Science Teachers' Opinions on the Utilization of the Education Informatics Network (EBA) in Education and Training

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Abstract: This research was carried out in 79 secondary schools, 65 of which were state and 14 were private schools of the Ministry of National Education in Tekirdağ in 2017-2018 academic year. A questionnaire consisting of multiple-choice questions was applied to 207 Science Teachers working in schools. 5-ary Likert scale was used by the researcher after the validity and reliability of the pilot application. The first 4 questions of the 44 item questionnaire are related to the personal information of the individual and the remaining 40 questions are related to the Education Informatics Network and technology. All the data obtained from Science Teachers through the questionnaire were analysed with the help of statistical program. Frequency, percentage, standard deviation and arithmetic mean were used in descriptive statistics.

Research results the West of Tekirdağ province of Turkey, although there are many opportunities for students and teachers across public schools, some still lack interactive boards in schools. Few of the teachers, although they have the means at hand, expect everything from others instead of improving themselves. A few of them are concerned about making mistakes and the rest does not want to waste their time.

Most of the teachers who participated in the research asked for promotion, incentives and in-service training support in schools in order to use technology and Education Informatics Network more effectively. First of all, the government needs to complete the interactive board which were missing in the schools and encouraging teachers to use Education Informatics Network should be emphasized. In this way, permanence can be v achieved in developing technologies and applications. These practices should be continued regularly, not once. In this way, permanence can be achieved in developing technologies and applications.

Key Words: Educational Informatics Network (EBA), Educational Technology, e content, FATIH Project, Tekirdağ, Science Teacher

1. INTRODUCTION

When we look at the world's giant countries, we see that technology is used at a high level and continuous efforts are being made to ensure its further development. As technological developments accelerate over time, the field of education has also been affected by this situation. As a result, many countries prioritize the use of technology for the purposes of increasing efficiency in education, ease of access, equal use of opportunities, and permanent education. In order to benefit from technology effectively, it is necessary to have the necessary opportunities and to motivate the individuals who will use the technology (Perkins, 1985). Therefore, it is important for teachers to have high motivation and self-regulation capacities in order to motivate students, create an effective learning environment, and ensure the success of education (De Jesus and Conboy, 2001). It is thought that the use of technology in education will produce beneficial and effective results for teachers and students. While the computer and internet-based educational environment is becoming increasingly indispensable in education, the understanding of education has also begun to change at all educational levels (Güldüren et al., 2016; Pizarro, 2010). In the face of the continuous technological developments, educational institutions in Turkey are also putting forward various projects to adapt to this situation, to use the education process actively and to create more permanent knowledge in students.

Various technology software is offered to minimize the social and economic differences that exist among students in terms of education around the world. The FATİH Project (Movement to Increase Opportunity and Improve Technology), used for educational purposes in Turkey, was planned to create equal opportunities for education and training and to popularize the use of technology in schools. EBA (Educational Information Network), the content-providing domain of the FATİH Project, can eliminate insufficient data for students by contributing to their learning with its rich content. In this way, it is aimed to minimize the learning difficulties of students and their situation of not having the same conditions.

EBA is a training program planned by the Ministry of National Education (MNE) that provides materials to all education personnel, primarily teachers and the center. This organization can be easily accessed from any location with an internet connection via devices such as computers, tablets and smart phones. EBA aims to provide and develop appropriate resources for students and teachers at all grade levels. It is believed that achieving this goal will allow education to become more compatible with technology.

EBA content should not be considered solely an educational website developed by the Ministry of National Education. This educational platform can be resourced by a wide variety of voluntary educational organizations. In addition to the Ministry of National Education and voluntary education organizations, teachers and students also have the opportunity to add resources when necessary. As a result, the scopes in EBA consist of the Ministry of Education, voluntary education companies, teachers and students. These conditions ensure cooperation and teamwork spirit in education. All of this allows EBA to provide access to a rich archive of resources. EBA is believed to play a valuable role in bringing together and connecting education stakeholders. In EBA, student monitoring is carried out through teachers and parents. Thus, EBA ensures that teacher, student and parent unity is kept at high levels.

As educational technologies develop, teachers are asked to use new technologies in the classroom and adjust them so that students can use them. Considering the number of teachers working in public schools, and also including teachers in private schools, determining their level of knowledge about EBA and their level of effective use will affect the use of EBA modules such as magazines, audio, video, materials, e-books, documents, etc. Although it is stated in the literature that social networks make individuals unsocialized (Tanrıverdi and Sağır, 2014), EBA will enable teachers to interact through communication by sharing information with other teachers working in various provinces, schools and areas. Students' motivation and self-regulation abilities affect their level of technology use in classes. The use of technology in science teaching also affects other teaching strategies (Schraw et al., 2006).

Although many studies have been conducted on the FATİH project, which has been frequently mentioned since 2010, there is no research or resource on the use of EBA by Science Teachers. In this respect, this research is the first of its kind and is thought to be important in terms of creating literature. Many of the public schools in Turkey do not have good facilities. There are many schools with inadequate classrooms, no science laboratories, or lacking the necessary materials even if they have them (Demir et al., 2011; Ekici et al., 2002). The extent to which this project is successful in addressing this deficiency is important for the Science Course. As a result of the research, the knowledge and use of EBA, a product of the FATİH project, by Science Teachers and the determination of its deficiencies will enlighten researchers and those responsible in the years following 2019, when this research was conducted, and will enable them to chart the path accordingly.

The aim of this research is to provide new data to the literature regarding the level of knowledge of science teachers about EBA in secondary schools within the borders of Tekirdağ Province, the evaluation of the use of EBA, its effectiveness and skills. On the other hand, our teachers' perspective on technology is revealed.

2. MATERIAL AND METHODS

This section includes information and explanations regarding the universe and sample of the research, measurement and data collection tools, validity and reliability study, data collection, analysis and interpretation of data.

2.1. Universe and Sample

The universe of the research consists of all science teachers working in public and private schools affiliated with the Ministry of National Education within the borders of Tekirdağ Province in the 2017-2018 academic years. In the year this research was conducted, the number of Science Teachers working in Tekirdağ Province was 670. Because the research universe is so large, it would be difficult for the researcher to reach all the teachers in this universe, so sampling was chosen to represent the universe.

The sample of the study consists of Science Teachers working in public and private schools, who were randomly selected from the population and easily accessible. A survey prepared by the researcher was applied to teachers who had the password to log in to EBA. The survey created within the scope of the research was applied to 207 Science Teachers working in Tekirdağ Province and its districts (Çorlu, Çerkezköy, Ergene, Hayrabolu, Kapaklı, Malkara, Muratlı, Saray, Süleymanpaşa, Şarköy) in the 2017-2018 academic years. Table 1 shows the distribution of participants according to their demographic characteristics.

Table 1: Distribution of Demographic Characteristics of Prospective Science Teachers

Demographic Characteristics	f	%
Gender		
Female	151	72.9
Male	56	27.1
Educational Status		
Faculty of Education	175	84.5
Faculty of Arts and Sciences	22	10.6
Institute of Education	2	1
Postgraduate Education	8	3.9
Professional Experience		
1-5 Years	68	32,9
5-10 Years	65	31,4
10-15 Years	38	18,4
15- 20 Years	8	3,9
15- 20 Years	28	13,5
Institution		
State	184	88,4
Special	24	11,6
Total	207	100

2.2. Data Collection Tool Used in the Research and Its Development

In the research, a survey was developed to find out the usage status, usefulness, effectiveness, deficiency and efficiency level of the EBA website by Science Teachers. Before developing the survey, the literature was reviewed, but since no study on this subject was found, many sources related to the EBA and FATİH projects were used for the survey questions, but no direct quotes were made. The items of the survey were created by examining all sections of EBA. The questionnaire was prepared with 40 items and presented to 3 science educators. After making necessary corrections in line with expert opinions to increase the validity of the survey, the survey consists of 44 items. Four of the items were prepared to understand the demographic structure of the participants (gender, graduation status, years in the profession, institution of employment). The remaining 40 items are graded as “strongly disagree, disagree, no opinion, agree and strongly agree” to reveal opinions about EBA.

Afterwards, the prepared survey was checked again by the same experts and evaluated by conducting a pilot application on the internet. After the pilot study, no items were added or removed from the survey, and preparations for the survey were completed by correcting the words.

2.3. Survey of Science Teachers' Opinions on Utilizing the Education Information Network (EBA)

A 5-point Likert-type survey was prepared by the researcher to investigate the opinions of Science Teachers on Utilizing the Education Information Network, together with the literature review and opinions received from experts. The wording of the survey items varies from 1 to 5, as “Strongly disagree (1) and Strongly agree (5). Items 5, 30, 34, 35, and 39 of the survey were reverse-coded. The score range used in the evaluation of the options is presented in Table 2 below.

Table 2: 5-Point Likert Type Survey Rating Range

Choice	Score Range
I strongly disagree	1,00 - 1,80
I disagree	1,81 - 2,60
No idea	2,61 - 3,40
I agree	3,41 - 4,20
I totally agree	4,21 - 5,00

2. 4. Data Analysis

After the application of the measurement tools was completed, a statistical program was used for statistical analysis of the data, and the results were evaluated at a significance level of 0.05. The questions presented in the survey were prepared in the "5-Point Likert Type Scale" format and the intervals were chosen equally (4/5=0.80) (Karasar, 2009; Köseoğlu and Soran, 2005; Yıldırım and Şimşek, 2008). In the analysis of quantitative data, percentage and frequency distributions, means and standard deviations of the teachers' answers to the questions were calculated.

2. 5. Factor Structure and Reliability Analysis of the Survey

Table 3 shows, using exploratory factor analysis (EFA), whether the "Science Teachers' Views on Utilizing the Educational Information Network" survey, which was developed by the researcher, was perceived as one or more dimensions by the teachers participating in the study, and to what extent it consistently measured the views of the teachers participating in the study on EBA and their purposes for using EBA.

Table 3: KMO and Bartlett Test Results of the Survey on Science Teachers' Views on EBA (N=207)

Kaiser-Meyer-Olkin Measure of Sample Goodness of Fit		0,803
Bartlett's Test of Sphericity	Approximate Chi-Square (X^2)	2777,312
	Degrees of Freedom (*sd*)	780
	Aeaningfulness (*p*)	0,000

The obtained data were examined with the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett Sphericity for factor analysis. A KMO value greater than 0.6 and a significant Bartlett test indicate that the data are suitable for factor analysis (Büyüköztürk, 2007). Bartlett's test of sphericity should be p<0.5 for the variables to be linked and related (Sipahi, Yurtkoru and Çinko, 2006) (Table 3).

As can be seen from Table 3, the Kaiser Meyer Olkin (KMO) test applied for the factor analysis of the data provided by the survey shows that the survey is suitable for factor analysis and its measured feature is suitable for multidimensionality in the universe from which the sample was selected. [KMO=0,803; X^2 =2777,312; sd=780 and p<0,001]. Since the Bartlett Sphericity test applied to the survey data showed p<0.001, the relationship between the items of the survey was found to be significant.

As a result of factor analysis, the Alpha model for the reliability analysis of the questionnaire and its items is given in Table 4.

Table 4: Eigenvalue Table for the Factors of the Survey of Science Teachers' Views on EBA (Total Variance)

	Initial Eigenvalues			**Rotated Totals of Factor Loadings**		
Component (Factor)	Total	Explain Variance (%)	Cumulative %	Total	Explain Variance (%)	Cumulative %
1	7,902	19,756	19,756	7,902	19,756	19,756
2	2,979	7,449	27,205	2,979	7,449	27,205
3	2,533	6,333	33,537	2,533	6,333	33,537
4	1,943	4,858	38,395	1,943	4,858	38,395
5	1,532	3,831	42,226	1,532	3,831	42,226
6	1,496	3,740	45,966	1,496	3,740	45,966
7	1,394	3,486	49,452	1,394	3,486	49,452
8	1,246	3,115	52,566	1,246	3,115	52,566
9	1,189	2,973	55,540	1,189	2,973	55,540
10	1,105	2,761	58,301	1,105	2,761	58,301
11	1,037	2,593	60,894	1,037	2,593	60,894
12	1,029	2,573	63,467	1,029	2,573	63,467
13	0,912	2,281	65,748			
14	0,872	2,180	67,929			
15	0,858	2,144	70,073			
16	0,842	2,104	72,177			
17	0,788	1,970	74,146			
18	0,741	1,853	76,000			
19	0,719	1,799	77,799			
20	0,703	1,757	79,555			
21	0,642	1,605	81,161			
22	0,618	1,544	82,705			
23	0,607	1,519	84,224			
24	0,577	1,442	85,666			

25	0,540	1,350	87,016
26	0,525	1,312	88,329
27	0,490	1,225	89,553
28	0,465	1,162	90,716
29	0,441	1,101	91,817
30	0,413	1,034	92,851
31	0,381	0,953	93,803
32	0,354	0,885	94,689
33	0,340	0,849	95,538
34	0,324	0,809	96,347
35	0,304	0,759	97,105
36	0,280	0,700	97,805
37	0,248	0,620	98,425
38	0,229	0,572	98,997
39	0,207	0,517	99,514
40	0,194	0,486	100,000

Method: Principal Components Analysis

As a result of factor analysis, the Alpha model was used for the reliability analysis of the questionnaire and its items and the correlation values between the items were calculated. Reliability values based on alpha (α) coefficient are as follows.

If 0.00≤ α<0.40, the survey/dimension is not reliable,

If 0.40 ≤ α<0.60, the reliability of the questionnaire/dimension is low,

If 0.60 ≤ α<0.80, the questionnaire/dimension is quite reliable,

If 0.80 ≤ α<1.00, the questionnaire/dimension is highly reliable (Kalaycı 2006).

The reliability of the questionnaire was calculated using the Cronbach Alpha internal consistency coefficient. Accordingly, the Cronbach Alpha reliability value in the 40-question survey in Table 5 was found to be 0.833. According to this value, it is seen that the reliability value of the questionnaire used in the study is high.

Table 5: Survey Reliability Analysis Results

Cronbach Alpha	0,833
Standardized Cronbach's Alpha	0,842
Number of Items	40

3. RESULTS AND DISCUSSION

In this section, the data obtained from the analysis of the information provided through data collection tools were examined. The findings regarding the participants' use of the Education Information Network are shown in Table 6.

Table 6: Arithmetic Means and Standard Deviations Showing Teachers' Status Regarding Utilization of EBA

Survey questions	n	$\overline{X}$	SS
1	207	3,96	0,86
2	207	3,33	1,03
3	207	3,86	0,9
4	207	2,77	1,18
5	207	3,7	0,74
6	207	3,36	1,11
7	207	1,85	0,94
8	207	2,39	0,97
9	207	2,78	1,09
10	207	3,17	1,03
11	207	3,5	0,91
12	207	3,41	1,02
13	207	2,34	1,12
14	207	2,4	0,91
15	207	2,53	1,02
16	207	3,61	0,88
17	207	2,98	1,12
18	207	3,31	0,99
19	207	3,9	0,84
20	207	3,64	0,88
21	207	3,29	1,06
22	207	2,3	0,86
23	207	2,34	0,98
24	207	2,56	1,06

25	207	3,42	0,95
26	207	3,09	0,94
27	207	3,29	0,97
28	207	3,74	0,84
29	207	3,85	0,69
30	207	4,18	0,84
31	207	2,76	1
32	207	3,83	0,88
33	207	2,37	0,95
34	207	4,09	0,83
35	207	3,55	1,02
36	207	2,59	1,16
37	207	3,5	1,07
38	207	3,66	0,82
39	207	4,1	0,93
40	207	2,29	1,18
Total	207	127,59	38,57

Table 6 shows the mean and standard deviation values of the items used in the survey. In terms of participants' use of the Education Information Network, the highest means are seen in questions 30 and 39 (= 4.10), followed by questions 34, 1, and 19 (= 4.09; 3.96; 3.90), respectively. The lowest means are seen in questions 7, 40, 22, 13, and 23 (= 1.85; 2.29; 2.30, and 2.34), respectively.

Participants' level of knowledge and skills about EBA is shown in Table 7.

Table 7: I Have Sufficient Knowledge and Equipment about the Educational Information Network

	Frequency (f)	Percentage (%)
I strongly disagree	3	1.4
I disagree	18	8.7
No idea	8	3.9
I agree	132	63.8
I totally agree	46	22.2
Total	207	100

Among the Science Teachers who participated in the survey, 3 (1.4%) responded as "strongly disagree", 18 (8.7%) as "disagree", 8 (3.9%) as "no idea", 132 (63.8%) as "agree" and 46 (22.2%) as "strongly agree".

The responses of the entrepreneurs to the item “It is very easy to use the Education Information Network in classes” are presented in Table 8.

Table 8: It is Very Easy to Use the Educational Information Network in Classrooms

	Frequency (f)	Percentage (%)
I strongly disagree	3	1.4
I disagree	64	30.9
No idea	16	7.7
I agree	109	52.7
I totally agree	15	7.2
Total	207	100

Among the Science Teachers who participated in the survey, 3 (1.4%) responded as strongly disagree, 64 (30.9%) as disagree, 16 (7.7%) as no idea, 109 (52.7%) as agree and 15 (7.2%) as strongly agree.

The responses of the entrepreneurs to the item “It is very easy to use the Education Information Network in classes” are presented in Table 9.

Table 9: It is Very Easy to Use the Educational Information Network in Classrooms

	Frequency (f)	Percentage (%)
I strongly disagree	3	1.4
I disagree	24	11.6
No idea	10	4.8
I agree	131	63.3
I totally agree	39	18.8
Total	207	100

Of the teachers who participated in the survey, 3 (1.4%) responded as strongly disagree, 24 (11.6%) as disagree, 10 (4.8%) as no idea, 131 (63.3%) as agree and 39 (18.8%) as strongly agree.

Participants' responses to the item "I use EBA to give homework to students" are shown in Table 10.

Table 10: I Use EBA to Give Homework to Students

	Frequency (f)	Percentage (%)
I strongly disagree	23	11.1
I disagree	89	43.0
No idea	20	9.7
I agree	61	29.5
I totally agree	14	6.8
Total	207	100

Among the Science Teachers who participated in the survey, 23 (11.1%) responded as strongly disagree, 89 (43.0%) as disagree, 20 (9.7%) as no idea, 61 (29.5%) as agree and 14 (6.8%) as strongly agree.

Participants' responses to the item "There is a lot of wrong and inaccurate information and sharing on EBA" are presented in Table 11.

Table 11: There is a Lot of Inaccurate and False Information and Sharing on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	19	9.2
I disagree	123	59.4
No idea	49	23.7
I agree	16	7.7
I totally agree	0	0
Total	207	100

According to Table 11, 19 (9.2%) of the Science Teachers who participated in the survey responded as "strongly disagree", 123 (59.4%) as "disagree", 49 (23.7%) as "no idea", and 16 (7.7%) as "agree".

Participants' responses to the item "In-service training is required for adding content to EBA and using it more actively" are shown in Table 12.

Table 12: In-Service Training is Required for Adding Content to EBA and More Active Use

	Frequency (f)	Percentage (%)
I strongly disagree	7	3.4
I disagree	58	28.0
No idea	18	8.7
I agree	100	48.3
I totally agree	24	11.6
Total	207	100

According to Table 12, 7 people (3.4%) responded as strongly disagree, 58 (28.0%) as disagree, 18 (8.7%) as no idea, 100 (48.3%) as agree, and 24 (11.6%) as strongly agree.

Participants' responses to the item "Content added to EBA should be prevented from being shared without verifying its authenticity" are shown in Table 13.

Table 13: Content Added to EBA Should Be Prevented From Being Shared Without Verifying Its Authenticity

	Frequency (f)	Percentage (%)
I strongly disagree	6	2.9
I disagree	9	4.3
No idea	16	7.7
I agree	95	45.9
I totally agree	81	39.1
Total	207	100

Among the Science Teachers who participated in the survey, 6 (2.9%) answered as “strongly disagree”, 9 (4.3%) as “disagree”, 16 (7.7%) as “no idea”, 95 (45.9%) as “agree” and 81 (39.1%) as “strongly agree”.

Participants' responses to the item "EBA is sufficient for students to prepare for school exams" are presented in Table 14.

Table 14: EBA is Sufficient for Students to Prepare for School Exams

	Frequency (f)	Percentage (%)
I strongly disagree	26	12.6
I disagree	117	56.5
No idea	23	11.1
I agree	38	18.4
I totally agree	3	1.4
Total	207	100

Among the Science Teachers who participated in the survey, 26 (12.6%) responded as strongly disagree, 117 (56.5%) as disagree, 23 (11.1%) as no idea, 38 (18.4%) as agree and 3 (1.4%) as strongly agree.

The responses given to the item “The participants’ explanations of the subjects in EBA are appropriate and sufficient for the course” are presented in Table 15.

Table 15: Students Who Cannot Come to Class Can Get on the Level with Their Friends with EBA

	Frequency (f)	Percentage (%)
I strongly disagree	19	9.2
I disagree	85	41.1
No idea	33	15.9
I agree	62	30.0
I totally agree	8	3.9
Total	207	100

Among the Science Teachers who participated in the survey, 19 (9.2%) responded as strongly disagree, 85 (41.1%) as disagree, 33 (15.9%) as no idea, 62 (30.0%) as agree and 8 (3.9%) as strongly agree.

The responses given to the item “The participants’ explanations of the subjects in EBA are appropriate and sufficient for the course” are presented in Table 16.

Table 16: Subject Descriptions on EBA Are Appropriate and Sufficient for the Course

	Frequency (f)	Percentage (%)
I strongly disagree	5	2.4
I disagree	70	33.8
No idea	26	12.6
I agree	95	45.9
I totally agree	11	5.3
Total	207	100

Among the Science Teachers who participated in the survey, 5 (2.4%) responded as strongly disagree, 70 (33.8%) as disagree, 26 (12.6%) as no idea, 95 (45.9%) as agree and 11 (5.3%) as strongly agree.

Participants' responses to the item "EBA is very useful in addressing the issues where course hours are insufficient" are shown in Table 17.

Table 17: EBA is Quite Useful for Compensating for Subjects Where Class Hours Are Insufficient

	Frequency (f)	Percentage (%)
I strongly disagree	4	1.9
I disagree	36	17.4
No idea	32	15.5
I agree	122	58.9
I totally agree	13	6.3
Total	207	100

Among the Science Teachers who participated in the survey, 4 people (1.9%) answered as “strongly disagree”, 36 (17.4%) answered as “disagree”, 32 (15.5%) answered as “no idea”, 122 (58.9%) answered as “agree” and 13 (6.3%) answered as “strongly agree”.

Participants' responses to the item "I definitely use EBA in the preparation phase for lessons, in preparing materials, and to be more useful" are presented in Table 18.

Table 18: I definitely use EBA in the preparation phase for lessons, in preparing materials, and to be more useful

	Frequency (f)	Percentage (%)
I strongly disagree	4	1.9
I disagree	54	26.1
No idea	20	9.7
I agree	111	53.6
I totally agree	18	8.7
Total	207	100

Of the Science Teachers who participated in the survey, 4 (1.9%) responded as strongly disagree, 54 (26.1%) as disagree, 20 (9.7%) as no idea, 111 (53.6%) as agree and 18 (8.7%) as strongly agree.

Participants' responses to the item "I am having problems logging into EBA" are shown in Table 19.

Table 19: I'm Having Problems Logging into EBA

	Frequency (f)	Percentage (%)
I strongly disagree	44	21.3
I disagree	102	49.3
No idea	17	8.2
I agree	34	16.4
I totally agree	10	4.8
Total	207	100

Among the Science Teachers who participated in the survey, 44 (21.3%) responded as strongly disagree, 102 (49.3%) as disagree, 17 (8.2%) as no idea, 34 (16.4%) as agree and 10 (4.8%) as strongly agree.
Participants' responses to the item "I think the image quality of EBA videos is very low" are presented in Table 4.20.

Table 20: I think the image quality of EBA videos is very low.

	Frequency (f)	Percentage (%)
I strongly disagree	22	10.6
I disagree	116	56.0
No idea	36	17.4
I agree	30	14.5
I totally agree	3	1.4
Total	207	100

Among the Science Teachers who participated in the survey, 22 (10.6%) responded as strongly disagree, 116 (56.0%) as disagree, 36 (17.4%) as no idea, 30 (14.5%) as agree and 3 (1.4%) as strongly agree.
Participants' responses to the item "I prepare content using EBA special content development tools" are shown in Table 21.

Table 21: I Prepare Content Using EBA Special Content Development Tools

	Frequency (f)	Percentage (%)
I strongly disagree	27	13.0
I disagree	92	44.4
No idea	44	21.3
I agree	38	18.4
I totally agree	6	2.9
Total	207	100

Among the Science Teachers who participated in the survey, 27 (13.0%) responded as strongly

disagree, 92 (44.4%) as disagree, 44 (21.3%) as no idea, 38 (18.4%) as agree and 6 (2.9%) as strongly agree.

Participants' responses to the item "I find EBA successful in terms of Science Course" are presented in Table 22.

Table 22: I find EBA successful in terms of science lessons.

	Frequency (f)	Percentage (%)
I strongly disagree	2	1.0
I disagree	32	15.5
No idea	27	13.0
I agree	128	61.8
I totally agree	18	8.7
Total	207	100

In Table 22, among the Science Teachers who participated in the survey, 2 people (1.0%) responded as strongly disagree, 32 (15.5%) as disagree, 27 (13.0%) as no idea, 128 (61.8%) as agree and 18 (8.7%) as strongly agree.

The responses given by the participants to the item “I follow my students’ work on EBA” are shown in Table 23.

Table 23: I Follow My Students' Studies on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	16	7.7
I disagree	72	34.8
No idea	31	15.0
I agree	75	36.3
I totally agree	13	6.2
Total	207	100

Among the Science Teachers who participated in the survey, 16 (7.7%) responded as strongly disagree, 72 (34.8%) as disagree, 31 (15.0%) as no idea, 75 (36.2%) as agree and 13 (6.2%) as strongly agree.

Participants' responses to the item "EBA is very rich in terms of animation" are presented in Table 24.

Table 24: EBA is Quite Rich in Animation

	Frequency (f)	Percentage (%)
I strongly disagree	7	3.4
I disagree	45	21.7
No idea	44	21.3
I agree	97	46.9
I totally agree	14	6.8
Total	207	100

Science Teachers who participated in the survey responded as follows: 7 (3.4%) strongly disagree, 45 (21.7%) disagree, 44 (21.3%) have no idea, 97 (46.9%) agree and 14 (6.8%) strongly agree.

Participants' responses to the item "I encourage my students to use EBA" are presented in Table 25.

Table 25: I Encourage My Students to Use EBA

	Frequency (f)	Percentage (%)
I strongly disagree	2	1.0
I disagree	16	7.7
No idea	24	11.6
I agree	122	58.9
I totally agree	43	20.8
Total	207	100

It was observed that among the teachers who participated in the survey, 2 (1.0%) responded as strongly disagree, 16 (7.7%) as disagree, 24 (11.6%) as no idea, 122 (58.9%) as agree and 43 (20.8%) as strongly agree.

Participants' responses to the item "EBA is very useful for students with different learning styles" are shown in Table 26.

Table 26: EBA is Very Useful for Students with Different Learning Styles

	Frequency (f)	Percentage (%)
I strongly disagree	1	0.5
I disagree	29	14.0
No idea	38	18.4
I agree	114	55.1
I totally agree	25	12.1
Total	207	100

Among the Science Teachers who participated in the survey, 1 person (0.5%) responded as “strongly disagree”, 29 (14.0%) as “disagree”, 38 (18.4%) as “no idea”, 114 (55.1%) as “agree” and 25 (12.1%) as “strongly agree”.

Participants' responses to the item "I benefit from the resources of publishing houses" in the e-content module are presented in Table 27.

Table 27: I Use the Resources of Publishing Houses in the e-Content Module

	Frequency (f)	Percentage (%)
I strongly disagree	10	4.8
I disagree	48	23.2
No idea	37	17.9
I agree	95	45.9
I totally agree	17	8.2
Total	207	100

Of the Science Teachers who participated in the survey, 10 (4.8%) responded as strongly disagree, 48 (23.2%) as disagree, 37 (17.9%) as no idea, 95 (45.3%) as agree and 17 (8.2%) as strongly agree.

Participants' responses to the item "I share our experiments on EBA" are shown in Table 28.

Table 28: I Share Our Experiments on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	24	11.6
I disagree	125	60.4
No idea	29	14.0
I agree	28	13.5
I totally agree	1	0.5
Total	207	100

Among the Science Teachers who participated in the survey, 24 (11.6%) responded as strongly disagree, 125 (60.4%) as disagree, 29 (14.0%) as no idea, 28 (13.5%) as agree and 1 (0.5%) as strongly agree.

The responses given by the participants to the item “I hesitate to share on EBA because I might make mistakes” are shown in Table 29.

Table 29: I hesitate to share on EBA because I might make mistakes.

	Frequency (f)	Percentage (%)
I strongly disagree	40	19.3
I disagree	91	44.0
No idea	41	19.8
I agree	34	16.4
I totally agree	1	0.5
Total	207	100

Among the Science Teachers who participated in the survey, 40 (19.3%) responded as strongly disagree, 91 (44.0%) as disagree, 41 (19.8%) as no idea, 34 (16.4%) as agree and 1 (0.5%) as strongly agree.

Participants' responses to the item "I have difficulty downloading content from EBA" are shown in Table 30.

Table 30: I Have Difficulty Downloading Content on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	29	14.0
I disagree	87	42.0
No idea	43	20.8
I agree	41	19.8
I totally agree	7	3.4
Total	207	100

Among the Science Teachers who participated in the survey, 29 (14.0%) responded as strongly disagree, 87 (42.0%) as disagree, 43 (20.8%) as no idea, 41 (19.8%) as agree and 7 (3.4%) as strongly agree.

Participants' responses to the item "There is information pollution in terms of content on EBA" are presented in Table 31.

Table 31: There is Disinformation in Terms of Content on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	22	10.6
I disagree	85	41.1
No idea	62	30.0
I agree	34	16.4
I totally agree	4	1.9
Total	207	100

Among the teachers who participated in the survey, 22 (10.6%) responded as strongly disagree, 85 (41.1%) as disagree, 62 (30.0%) as no idea, 34 (16.4%) as agree, and 4 (1.9%) as strongly agree.

Participants' responses to the item "I think that the necessary support is provided to improve EBA and make it more useful" are shown in Table 32.

Table 32: I think that the necessary support is given to develop EBA and make it more useful.

	Frequency (f)	Percentage (%)
I strongly disagree	10	4.8
I disagree	45	21.7
No idea	76	36.7
I agree	68	32.9
I totally agree	8	3.9
Total	207	100

Among the Science Teachers who participated in the survey, 10 (4.8%) responded as strongly disagree, 45 (21.7%) as disagree, 76 (36.7%) as no idea, 68 (32.9%) as agree and 8 (3.9%) as strongly agree.

Participants' responses to the item "I can easily access the information or document I want on EBA" are shown in Table 33.

Table 33: I Can Easily Access Any Information or Document I Want on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	4	1.9
I disagree	55	26.6
No idea	33	15.9
I agree	106	51.2
I totally agree	9	4.3
Total	207	100

Among the Science Teachers who participated in the survey, 4 people (1.9%) answered “strongly disagree”, 55 (26.6%) answered “disagree”, 33 (15.9%) answered “no idea”, 106 (51.2%) answered “agree” and 9 (4.3%) answered “strongly agree”.

Participants' responses to the item "Students should benefit from EBA in high school preparatory exams" are presented in Table 34.

Table 34: Students Should Use EBA for High School Preparatory Exams

	Frequency (f)	Percentage (%)
I strongly disagree	1	0.5
I disagree	21	10.1
No idea	38	18.4
I agree	117	56.5
I totally agree	30	14.5
Total	207	100

Among the Science Teachers who participated in the survey, 1 person (0.5%) responded as “strongly disagree”, 21 (10.1%) as “disagree”, 38 (18.4%) as “no idea”, 117 (56.5%) as “agree” and 30 (14.5%) as “strongly agree”.

The responses given by the participants to the item "Students enjoy reinforcing the subjects with the games found on EBA" are shown in Table 35.

Table 35: Students Enjoy Reinforcing Subjects with Games Available on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	0	0
I disagree	11	5.3
No idea	35	16.9
I agree	135	65.2
I totally agree	26	12.6
Total	207	100

Of the teachers who participated in the survey, 11 (5.3%) disagreed, 35 (16.9%) had no idea, 135 (65.2%) agreed, and 26 (12.6%) strongly agreed.

Participants' responses to the item "EBA is unnecessary and a waste of time in education" are shown in Table 36.

Table 36: EBA is Unnecessary and a Waste of Time in Education

	Frequency (f)	Percentage (%)
I strongly disagree	82	39.6
I disagree	96	46.4
No idea	16	7.7
I agree	11	5.8
I totally agree	1	0.5
Total	207	100

Among the Science Teachers who participated in the survey, 82 (39.6%) answered “strongly disagree”, 96 (46.4%) answered “disagree”, 16 (7.7%) answered “no idea”, 12 (5.8%) answered “agree” and 1 (0.5%) answered “strongly agree”.

The responses given by the participants to the item “I follow and try to participate in competitions on EBA” are shown in Table 37.

Table 37: I Follow and Try to Participate in Competitions on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	15	7.2
I disagree	81	39.1
No idea	58	28.0
I agree	44	21.3
I totally agree	9	4.3
Total	207	100

Among the Science Teachers who participated in the survey, 15 (7.2%) responded as strongly disagree, 81 (39.1%) as disagree, 58 (28.0%) as no idea, 44 (21.3%) as agree and 9 (4.3%) as strongly agree.

Participants' responses to the item "I use applications related to my course in EBA" are presented in Table 38.

Table 38: I Use Course-Related Applications on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	5	2.4
I disagree	20	9.7
No idea	11	5.3
I agree	139	67.1
I totally agree	32	15.5
Total	207	100

Science Teachers who participated in the survey responded as follows: 5 (2.4%) strongly disagree, 20 (9.7%) disagree, 11 (5.3%) have no idea, 139 (67.1%) agree and 32 (15.5%) strongly agree.

Participants' responses to the item "I share files and notes with my students via EBA" are shown in Table 39.

Table 39: I Share Files and Notes with My Students via EBA

	Frequency (f)	Percentage (%)
I strongly disagree	26	12.6
I disagree	116	56.0
No idea	31	15.0
I agree	29	14.0
I totally agree	5	2.4
Total	207	100

Of the teachers who participated in the survey, 26 (12.6%) responded as strongly disagree, 116 (56.0%) as disagree, 31 (15.0%) as no idea, 29 (14.0%) as agree, and 5 (2.4%) as strongly agree.

Participants' responses to the item "Using EBA during class is unnecessary and a waste of time" are shown in Table 40.

Table 40: Using EBA during Class is Unnecessary and a Waste of Time

	Frequency (f)	Percentage (%)
I strongly disagree	68	32.9
I disagree	103	49.8
No idea	26	12.6
I agree	8	3.9
I totally agree	2	1.0
Total	207	100

Of the Science Teachers who participated in the survey, 68 (32.9%) responded as strongly disagree, 103 (49.8%) as disagree, 26 (12.6%) as no idea, 8 (3.9%) as agree, and 2 (1.0%) as strongly agree.

Participants' responses to the item "It takes me a lot of time to find the information I seek on EBA" are presented in Table 41.

Table 41: It Takes Me a Long Time to Find the Information I'm Looking for on EBA

	Frequency (f)	Percentage (%)
I strongly disagree	31	15.0
I disagree	100	48.3
No idea	32	15.5
I agree	40	19.3
I totally agree	4	1.9
Total	207	100

Among the Science Teachers who participated in the survey, 31 (15.0%) responded as strongly disagree, 100 (48.3%) as disagree, 32 (15.5%) as no idea, 40 (19.3%) as agree and 4 (1.9%) as strongly agree.

The responses given by the participants to the item “Homework and projects should be given to teachers via EBA” are shown in Table 42.

Table 42: Homework and Projects Should Also Be Given to Teachers via EBA

	Frequency (f)	Percentage (%)
I strongly disagree	42	20.3
I disagree	64	30.9
No idea	43	20.8
I agree	51	24.6
I totally agree	7	3.4
Total	207	100

Among the Science Teachers who participated in the survey, 42 (20.3%) responded as strongly disagree, 64 (30.9%) as disagree, 43 (20.8%) as no idea, 51 (24.6%) as agree and 7 (3.4%) as strongly agree.

Participants' responses to the item "There are too many teachers who are far from EBA and technology" are shown in Table 43.

Table 43: There Are Too Many Teachers Away from EBA and Technology

	Frequency (f)	Percentage (%)
I strongly disagree	8	3.9
I disagree	30	14.5
No idea	58	28.0
I agree	72	34.8
I totally agree	39	18.8
Total	207	100

Among the Science Teachers who participated in the survey, 8 (3.9%) responded as strongly disagree, 30 (14.5%) as disagree, 58 (28.0%) as no idea, 72 (34.8%) as agree and 39 (18.8%) as strongly agree.

Participants' responses to the item "Our government takes the necessary steps to increase the use of EBA" are presented in Table 44.

Table 44: Our Government Takes Necessary Steps to Increase EBA Usage

	Frequency (f)	Percentage (%)
I strongly disagree	3	1.4
I disagree	17	8.2
No idea	47	27.7
I agree	119	57.5
I totally agree	21	10.1
Total	207	100

Among the teachers who participated in the survey, 3 (1.4%) responded as strongly disagree, 17 (8.2%) as disagree, 47 (27.7%) as no idea, 119 (57.5%) as agree and 21 (10.1%) as strongly agree.

Participants' responses to the item "Old-style systems are better than technology and EBA" are shown in Table 45.

Table 45: Instead of Technology and EBA, Old-Style Systems Are Better

	Frequency (f)	Percentage (%)
I strongly disagree	80	38.6
I disagree	87	42.0
No idea	23	11.1
I agree	15	7.2
I totally agree	2	1.0
Total	207	100

Among the Science Teachers who participated in the survey, 80 (38.6%) responded as strongly disagree, 87 (42.0%) as disagree, 23 (11.1%) as no idea, 15 (7.2%) as agree, and 2 (1.0%) as strongly agree.

Participants' responses to the item "Many of my students cannot use EBA due to financial difficulties" are presented in Table 46.

Table 46: Many of My Students Cannot Use EBA Due to Economic Inadequacy

	Frequency (f)	Percentage (%)
I strongly disagree	9	4.3
I disagree	33	15.9
No idea	31	15.0
I agree	72	34.8
I totally agree	62	30.0
Total	207	100

Of the teachers who participated in the survey, 9 (4.3%) responded as strongly disagree, 33 (15.9%) as disagree, 31 (15.0%) as no idea, 72 (34.8%) as agree and 62 (30.0%) as strongly agree.

4. CONCLUSIONS

This research was carried out to determine the opinions of Science Teachers working in secondary education institutions affiliated with the Ministry of National Education regarding the use of EBA in education and training. The data of the study were obtained using the "Survey for the Evaluation of Science Teachers' Views on Utilizing the Education Information Network (EBA) in Education" created by the researcher.

In the study of Eryılmaz and Salman (2014), it was stated that the use of e-content in course teaching facilitates learning of courses. As can be seen from the answers given in Table 35 in this research, 85% think that using EBA in classes is useful and fun.

In the study conducted by Arslan (2016), it is stated that teachers think that the content in EBA consists only of e-books and they do not have enough information about the updated status of EBA (Saklan, 2017). In the study conducted by Saklan and Ünal (2018), it was concluded that EBA is not sufficient in terms of content and that more benefits would be gained by improving the content and making it more suitable for the curriculum. Similar results have been revealed in different studies that EBA is weak in terms of content (Alabay, 2015; Altın and Kalelioğlu, 2015; Banoğlu et al., 2014; Güvendi, 2014, Tüysüz and Çümen, 2016). In this study, science teachers found EBA to be approximately 60% successful in terms of science course content (Table 8). This rate can be said to be relatively low.

Teachers expressed that the technological infrastructure in schools is inadequate. It's unthinkable that software development would be a priority when the physical environment is inadequate. All schools have problems with the development of technological infrastructure, especially internet connections, which can be resolved. It is stated that this is the most important obstacle to the use of technology for many teachers (Alabay, 2015; Hayes and Bybee, 1995; Saklan, 2017).

When the opinions of Science Teachers working in Tekirdağ Province and its districts regarding the use of EBA in education were examined, it was determined that the majority of the teachers had sufficient knowledge and equipment about EBA, but there was a disagreement of approximately half on the fact that the content of EBA was very rich in terms of Science Course. The majority of the participants agree that EBA does not contain much incorrect or erroneous information regarding the Science Course.

Teachers agree that in-service training is necessary to use EBA more actively and add content. Similarly, in the study conducted by Alabay (2015), it was concluded that teachers did not find the training given about EBA sufficient. Therefore, in-service training needs to be given more detailed and more carefully.

While teachers agree that the accuracy of the content added to EBA should be verified and shared, they do not agree that EBA is sufficient to

prepare their students for school exams. However, they think that it is useful for students in reinforcing the subject and eliminating subject deficiencies. The same results are also supported by the studies conducted by Tüysüz and Çümen (2016).

EBA is considered successful in terms of Science Lessons and animation richness, and it is accepted that there is no information pollution in terms of content. In addition, teachers strongly disagree that EBA is unnecessary or a waste of time in education. They think that they encourage their students to use EBA, but there are many teachers who are not knowledgeable about EBA or technology.

When comparing the old traditional system with the new system, they mostly agree with the statement that the education provided using EBA and interactive whiteboard is much better. They also acknowledge that the state is working to increase the use of EBA. They do not accept that the reason why students do not use EBA is financial inadequacy.

When the opinions of Science Teachers working in Tekirdağ Province and its districts regarding their purposes of using EBA in education were examined, it was seen that when they were asked to evaluate the ease of use of EBA in their classes, the majority of them stated that they thought it was easy. Tutar's (2015) study also concluded that EBA is a useful, effective, and helpful website. However, a different study (Kapıdere and Çetinkaya, 2017; Pala et al., 2016) concluded that teachers found EBA complex, impractical, and inadequate.

The number of teachers using EBA in school lessons was found to be quite insufficient. There are many people who think that it is not possible for a student who missed the lesson to catch up with his/her friends only with EBA. Most of the participants think that EBA is useful in terms of training the subjects. For this reason, the use of EBA is preferred in the preparation phase of the courses and for more useful teaching purposes.

They disagree with the statement "I'm having trouble logging into EBA." They also state that the video quality of the videos on EBA is adequate and not low. Unfortunately, the number of teachers who prepare content using special content development tools is low. Most of the participants are not keen on sharing the experiments conducted in classes on EBA. It is avoided because it is thought that the reason for not sharing would be sharing incorrectly.

Teachers agree that EBA is very useful for students with different learning styles and that downloading content and accessing the information or documents they are looking for is quite easy. They think that students should benefit from EBA in preparation for high school exams. They do not want to be given homework or projects via EBA.

They mostly agree that the games on EBA are effective in reinforcing the subject matter for students. This result of the research is similar to the one that shows that the use of technological applications in the lessons positively affects the attitudes of the students towards the lesson (Demirbilek and Özkale, 2014; Hakkari, 2016; Kayahan and Özduran, 2016; Ogan-Bekiroglu and Oymak, 2017; Öçal and Şimşek, 2017; Vural and Ceylan, 2014).

Based on this information;

Participants mostly use EBA to access resources such as documents and content. However, the number of participants adding content to EBA was found to be quite low according to the results. In other words, participants use ready-made content rather than adding content, which does not contribute to the development of EBA. As a result, as stated in Tutar's (2015) study, EBA is accepted as a large online environment that is easy to use and beneficial when the information obtained from the participants is evaluated.

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