 2012).
- URL-2: <http://www.fizikprogrami.info> (Accessed on: 09 April 2012).
- URL-3: <http://fenitay.files.wordpress.com/2009/02/1112-nitel-arac59ftc4b1rmada-veri-analizi.pdf> (Accessed on: 22 February 2013).
- URL-4: [http://www.80.251.40.59/education.ankara.edu.tr/aksoy/eay/.../n\\_salar.doc](http://www.80.251.40.59/education.ankara.edu.tr/aksoy/eay/.../n_salar.doc) (Accessed on: 22 February 2013).
- URL-5: <http://lsg.ucy.ac.cy/girep2008/papers/A%20SENIOR%20SECONDARY%20SCHOOL%20PHYSICS%20CURRICULUM%20FOR%20TALENTED%20STUDENTS.pdf> (Accessed on: 13 April 2013).
- Yıldırım A, Şimşek H (2008). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayıncılık.
- Yolbaşı C (2010). The evaluation of new physics teaching program based on teacher's views. Yayınlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü.