

Full Length Research Paper

Evaluation of attainments in 2018 Life Sciences curriculum based on the views of primary school teachers

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Life Science is a course that has been taught since the beginning of the first years of Turkish Republic. Life Science curriculum was revised in 1924, 1936, 1948, 1968 and 1998, 2004, 2009, 2015, 2017 and 2018. When the structure of 2018 Life Sciences curriculum is examined, it is seen that the curriculum is composed of general aims, values, basic survival skills, concepts, units and attainments. In Life Sciences curriculum themes were replaced by the units. In order to gain the features that are in the structure of Life Sciences curriculum (values, basic survival skills, concepts), “attainments” are formed in the units. In this study, primary school teachers’ evaluation about the attainments in 2018 Life Sciences curriculum was discussed. 323 primary school teachers working in Pamukkale and Merkezefendi districts of Denizli province are included in the sample of the study; they were chosen utilizing random sampling technique among first second and third year primary school teachers. In the study, data were collected using the scale titled “Evaluating Life Sciences curriculum in terms of teachers’ views.” Cronbach alpha value was 0.895 and 0.978 in the original form and in this study, respectively. Primary school teachers are of the opinion that “I agree” on the attainments in 2018 Life Science curriculum.

Key words: Life Sciences, curriculum, attainment, primary school teacher, views.

INTRODUCTION

Individuals in the society must receive a qualified education to meet the requirements of today’s world. In order to achieve this, qualified curriculums that would contribute to individual and social development should be designed. The purpose of a curriculum is to train individuals with the required qualifications in line with the general and specific objectives of the education system.

Changes occur in qualities of individuals who aim to be trained in accordance with the changing conditions and needs. That is why it is unavoidable to make adjustments and changes in curriculums to meet the changing needs (Karaman, 2019: 351). There are different reasons for revising a curriculum. The reasons include improving the quality of teaching (Tay and Baş, 2015:346), advancements

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in science and technology (Sönmez and Kılıçoğlu, 2016: 38), innovation and developments in teaching and learning theories and approaches (MoNE, 2018). The most important stakeholder in the adjustment and development of the curriculum is the teacher who is the practitioner of the curriculum (Öztürk and Kalafatçı, 2017: 103). Teachers have an important role in making adjustments and developments in a curriculum as well as to implement it and identify its inadequacies and eliminating them. It is a fact that there is a need for feedback about the status of a curriculum during implementation in every level of education. In order for the changes and adjustments made in the curriculum to be successful, it is very important how the revised program is perceived and to what extent it is adopted by the teachers especially (Karaman, 2019: 364). One of the programs that are readjusted according to changing conditions is Life Science curriculum.

Life Science is a course that has been taught since the beginning of the first years of Turkish Republic. It has been revised in a number of times since 1924. Life Science curriculum was revised in 1924, 1936, 1948, 1968 and 1998, 2004, 2009, 2015, 2017 and 2018 (MoNE, 2004, 2009, 2015, 2017, 2018). The latest revision made in Life Science curriculum was in 2018. Each and every Life Science program implemented had unique features. For instance, 1968 Life Sciences curriculum was implemented for the longest time. 1998 Life Sciences curriculum is the eight-year compulsory education period. 2004 Life Sciences curriculum; on the other hand, it is designed based on constructivism. With 2004 Life Sciences curriculum, it is seen that a human centric approach was adopted. It handles human as a whole and as both subject and the object of the change (MoNE, 2004). Life Sciences curriculum that was put into practice in 2004 was revised in 2009 (Alak and Nalçacı, 2012:38). While 2009 Life Sciences curriculum was designed based on the following approaches; “*child centred*” “*holistic teaching approach*” “*spiral approach*” “*thematic approach*” and “*a dynamic approach based on participation principle*”, 2015 Life Sciences curriculum, when compared to 2004 curriculum in terms of objectives, was more intelligible, includes less skills and attainments, values are modified, topics about Kemalism are not included and it includes decreased evaluation (Tay and Baş, 2015; MoNE, 2009, 2015). 2017 Life Sciences curriculum also puts child in the centre and adopts spiral, participatory and holistic approach. Moreover, it has a unit based approach and “*skill based approach*” has also been adopted (Uçuş, 2017:92).

When the structure of 2018 Life Sciences curriculum is examined, it is seen that it is composed of general objectives, values, basic survival skills, concepts, units and attainments (MoNE, 2018). Moreover, it is seen that the curriculum is composed of dimensions such as perspective, innovations, assessment and evaluation (MoNE, 2018). The perspective of Life Sciences

curriculum has been determined as training individuals with knowledge, skills and behaviour integrated with our values and competencies (MoNE, 2018). Competencies are among the significant differences among the Life Science curriculums. The program tried to cover competencies (MoNE, 2018), which are the skill ranges students will need in their personal, social, academic and business lives both at national and international level. When the objectives are examined it is seen that 14 objectives are stated as special aims in the program (MoNE, 2018). In Life Sciences curriculum themes are replaced with units. In order to gain the features that are in the structure of Life Science curriculum (values, basic survival skills, concepts), “attainments” are formed in the units. It is seen that unit perception started in 2015 and is maintained in 2017 and 2018 programs. Same units are included in Life Sciences course during 1st, 2nd and 3rd year. It is stated that instead of one dimensional assessment maximum variety and flexibility is adopted as the basic principle of the program in assessment and evaluation. According to Altun and Güler (2020: 70-72), primary school teachers stated that with revised version of 2018 Life Sciences curriculum, it became a simpler and more practical and the importance assigned to the course increased. On the other hand, they think that subjects about Atatürk and national independence war have not been included enough.

Attainments in a curriculum are expressions that include knowledge, skills, attitude and values as well as clearly observable behaviours of children (MoNE, 2004). In attainments, being able to form a connection between school and real life was taken as a base. There are 148 attainments in 2018 Life Sciences curriculum during the first three years. There are 50 attainments in the first year, 53 in the second year and 45 in the third year (MoNE, 2018). A decrease in the number of attainments has been observed from 2004 to 2018. When there were 376 attainments in 2004 curriculum, there were 292 attainments in 2009 curriculum, 146 attainments in 2015 curriculum, 144 attainments in 2017 curriculum and 148 attainments in 2018 curriculum (MoNE, 2004, 2009, 2015, 2017, 2018). When the characteristics of the attainments are examined it is seen that they are shorter, more intelligible and appropriate to students’ level. Çakır (2007) and Türkyılmaz (2011) reported that primary school teachers think that attainments are appropriate to the students’ levels. It can be asserted that the attainments in Life Sciences curriculum are in accordance with the objectives (Öztürk and Kalafatçı, 2017). Through the attainments children are expected to gain knowledge, skills, values, attitude and behaviours. It is determined that attainments in each unit are oriented towards the knowledge, skills, values and concept that students should be equipped within the unit. When the values dimension of 2018 curriculum is examined it is seen that only 24 values out of 148 values are about national values and others are about nation, tradition and

customs, state, country and deeds and when their distribution to the units examined they were limited to two units (Esemen and Sadioğlu, 2019: 24). Moreover, considering values as national, spiritual, human and social values is remarkable in terms of showing the importance assigned to the values (Avcı and Kayabaşı, 2018:44). It can be suggested that attainments in first year Life Sciences curriculum are appropriate and adequate. According to Ünsal (2018:1087), primary school teachers think that attainments are simple and appropriate to students' level. In other countries such as Australia, the Life Education program provides students with practical information about a range of safety, health and wellbeing topics (Regina Hill Effective Consulting Pty Ltd, 2015). It can be said that this situation is similar to the Life Sciences program in our country.

With the revision made in 2004, constructionist approach was adopted in Life Sciences curriculum. With this revision, the attainments in the Life Sciences program were rearranged according to the constructivist approach (Aykaç, 2011; Sözer and Yıldırım, 2017). A number of studies have been conducted about the attainments in the renewed Life Sciences curriculum. Altun and Güler (2020) stated that reducing the number of attainments in the Life Sciences curriculum, the appropriateness to the level of students, integration with values, and supporting the skills are well received by primary school teachers. According to Özgüç (2019), the attainments in the 2nd grade Life Sciences curriculum coincide with the objectives, can contribute to the development levels of the students and are intelligible. On the other hand, it was emphasized that skills did not coincide with attainments. Karaman (2019) also highlighted that updating attainments of Life Sciences curriculum would contribute to students' level and needs positively. Aktay and Çetin (2019) claimed that attainments in 2015, 2017 and 2018 programs had a similar structure. Temiz (2019) suggested that attainments in Life Sciences program are for character education. Esemen and Sadioğlu (2018) indicated that the ratio of national values to the general values is lower in the attainments of the Life Sciences curriculum. According to Ünsal (2018), the attainments in the new Life Sciences 1st grade curriculum are clear, intelligible and appropriate for students' level. Tay and Baş (2015) and Güldalı (2017) stated that attainments in 2015 and 2017 Life Sciences curriculums are appropriate for the readiness level of the students. Öztürk and Kalafatçı (2017) claimed that attainments do not have features to support and increase students' scientific thinking, critical thinking, problem solving, creative thinking skills and learning curiosity. Çelik (2017), on the other hand, asserted that attainments are adequate in acquiring the skills. Alak and Nalçacı (2012) reported that there were no significant differences between the views of primary school teachers about the attainments of Life Sciences curriculum in terms of gender, experience, educational

status. Türkyılmaz (2011) stated that there was a significant difference in favour of female primary school teachers in terms of their ideas about the attainments in Life Sciences curriculum. According to Şenay (2015), primary school teachers are of the opinion that attainments are partially appropriate in acquiring skills. According to Alak (2011), there were no significant differences between the views of primary school teachers about the attainments of Life Sciences curriculum in terms of gender, seniority, educational status and the level of the class they teach. Tuncer (2009) suggested that while primary school teachers mostly accepted that attainments were clear, they partly agree that attainments meet the needs.

The Life Sciences course that has been taught since the foundation of the Republic to the present day brings important contributions to the organization of social life. Teachers help individuals to acquire basic life skills through the Life Sciences curriculum. Understanding and adopting the attainments in the Life Sciences curriculum by the primary school teachers, who are in the position of practitioners, is important in terms of achieving these attainments at the desired level. No matter how good the attainments in the Life Sciences curriculum are, they have a meaning as far as they are understood and adopted by the primary school teachers who are practitioners. When the related studies in literature are reviewed it is seen that understanding and adopting the attainments in Life Sciences curriculum by primary school teachers has been underlined. There is a need for new studies on how primary school teachers perceive attainments of the Life Sciences curriculum that was renewed and started to be implemented in 2018. In this study, primary school teachers' evaluation about the attainments in 2018 Life Science curriculum was discussed. Sub-objectives addressed for the purpose of the research are as follows; (1) What are the views of primary school teachers about the attainments in 2018 Life Sciences curriculum? (2) Do primary school teachers' views about the attainments in 2018 Life Sciences curriculum differ in terms of their gender, professional experience, educational status and the class they teach?

MATERIALS AND METHODS

The research was conducted in order to determine the views of the primary school teachers working in the 1st, 2nd and 3rd grades of primary schools regarding the elements of 2018 Life Sciences curriculum. In accordance with the aim to understand and present the current situation a survey design was utilized. In survey models, it is aimed to try to present the current or past situation as it exists (Karasar, 2009: 77); reveal the views of the participants about the case or the phenomenon (Karakaya, 2009: 59); need to identify the attitude, actions, opinions and beliefs of the individuals (Christensen et al., 2015: 370-371); describe the situation as it exists (Robson, 2015: 296). In this study, the views of the primary school teachers about the attainments in 2018 Life Sciences

Table 1. Distribution of the teachers participated in the study in terms of demographic variables.

Variable		Frequency	Percentage
Gender	Female	166	51.4
	Male	157	48.6
Experience	1-5 years	3	0.9
	6-10 years	14	4.3
	11-16 years	38	11.8
	16 years and over	268	83.0
Education status	Associate degree	43	13.3
	Completion of BA	55	17.0
	BA	204	63.2
	Postgraduate	21	6.5
Class they teach	1 st Class	101	31.3
	2 nd Class	109	33.7
	3 rd Class	113	35.0

curriculum were asked. The study was conducted with a group that represents the target population of the study (Karasar, 2009: 79). Target population of this study consists of all primary school teachers working in Pamukkale and Merkezefendi districts of Denizli Province. Teachers working in Pamukkale and Merkezefendi districts of Denizli province are included in the sample of the study; they were chosen utilizing random sampling technique among first second and third year primary school teachers. While creating the sample group, teaching 1st, 2nd, and 3rd classes during 2019-2020 academic year is taken as the basic criteria. 323 primary school teachers were included in sample group using random sampling method. Demographic information about the teachers included in the sample group is presented in Table 1.

Data were collected using “*Evaluation of Life Sciences curriculum based on views of the teachers*” scale developed by Türkyılmaz (2011). The scale is composed of two parts. The first part consists of personal information questions asked the primary school teachers who are the study participants and the second part consists of questions about the attainments of the curriculum. In the scale, there are 22 items concerning the attainments of the Life Sciences curriculum. In the second part of the scale about the attainments 2nd item that expresses “It is designed based on individual, society and science which are the resources of the curriculum” was changed into, “in accordance with 2018 curriculum objectives it is designed in an integrated way that complies with the values and competencies that are the objectives of our educational system”. The tenth item on the same part which expresses “It will equip students with entrepreneurship skills” is changed into “it will equip students with entrepreneurship and initiative”. Similarly in item 13, “theme” was replaced with “unit”, and in item 18 “inter discipline” was replaced with “competencies”. Cronbach Alpha for the scale was calculated as 0.895 in the original form and 0.978 in this study.

While analysing the data, for primary school teachers’ opinions about the attainments in Life Sciences curriculum arithmetic mean and standard deviation were used. In order to find out whether there is a difference between the views of primary school teachers, first normality of the data distribution was checked. Kolmogorov Smirnov test was utilised to check normality in data distribution. At the end of Kolmogorov Smirnov test results it was seen that the data have normal distribution [$K-S_{(2)} = 1.145$; $p=0.145$]. As data distribution is normal, to identify the difference between views of teachers, parametric tests, t test and ANOVA were run.

Assuming that the intervals are equal, score intervals were calculated in the following way; interval number is divided into option number ($4/5 = 0.80$). Gathered value was added starting from the lowest option and scores were interpreted as the following way; 1.00-1.80 “Totally disagree”, 1.81-2.60 “Disagree”, 2.61-3.40 “Partly agree”, 3.41-4.20 “Agree” and 4.21-5.00 “Totally agree”.

FINDINGS

The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum are given in Table 2.

According to Table 2, about the appropriateness of the attainments in 2018 Life Sciences curriculum, the teachers had the opinion of “agree”. However, none of the primary school teachers chose “totally agree” option for any item in the scale. Primary school teachers are of the opinion that there are deficiencies in the attainments of 2018 Life Sciences curriculum. They stated that they “partly agree” about association of attainments in the 2018 Life Sciences curriculum with the topics of “Kemalism”. Primary school teachers think that “Kemalism” topics are not sufficiently included in the attainments in the 2018 Life Sciences curriculum.

In considering whether there is a significant difference between the views of the primary school teachers about attainments in the 2018 Life Sciences curriculum in terms of gender, there is no significant difference between the views of the primary school teachers (Table 3).

In considering whether there is a significant difference between the views of the primary school teachers about attainments in the 2018 Life Sciences curriculum in terms of experience, there is no significant difference between the views of the primary school teachers (Table 4).

In considering whether there is a significant difference between the views of the primary school teachers about attainments in the 2018 Life Sciences curriculum in terms

Table 2. The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum.

Item number	Item of the scale	N	Mean	Interpretation
1	Appropriate for the general objectives of the Life Sciences course	316	4.04	
13	It overlaps with the unit they are associated	312	3.89	
22	Suggested allocated time is enough.	313	3.88	
3	Appropriate for readiness level of children	317	3.87	
2	It is designed in an integrated way that complies with the values and competencies that are the objectives of our educational system	317	3.86	
21	Expressed clearly and intelligibly	317	3.83	
14	It has the quality that will enable students use Turkish accurately, effectively and beautifully	316	3.81	
9	It has the quality that will enable students gain forming communication skills	316	3.80	
12	It has the quality that will enable students to form the sense of self-respect	315	3.76	
15	It has the quality that will enable students to gain the habit to use the resources efficiently.	315	3.75	
11	It has the quality that will enable students to develop the sense of self-confidence	312	3.72	Agree
4	It has the quality that will enable students to think critically.	317	3.60	
16	It has the quality that will enable students to gain self-management skill	317	3.60	
18	It is associated with competencies sufficiently	313	3.59	
17	It has the quality that will enable students to familiarize basic concepts of science.	316	3.55	
10	It has the quality that will enable students to gain skills of entrepreneurship and initiative.	314	3.54	
6	It has the quality that will enable students to develop problem solving skills	313	3.53	
5	It has the quality that will enable students to think creatively	313	3.53	
8	It has the quality that will enable students to gain the skills of benefiting from information technology	315	3.50	
7	It has the quality that will enable students to gain the skills of making use of information technology	316	3.50	
20	It has the quality that will enable students to gain the skills of making research	317	3.48	
19	It is sufficiently associated with topics of Kemalism	313	3.39	Partly agree

of educational status, there is no significant difference between the views of the primary school teachers (Table 5).

In considering whether there is a significant difference between the views of the primary school teachers about attainments in the 2018 Life Sciences curriculum, there is no significant difference between the views of the primary school teachers in terms of the class they teach (Table 6).

DISCUSSION

In this study, when the views of the primary school teachers about the attainments in the Life Sciences 2018 curriculum were investigated, the primary school teachers chose “agree” option for almost all of the statements in the scale, and “partly agree” to the only statement related to Kemalism. It can be claimed that primary school teachers have a positive point of view about the attainments in 2018 Life Sciences curriculum. Moreover, primary school teachers had similar views about the attainments in 2018 Life Sciences curriculum in terms of their gender, educational status, experience and the

class they teach.

Considering the results of the research studies in the literature, it can be concluded that the primary school teachers generally do not consider the changes in the Life Sciences curriculum in a negative way. According to Altun and Güler (2020) and Karaman (2019), teachers had a positive idea about reducing the number of attainments in the Life Sciences curriculum, appropriateness to the level of students, integration with values, and supporting the gain of skills are well received by them. The findings in this study coincide with the findings of Altun and Güler (2020). According to Özgüç (2019), the attainments in the 2nd grade Life Sciences curriculum coincide with the objectives, and they are intelligible expressions that can contribute to the development levels of the students. On the other hand, the skills do not coincide with the attainments. The findings of this study are parallel to findings of Özgüç (2019) except the findings about skills.

According to Ünsal (2018), the attainments in the new Life Sciences 1st grade curriculum are clear, intelligible and appropriate for the students' level. The findings of this study are in harmony with Ünsal's findings. Esemen and Sadioğlu (2018) indicated that the ratio of national

Table 3. The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum in terms of gender variable

Gender	N	X	ss	sd	t	p
Female	163	3.63	0.74	315	-0.695	0.487
Male	154	3.69	0.71			

X, Mean; ss, sums of square; sd, standard deviation, t, t value, f, F value, p, value.

Table 4. The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum in terms of experience variable.

Source of the variance	Sum of squares	sd	Mean square	F	P
Between groups	3.249	3	1.083	2.054	0.106
Within groups	165.053	0.527	0.52		
Total	168.303	316			

sd, Standard deviation; f, F value; p, p value.

Table 5. The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum in terms of educational status variable.

Source of variance	Sum of squares	sd	mean square	F	P
Between groups	1.595	3	0.532	0.998	0.394
Whithin groups	166.708	313	0.533		
Total	168.303	316			

Table 6. The views of the primary school teachers regarding the attainments in the 2018 Life Sciences curriculum in terms of the class they teach variable.

Source of variance	Sum of squares	sd	Mean square	F	P
Between Groups	3.17	2	1.58	3.02	0.05
Whithin Groups	165.12	314	0.52		
Total	168.30	316			

values to the general values is lower in the attainments of the Life Sciences curriculum. The findings of the study do not coincide with Esemen and Sadioğlu's findings. Findings of Tay and Baş (2015) and Güldalı (2017) that claim the attainments in Life Sciences curriculum are appropriate for the students' readiness level is concurrent with the findings of this study. Öztürk and Kalafatçı (2017) claimed that attainments do not have features to support and increase students' scientific thinking, critical thinking, problem solving, creative thinking skills and learning curiosity. The findings of the study do not coincide with their findings. In this study, primary school teachers think that attainments are effective in acquisition of skills. Based on this, it can be asserted that the revision made in 2018 Life Sciences curriculum is received well by primary school teachers. Çakır (2007),

Nalçacı and Alak (2012) and Alak (2011) reported that the views of teachers about the attainments in Life Sciences curriculum do not differ in terms of teachers' gender, experience and educational status. Similar findings were obtained in this study as well. Tuncer (2009)'s findings are consistent with the findings of this study in which he reported primary school teachers considered the attainments in 3rd year Life Sciences curriculum appropriate, intelligible, and consistent. Similar to the finding of the study, Türkyılmaz (2011) identified a difference in the view of teachers in terms of gender. However, there is no significant difference in the view of teachers in terms of gender. While primary school teachers considered attainments about Kemalism adequate (Türkyılmaz, 2011), in this study they think that they are partly adequate. According to Çelik (2017)

primary school teachers think that attainments help the students acquire skills of creative thinking, problem solving and critical thinking quite well. In this study, primary school teachers think that the skills about the attainments in Life Sciences curriculum are acquired as well. According to Tuncer (2009), most of the primary school teachers think that attainments are intelligible and they partly agree that they coincide with the needs. The finding of the study is concurrent with the finding that the attainments are intelligible but not concurrent with the finding that they partly coincide with the needs.

When the results of the research on Life Sciences curriculum are evaluated, it is seen that there is not a big difference in the views of the primary school teachers. For this purpose, it would be more appropriate to carry out narrower and in-depth studies with qualitative designs about the attainment for primary school teachers. Because, what primary school teachers who are the practitioners of the Life Sciences curriculum think is important for the development and implementation of the program. In addition to this quantitative study, narrower and deeper studies should be designed with qualitative design in which the views of the classroom teachers are taken.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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