Mediterranean Journal of Social & Behavioral Research
2019, 3(1), 9-15
ISSN 2547-8559 (Print)
ISSN 2547-8567 (Online)
https://www.mjosbr.com/

Research Article

OPEN ACCESS

The Evaluation of Elementary 4th Grade Science Curriculum

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Citation: Ocaki I., & Akkas Baysal, E. (2019). The Evaluation of Elementary 4th Grade Science Curriculum. *Mediterranean Journal of Social & Behavioral Research*, 3(1), 9-15. https://doi.org/10.30935/mjosbr/9588

ABSTRACT

The aim of this study is to evaluate Primary Institutions Science Curriculum implemented in 2004-2005 and revised in 2013 education year. The dimensions of the curriculum, which are needs assessment, aim, content, learning-teaching process and assessment process, will be evaluated in terms of principles of curriculum design. The data of research has been collected with "Curriculum Evaluation Analysis Form", prepared by researchers. In this study, document analysis has been used to demonstrate the features of elementary 4th grade science curriculum in terms of the elements of education program. The reliability of analysis form has been found .73. According to the results obtained from study, regional disparities have been ignored in the process of determining needs assessment. In addition to this, determining the objectives of the curriculum beforehand doesn't match the basics of approach it relied on. However, content, learning-teaching process and assessment process dimensions of curriculum have been prepared according to the basics of curriculum design.

Keywords: science and technology course, science course, curriculum evaluation

Received: 7 Oct. 2018 ◆ Revised: 23 Feb. 2019 ◆ Accepted: 21 Mar. 2019

INTRODUCTION

Science and technology education play a key role in terms of the future of societies today when scientific knowledge is growing increasingly, technological innovation is in advancing rapidly and the impact of technology is seen clearly in all areas our lives. Therefore, all societies especially developed ones are trying to improve the quality of science and technology education constantly. This situation, bringing together new approaches in education, has revealed the necessity of the renewal of Science and Technology Curriculum. In the light of the emerging needs, Elemantary 4th Grade Science Curriculum has been renewed and started to be implemented under the name of Primary Institutions Science Curriculum by the Ministry of National Education the Board of Education (MEB, 2005).

At first, from the beginning of 2004-2005 academic year Science and Technology Course has been taught in the first level of 120 pilot schools by Ministry of National Education (MONE) and then it has started to be implemented in all first levels of schools in 2005-2006 academic year. Then, the new curriculum has been officially implemented in all sixth grades of secodary schools in 2006-2007 academic year. The ongoing curriculum evaluation and development after the implementation of the curriculum and the recent changes done according to 4+4+4 system have occured in 2013 academic year and it has been launched to teach as Primary Institutions Science Curriculum (3-8).

Lots of studies were conducted in order to enforce the effectiveness of curriculum, to identify the shortcomings of it, if there was, and to correct them. Ministry of National Education (2004) was conducted a research taking teachers' views to investigate strengths and weakness of 2004 curricurulum which is the basis of 2013 curriculum. The most powerful aspects of the curriculum are the spiral structure, taking into account individual differecences, going towards minded individuals, materiallization, the foundations of the curriculum, efforts in preparation and reduction the number of topics. In the same research, the weakest aspects of curriculum are supporting education of teachers, unity of language, the entegration of science and mathematics, the entegration of science and life science, the concept of unified class and the equipments. When looking at other researhes on this issue, there are similar and different views.

Sert (2008) says that curriculum and practices dimensions of Science and Technology curriculum compliance with the principles of constructivism, however there are some uncertainties in content, learning-teaching process, assessment process dimensions and the usage of resources. It was found that there were some problems about the implementation of the curriculum and the principles. The studies done by Özkan (2002); İnce (2005); Çınar, Teyfur & Teyfur (2006); Gözütok, Akgün & Karacaoğlu (2005); Erdoğan (2005); Özsevgeç (2006); Ünal & Akpınar (2006); Yiğit, Devecioğlu & Ayvacı (2007); Gömleksiz & Bulut (2007); Dindar & Yangın (2007); Tüysüz & Aydın (2009); Doğan (2010) support the idea that the curriculum can not be performed in desired level according to teachers' perspective.

According to the results of research about the evaluation of the curriculum done by Dede Er, Sarı and Çelik (2013), students fail to associate between the acquired knowledge in the unit "Electricity in Our Lives" and daily life. Moreover, when students increase the levels of science process skills, they can associate between knowledge and daily life.

Reseachers made different evaluations about 2013 curriculum in terms of the content, objectives, vision and approaches of it. However, these studies are generally about teachers' opinions about the curriculum and mostly about implementation of the curriculum. In other words, there aren't much studies about the main elements of the curriculum. Whether the basic elements of the curriculum (needs assessment, objectives, content, learning-teaching process, assessment process) are formulated according to the principles of curriculum development or not is important for the achieving the curriculum's objectives. In this context, in this study, the basic elements of elementary 4th grade science curriculum (needs assessment, objectives, content, learning-teaching process, assessment process) will be examined with analysis form preperad according to the principles of the curriculum development.

In this study, it is aimed to evaluate the needs assessment, objectives, content, learning-teaching process, assessment process dimensions of the elementary 4th grade science curriculum which was implemented in 2005-2006 academic year and renewed in 2013 academic year according to the principles of the curriculum development. For this purpose, the sub-problems are defined as follows:

1- What is the compliance level between the determined criteria and "needs assessment" of elementary 4th grade science curriculum?

2- What is the compliance level between the determined criteria and "objectives" of elementary 4th grade science curriculum?

3- What is the compliance level between the determined criteria and "content" of elementary 4th grade science curriculum?

4- What is the compliance level between the determined criteria and "learning-teaching process" of elementary 4th grade science curriculum?

5- What is the compliance level between the determined criteria and "assessment process" of elementary 4th grade science curriculum?

METHOD

In this study, document analysis has been used to reveal the properties of elementary 4th grade science curriculum in terms of the basic elements of it. Document analysis involves in the analysis of written materials containing knowlenge about cases and the intended case. Document analysis is a data collection technique which is essential for almost every survey (Madge, 1965). Which documents are important and can be used as a data source is closely related to the research problem (Goetz and LeCompte, 1984). Therefore, elementary 4th grade science curriculum prepared by Ministry of Education The Board of Education has tried to reveal general condition of the basic elements of the curriculum and to evaluate in a systematic manner with the criteria in the observation form.

Table 1. The score ranges of criteria

I completely agree	5.00	4.20
I agree	4.19	3.40
Somewhat agree	3.39	2.60
I agree less	2.59	1.80
I disagree	1.79	1.00
No information	0	

Data Collection and Analysis

At the stage of data collection, the literature related to needs assessment and the basic elements of curriculum were reviewed in order to ensure content validity. In the light of this information, an item pool including a large number of criteria which could reveal the characteristics of curriculum was generated. These criteria were examined by an expert* and three teachers**, who are PhD students in "Curriculum and Teaching Department", and then necessary corrections were made to form the last version of ananlysis form. The analysis form prepared in order to evaluate needs assessment, objectives, content, learning-teachig process, assessment process dimensions of the curriculum has been called "Curriculum Evaluation Analysis Form". Reseachers were educated about curriculum evaluation and analysis form and then the form was filled.

The analysis form*** consists of five sections. The first part is "needs assessment", the second part is "objectives", the third part is "content, the fourth part is "learning and teaching process" and the fifth part is "assessment process". These sections were evaluated by three PhD students in Curriculum and Teaching Department by examining elementary 4th grade science curriculum which is the part of the Primary Institutions Science Education Curriculum 3, 4, 5, 6, 7 and 8. Grade published by Board of Education in 2013 academic year. In addition, researchers benefited from the publications of Board of Education related to the curriculum development and the introduction part of the curriculum being in 2005 curriculum but not in 2013 curriculum.

The percentage of agreement between analysis done by experts was calculated in order to ensure the reliability of research (Miles and Huberman, 1994). In this study, for this purpose, "Consensus/ (Consensus+Dissidence)*100" formula was used and the reliability was calculated as .73. According to Sencan (2005), the percentage of agreement is the ratio of the total number of assessment or observation to the number of criteria observers and assessors match. In order to accept the values as reliable, the percentage of agreement must be above .70. The score ranges of criteria (**Table 1**), according to Range Width=(String Width)/(The Number of Groups) formula was determined as 4/5=.80 (Tekin, 1996).

FINDINGS

In this research, analysis form was filled individually by three teachers who are PhD students in Curriculum and Teaching Department and evaluated by calculating average scores.

1- What is the compliance level between the determined criteria and "needs assessment" of elementary 4th grade science curriculum?

According to **Table 2**, when determining the needs, environmental or regional differences haven't been considered. It is observed that there is no information about that scientific developments have been taken

Table 2. The evaluation of "Needs Assessment" dimension of elementary 4th grade science curriculum

NEEDS ASSESSMENT	OBSERVER1	OBSERVER2	OBSERVER3	AVERAGE
1. When determining the needs, environmental and regional differences are taken into account.	1.00	1.00	1.00	1.00
2. Scientific developments are taken into account when determining the needs.	5.00	5.00	5.00	5.00
3. The overlap level of the needs with education philosophy				
3.a. Perennialism	1.00	1.00	1.00	1.00
3.b. Essentialism	1.00	1.00	1.00	1.00
3.ç. Progressivism	4.00	5.00	4.00	4.33
3.d. Re-constructionism	4.00	4.00	4.00	4.00
4. The usage of needs assessment techniques:				
4.a. Delphi technique is used.	0	0	0	0
4.b. Questionnaire development technique is used.	0	0	0	0
4.c. Dacum technique is used.	0	0	0	0
4.ç. Occupation analysis technique is used.	0	0	0	0
4.d. Measuring tools-testing technique is used.	0	0	0	0
4.e. Interview-group meetings technique is used.	5.00	5.00	5.00	5.00
4.f. Observation technique is used.	0	0	0	0
4.g. Literature review technique is used.	5.00	5.00	5.00	5.00
5. When determining the needs, the views of stakeholders are taken into account:				
5.a. Experts Views	5.00	5.00	5.00	5.00
5.b. Students' Views	5.00	5.00	5.00	5.00
5.c. Teachers' Views	5.00	5.00	5.00	5.00
5.ç. Parents' Views	5.00	5.00	5.00	5.00
5.d. Managers' Views	5.00	5.00	5.00	5.00
5.e. Inspectors' Views	5.00	5.00	5.00	5.00
5.f. Non-governmental Organizations' Views	5.00	5.00	5.00	5.00
6. When determining the needs, the needs assessment approaches are used:				
6.a. Different approach is adopted.	0	0	0	0
6.b. Descriptive approach is adopted.	0	0	0	0
6.c. Democratic approach is adopted.	4.00	4.00	4.00	4.00
6.ç. Analytical approach is adopted.	4.00	4.00	4.00	4.00
7. Determining the stage of needs assessment:				
7.a. Preparatory work is carried out.	5.00	5.00	5.00	5.00
7.b. Data collection efforts are carried out.	5.00	5.00	5.00	5.00
7.c. Data analysis is carried out.	5.00	5.00	5.00	5.00
7.ç. Information reporting is carried out.	5.00	5.00	5.00	5.00
7.d. Use of information studies is carried out.	5.00	5.00	5.00	5.00
8.Needs assessment studies meet the needs of individuals.	4.00	4.00	4.00	4.00
9.Needs assessment studies meet the needs of community.	4.00	4.00	4.00	4.00

* and ** while preparing these criteria, Assoc. Prof. Gürbüz Ocak, working in Universtiy of Afyon Kocatepe Faculty of Education Department of Educational Sciences Curriculum and Teaching, and three teachers and PhD students in the same department, Ramazan Yurtseven, Zeynep Gökteke and Emine Akkaş Baysal, express their opinions. ***The analysis form used in this study is intended to be used in the evaluation of other curriculums. The analysis form was used in "The Evaluation of Secondary School's Fifth Grade Social Science Curriculum" in ICOINE2014.

into account when determining the needs. Observers' response to the criterion which says that the education philosophy of the curriculum overlaps with idealism and essentialism is "disagree" level; however, their respose to the criterion which says that education philosophy of the curriculum overlaps with progressivism and re-constructionism. Observers stated their opinions as "I completely agree" level to the criterion which says stakeholders' views are taken while determining the needs. They expressed their opinions as "I agree" to the criterion which says democratic and analytical approach are used. They stated their opinions as "I completely agree" to the criterion about the steps followed in needs assessment. They responsed as "I agree" level to the criterion which says needs assessment meets the needs of individuals and community.

2- What is the compliance level between the determined criteria and "objectives" of elementary 4th grade science curriculum?

According to **Table 3**, observers have expressed their opinions as "I completely agree" to the criterion which says that the curriculum has both overall and specific objectives. It is seen that objectives overlap the needs and specific objectives. Moreover, they have expressed their opinions as "I agree" to the criterion saying the overlap of objectives with progressivism and re-constructionism. It is stated that neither Bloom's Taxonomy nor Bloom's Revised Taxonomy are taken into consideration. Observers have stated their opinions as "I agree" to the criteria which say objectives show what students should do, objectives are related to learning products, objectives are seen to be self consistent, objectives are feasible and accessible, objectives are accessible during academic year.

3-What is the compliance level between the determined criteria and "content" of elementary 4th grade science curriculum?

According to **Table 4**, the content of the curriculum overlaps objectives. Observers have stated their opinions as "I agree" to the criterion which says objectives of units are suitably shared in time of units. However, they have said that topics don't consist of extensive information. Content is achievable and there is a relation between topics and activities. According to findings, the content is not organized in a modular form. There is relation between interdisciplinary

Table 3. The evaluation of "Objectives" dimension of elementary 4th grade science curriculum

OBJECTIVES	OBSERVER 1	OBSERVER 2	OBSERVER 3	AVERAGE
1. The overall objectives of the curriculum are stated.	5.00	5.00	5.00	5.00
2. The specific objectives of the curriculum are indicated.	5.00	5.00	5.00	5.00
3. Objectives overlap with the needs.	4.00	4.00	3.00	3.66
4. Objectives overlap with specific objectives.	4.00	4.00	4.00	4.00
5. The overlap of objectives with education philosophy:				
5.a. Perennialism	1.00	1.00	1.00	1.00
5.b. Essentialism	1.00	1.00	1.00	1.00
5.ç. Progressivism	4.00	5.00	5.00	4.66
5.d. Re-constructionism	4.00	4.00	4.00	4.00
6. Bloom's Taxonomy is taken into consideration when determining objectives.	1.00	1.00	1.00	1.00
7. Bloom's Revised Taxonomy is taken into consideration when determining objectives.	1.00	1.00	1.00	1.00
8. Objectives express what students should do.	5.00	5.00	5.00	5.00
9. Objectives are based on learning products.	4.00	4.00	4.00	4.00
10. Objectives seem to be self-consistent.	4.00	4.00	4.00	4.00
11. Objectives are feasible.	4.00	4.00	4.00	4.00
12. Objectives are achievable.	4.00	4.00	4.00	4.00
13. Objectives are reachable during an academic year.	4.00	4.00	4.00	4.00
14. Suitability of objectives with the readiness of students:				
14.a. Objectives are suitable for prior learning.	5.00	3.00	5.00	3.25
14.b. Objectives are suitable for students' developmental level.	5.00	5.00	5.00	5.00
14.c. Objectives are suitable for students' interest.	3.00	3.00	2.00	2.66
14.ç. Objectives are suitable for students' individual characteristics.	3.00	3.00	2.00	2.66
15. Objectives are clear, understandable and clearly stated.	4.00	4.00	4.00	4.00
16. Objectives are from easy to difficult and from simple to complex.	4.00	4.00	4.00	4.00

Table 4. The evaluation of "Content" dimension of elementary 4th grade science curriculum

CONTENT	OBSERVER 1	OBSERVER 2	OBSERVER 3	AVERAGE
1. Content overlaps with objectives.	4.00	4.00	5.00	4.33
2. The curriculum answers the question "What will we teach?"	4.00	4.00	5.00	4.33
3. Objectives of units are suitably shared in time of units.	4.00	3.00	4.00	3.66
4. Topics of units consist of extensive information.	2.00	2.00	2.00	2.00
5. Content is feasible.	4.00	4.00	4.00	4.00
6. There is a relation between topics and activities.	4.00	4.00	4.00	4.00
7. Topics are suitable for students' readiness.	3.00	3.00	3.00	3.00
8. Content is organized from simple to difficult.	4.00	4.00	4.00	4.00
9. Topics and concepts are repeated at regular intervals.	4.00	4.00	4.00	4.00
10. Topics are prerequisite of each other.	4.00	4.00	4.00	4.00
11. Content is organized into modules.	1.00	1.00	1.00	1.00
12. There is a relation between interdisciplinary objectives and the objectives of units.	4.00	4.00	4.00	4.00
13. There is a relation between objectives of units and basic skills:				
13.a. There is a relation between objecives and critical thinking.	4.00	4.00	4.00	4.00
13.b. There is a relation between objectives and creative thinking.	4.00	4.00	4.00	4.00
13.c. There is a relation between objectives and communication skills.	4.00	4.00	4.00	4.00
13.d. There is a relation between objectives and questions ability.	4.00	4.00	4.00	4.00
13.e. There is a relation between objectives and problem solving skills.	4.00	4.00	4.00	4.00
13.f. There is a relation between objectives and information technology.	4.00	4.00	4.00	4.00
13.g. There is a realtion between objecitves and enterpreneurial skills.	4.00	4.00	4.00	4.00
13.h. There is a relation between objectves and using Turkish correctly, effectively and well.	4.00	4.00	4.00	4.00
14. There is a relation between content and real life.	3.00	4.00	3.00	3.33

objectives and the objectives of units. Observers have stated their opinions as "I agree" to the criterion which says there is a relation between objectives and critical thinking, creative thinking, communication skills, research and inquiry skills, problem solving skills, information technology skills, entrepreneurial skills and using Turkish correctly, effectively and well. They have expressed their opinions as "somewhat agree" to the criterion which says the content is related to real life.

4-What is the compliance level between the determined criteria and "Learning-teaching Process" of elementary 4th grade science curriculum?

Reseach findings (**Table 5**) show that there is a relation between objectives and teaching strategies, methods/techniques. The implementations of the curriculum during learning-teaching process is consistent with objectives of the curriculum. Observers have stated their opinions as "I agree" to the criteria which say there is a relation between defined learning experiences and other courses, learning experiences and other learning experiences are associated with each other, learning experinces support the upper class and reinforce the subclass. Learning-teaching approaches are chosen suitably in accordance with subject areas. Learning-teaching process are selected in basic life skills qualifications. Learning-teaching process seems to

Table 5. The evaluation of "Learning-teaching Process" dimension of elementary 4th grade science curriculum

LEARNING-TEACHING PROCESS	OBSERVER 1	OBSERVER 2	OBSERVER 3	AVERAGE
1. Teaching strategies and methods / techniques have been associated with objectives.	4.00	4.00	3.00	3.66
2. The practices in teaching-learning process is consistent with the program's objectives.	4.00	4.00	4.00	4.00
3. The defined learning experiences' overlapping level in terms of:				
3. a. Student's interest	4.00	4.00	4.00	4.00
3. b. Students' prior learning	4.00	3.00	3.00	3.33
3. c. Students' developmental level	4.00	4.00	3.00	3.66
4. The defined learning experiences of the program is accordance with the affordability principle of the program.	4.00	4.00	4.00	4.00
5. The relationship between the other courses and defined learning experiences has been established (coherence principle).	4.00	4.00	4.00	4.00
6. The defined learning experiences in itself is associated with other learning experiences.	4.00	4.00	4.00	4.00
7. The defined learning experiences of upper-lower class relations:				
7. a. Supports the upper class.	4.00	4.00	4.00	4.00
7. b. Reinforces lower class.	4.00	4.00	4.00	4.00
8. The defined learning experiences in the program are selected in accordance with the principle of progressivity.	4.00	4.00	4.00	4.00
9. Learning experiences are listed in accordance with the principles and the policy of learning-teaching process.	3.00	4.00	4.00	3.66
10. The proposed teaching-learning approaches in the program are selected according to subject area.	4.00	4.00	4.00	4.00
11. The defined teaching-learning process improves the quality of basic life skills such as:				
11. a. Critical thinking skills	4.00	4.00	4.00	4.00
11. b. Creative thinking	4.00	4.00	4.00	4.00
11. c. Research, inquiry and decision making skills	4.00	4.00	4.00	4.00
11. d. Problem solving skills	4.00	4.00	4.00	4.00
11. e. Communication skills	4.00	4.00	4.00	4.00
11. f. UsingTurkish right, good and effectively way	4.00	4.00	4.00	4.00
11. g. Entrepreneurial skills	4.00	4.00	4.00	4.00
11. h. Ability to use information technology	4.00	4.00	4.00	4.00
12. Teaching-learning process:	4.00	4.00	4.00	4.00
12. a. Supports 5E model.	4.00	4.00	4.00	4.00
12. b. Seems to support discussion methods (debates, panel discussions, open forums etc.).	4.00	4.00	4.00	4.00
12. c. Supports teacher-centered methods (lectures, question-answer etc.).	1.00	1.00	1.00	1.00
12. d. Supports group teaching methods.	4.00	4.00	4.00	4.00
13. Teachers are directed to be granted special teaching methods of the course in the program.	4.00	4.00	4.00	4.00
14. The teaching-learning process directs teachers are to make preparations before the course.	4.00	4.00	4.00	4.00
15. Learning experiences direct teacher to make assessment.	4.00	4.00	4.00	4.00
16. Program's level in terms of directing teachers to use the teaching-learning process variables such as:				
16. a. Reinforcement	2.00	2.00	2.00	2.00
16. b. Clue	2.00	2.00	2.00	2.00
16. c. Encourages the use of feedback.	2.00	2.00	2.00	2.00
17. Teaching-Learning process encourages student participation.	4.00	4.00	3.00	3.66
18.Teaching-Learning process is associated with learning areas.	4.00	4.00	4.00	4.00
19. The flexibility level of the activities in the teaching-learning process in terms of:				
19. a. Time	1.00	1.00	1.00	1.00
19. b. Region	1.00	1.00	1.00	1.00
19. c. Developmental characteristics	4.00	4.00	3.00	3.66
19. d. taking account of prior learning.	4.00	3.00	4.00	3.66
20- The examples related to the courses are:				
20. a. Student-centered	4.00	4.00	4.00	4.00
20. b. Teacher-centered	1.00	1.00	1.00	1.00
21. The teaching-learning process makes the choice of material easy for teacher.	2.00	2.00	2.00	2.00
22. The relationship between the suggested methods and techniques of the program and learning styles has been established.	3.00	2.00	3.00	2.66
23. The final activities such as discussion questions, trip, observation, experiment, summarizing, producing guide teachers effectiveness is a guiding nature.	3.00	2.00	3.00	2.66
24. The classroom layout is stated in the program.	1.00	1.00	1.00	1.00
25- The program leads teachers to effective classroom management. teacher's	1.00	1.00	1.00	1.00
26- The time allocated for the teaching-learning activities is sufficient.	1.00	1.00	1.00	1.00
27- The activities seem to guide students.	4.00	4.00	4.00	4.00
28- The activities seem to guide teachers.	4.00	4.00	4.00	4.00
29- Teaching-learning activities can be performed.	4.00	4.00	4.00	4.00

support 5E models and argument methods. Observers have stated their opinions as "somewhat agree" to the criterion which says that the curriculum supports teacher-centered methods. They have expressed their opinions as "somewhat agree" to the criterion which says that the curriculum supports group-teaching method. Observers have said that learning-teaching process is less flexible. It is seen that examples given during course are student-centered not teacher-centered. They have expressed their opinions as "I agree less" to the criterion which says learning-teaching process helps the choice of material, the relation between methods/techniques and learning styles. The activities which are discussion quesions, travel-observation, experiment, summary, producting direct the teacher less. The curriculum doesn't direct the teachers about effective classroom management and also time allocated for learning activities in not enough.

Table 6. The evaluation of "Assessment Process" dimension of elementary 4th grade science curriculum

ASSESSMENT	OBSERVER 1	OBSERVER2	OBSERVER 3	AVERAGE
1. The program has a part of the assessment.	4.00	5.00	4.00	4.33
2. The assessment part of the program shows how to test samples of the objectives.	4.00	4.00	4.00	4.00
3. The examples given for assessment process measure the level of learning of related subjects.	4.00	4.00	4.00	4.00
4. The examples given for assessment process are associated with the taxonomy of the objecitves.	1.00	1.00	1.00	1.00
5. The program directs teachers to use alternative assessment and evaluation tools in the process of evaluation of objectives.	5.00	5.00	5.00	5.00
6. The program gives information how to use assessment and evaluation tools.	4.00	4.00	4.00	4.00
7. The usage level of examples for assessment and evaluation tools:				
7.a. It is directed to product.	4.00	4.00	4.00	4.00
7.b. It is directed to process.	4.00	5.00	4.00	4.33
8. At the end of each unit there are measurement tools to determine the level of students.	4.00	4.00	4.00	4.00
9. Student's level of participation in the assessment process:				
9.a. There are measurement tools for self-assessment.	5.00	5.00	5.00	5.00
9.b. There are measurement tools for peer assessment.	5.00	5.00	5.00	5.00
9.c. There are measurement tools for group assessment.	5.00	5.00	5.00	5.00
10. There is table of indicators.	1.00	1.00	1.00	1.00
11. Explanations for the assessment of the measurement results are included.	4.00	4.00	4.00	4.00

5-What is the compliance level between the determined criteria and "Assessment Process" of elementary 4th grade science curriculum?

According to **Table 6**, observers have expressed their ideas as "I agree" to the criteria which say there are examples about how to test objectives and these examples can test the learning level of related topics. The examples given in the assessment is not consistent level taxonomies of objectives. Curriculum gives information about how to use assessment tools and there are convenient assessment tools at the end of every unit. There are assessment tools about self-assessment, peer assessment and group assessment. Also, explanations for the assessment of the measurement results are included.

RESULTS AND DISCUSSION

According to the findings, elementary 4th grade science curriculum has an innovative perspective. It is obvious that the curriculum has a structure taking into consideration students more. Unlike, the previous curriculum, the new curriculum stresses students' interest and their needs. New science curriculum has a constructivist understanding which requires active student paticipation. The curriculum often emphasizes the necessity of learning doing-living-thinking. Tüysüz and Aydın (2009) says in their studies most of the teachers participated in the study believe that the new program is suitable to students' level, has developed according to students' developmental level, provide opportunities for students to discovery of their learning, and is suitable to group study. On the other hand, teachers also declare that to apply such a program in over crowded classes is quite difficult.

Overall and specific objectives are cleary seen in elementary 4th grade science curriculum. The curriculum bases on a progressivist philosophy and emphasizes often constructivist approach. However, defined objectives don't reflect students' interests and individual characteristics. Objectives of science curriculum aren't flexible, and they aren't defined with teachers and students. Moreover, objectives aren't according to their interest. In addition, the number of objectives has been reduced. The study done by Arsal (2012) supports these findings. Yurdakul (2005) says in his study, objectives of the curriculum are mosty in information and perception levels, so they haven't constructivist approach.

The curriculum has descriptions which help teachers while handling units and matters to which teachers should pay attention. For example, the description part consists students' misconceptions which may occur during learning topics, the relevant descriptions and links to other courses. Objectives and classroom activities are associated with each other and other lessons ans interdisciplinaries. The new curriculum's learning-teaching activities are more student-centered than those of the old curriculum. Activities aren't flexible in terms of time and region. Sıcak and Arsal (2013) say in their studies the pattern related to the learning outcomes was weak due to the learning outcomes in appropriate to the general-specific principle; the different subject weights in the learning outcomes; lack of order between the learning outcomes appropriate to the level of learning; and due to the existence of more than one statements regarding the learning outcomes. The experts reported that the content was consistent with the learning outcomes; that it was permanent and persistent except for certain information; that it was selected from the real environment.

2013 curriculum has a constructivist approach in terms of the principles of curriculum development. However, when we compare the documents prepared by the Board of Education to introduce the new curriculum and the new curriculum, the details and implementation of curriculum aren't suitable with the theorical framework. The study done by Doğan (2010) supports this result.

REFERENCES

Arsal, Z. (2012). İlköğretim Fen ve Teknoloji Dersi Öğretim Programı Kazanımlarının Yapılandırmacılık İlkelerine Göre Değerlendirilmesi. *Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi, 2*(3), 1-14.

Çınar, O., Teyfur, E. & Teyfur, M. (2006). İlköğretim okulu öğretmen ve yöneticilerinin yapılandırmacı eğitim yaklaşımları ve program hakkındaki görüşleri. *İnönü Üniversitesi Eğitim Fakültesi Dergisi, 11*(7), 47-64.

Dede Er, T., Şen, Ö. F., Sarı, U., & Çelik, H. (2013). İlköğretim öğrencilerinin Fen ve Teknoloji Dersi bilgilerini günlük hayatla ilişkilendirme düzeyleri. *Eğitim ve Öğretim Araştırmaları Dergisi, 2*(2), 209-216.

Dindar, H., & Yangın, S. (2007) İlköğretim Fen ve Teknoloji Dersi Öğretim Programına Geçiş Sürecinde Öğretmenlerin Bakış Açılarının Değerlendirilmesi. *Kastamonu Eğitim Dergisi, 15*(1), 185-198.

Doğan, Y. (2010). Fen ve teknoloji dersi programının uygulanması sürecinde karşılaşılan sorunlar. *Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi Dergisi, 7*(1), 86-106.

Erdoğan, M. (2005). *Yeni geliştirilen beşinci sınıf fen ve teknoloji dersi müfredatı: pilot uygulama yansımaları.* Eğitimde Yansımalar: VIII Yeni İlköğretim Programlarını Değerlendirme Sempozyumunda Sunulan Bildiri, Ankara: Sim Matbaası.

Goetz, J., & LeCompte, M. (1984). *Ethnography and qualitative design in educational research.* New York: Academic Press.

Gömleksiz, M. N., & Bulut, İ. (2007). Yeni fen ve teknoloji öğretim programının uygulamadaki etkililiğinin değerlendirilmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 32*, 76-88.

Gözütok, D., Akgün, Ö., & Karacaoğlu, C. (2005). *İlköğretim programlarının öğretmen yeterlilikleri açısından değerlendirilmesi.* Eğitimde Yansımalar: VIII Yeni İlköğretim Programlarını Değerlendirme Sempozyumu, 14-16 Kasım, Erciyes Üniversitesi Sabancı Kültür Sitesi, Kayseri.

İnce, M. (2005). İlköğretim ders müfredatlarının değiştirilme süreci üzerine bir değerlendirme. *Eğitim Politikaları Dergisi, 1.*

Madge, J. (1965). *The Tools of Science An Analytical Description of Social Science Techniques.* Anchor Books Doubleday and Comp.

MEB (Milli Eğitim Bakanlığı). (2004). *İlköğretim Fen ve Teknoloji Dersi (4–5. Sınıflar) Öğretim Programı.* Ankara: Devlet Kitapları Müdürlüğü Basım Evi.

MEB (2005). *İlköğretim Fen ve Teknoloji Dersi Öğretim Programı.* Ankara: Milli Eğitim Basımevi.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook.* California: Sage Publications.

Özkan, B. (2002). *Yapılandırmacı öğrenme ortamlarında özgün etkinlik ve materyal kullanımının etkililiği.* Yayınlanmamış doktora tezi. Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü. Ankara.

Özsevgeç, T. (2006). Kuvvet ve hareket ünitesine yönelik 5E modeline göre geliştirilen öğrenci rehber materyalinin etkililiğinin değerlendirilmesi. *Türk Fen Eğitimi Dergisi, 3*(2), 36-48.

Sıcak, A., & Arsal, Z. (2013). Evaluation of the Lesson Unit of Let's Learn about the World of Organisms in The Elementary School Fifth-Grade Course of Science and Technology with Respect to the Educational Criticism Model, *Karaelmas Journal of Educational Sciences 1*(2013), 157-175.

Sert, N. (2008). İlköğretim Programların Oluşturmacılık. *Eğitimde Kuram ve Uygulama*, *4*(2), 291-316.

Şencan, H. (2005). *Sosyal ve davranışsal ölçmelerde güvenirlik ve geçerlik.* Ankara: Seçkin Yayınevi.

Ünal, G., & Akpınar, E. (2006). To what extent science teachers are constructivist in their classrooms. *Journal of Baltic Science Education, 2*(10), 40-50.

Tekin, H. (1996). *Eğitimde Ölçme ve Değerlendirme.* 9. Baskı, Ankara: Yargı Yayınları.

Tüysüz, C., & Aydın, H. (2009). İlköğretim fen ve teknoloji dersi öğretmenlerinin yeni fen ve teknoloji programına yönelik görüşleri. *Gazi Eğitim Fakültesi Dergisi, 29*(1), 37-54.

Yiğit, N., Devecioğlu, Y., & Ayvacı, H. Ş. (2002). *İlköğretim Fen Bilgisi Öğrencilerinin Fen Kavramlarını Günlük yaşamdaki Olgu ve Olaylarla İlişkilendirme Düzeyleri.* V. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresine Sunulmuş Bildiri.

Yurdakul, B. (2005). *Yapılandırmacılık İçinde Eğitimde Yeni Yönelimler* (Ed: Özcan Demirel). s: 39-65. Ankara: Pegem A Yayıncılık.

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