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A Research on the Use of Visual Media Technology in Education

Una investigación sobre el uso de la tecnología de los medios visuales en la educación

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ABSTRACT

The purpose of this research is to examine the educational effect of the use of visual media technology in the Education System. In order to achieve this purpose, the teachers' opinions were consulted. For this reason, together with the demographic variables of the teachers working in secondary schools, the effects of visual media technology in education and training in Northern Cyprus were investigated. The commonly used survey method was used in this research to describe the current situation and in order to gather the data collection tool "The educational effect of the use of the visual media by the teachers" was used. It has been found significant differences for the items "Visual media literacy has isolated the students from the dreamy education approach", "I don't find the visual media suitable for the students" and "The traditional education approach has ended with the visual media". As a result, teachers believe that the education provided by visual media is more concrete, but that visual technology is not integrated into the existing education system sufficiently.

Palabras clave:
Medios visuales
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RESUMEN

El propósito de esta investigación es examinar el efecto educativo del uso de los medios visuales en el sistema educativo. Para lograr este objetivo, se consultó la opinión de los profesores. Por esta razón, junto con las variables demográficas de los profesores que trabajan en las escuelas de secundaria, se investigaron los efectos de los medios visuales en la educación y la formación en el norte de Chipre. En esta investigación se utilizó el método de encuesta comúnmente utilizado para describir la situación actual y para recoger la colección de datos "El efecto educativo del uso de los medios visuales por parte de los profesores". Se han encontrado diferencias significativas para los temas "La alfabetización audiovisual ha aislado a los estudiantes del enfoque educativo de ensueño", "No encuentro los medios visuales adecuados para los estudiantes" y "El enfoque educativo tradicional ha terminado con los medios visuales". Como resultado, los profesores consideran que la educación impartida a través de los medios visuales es más concreta, pero que la tecnología visual no está suficientemente integrada en el sistema educativo actual.

1. Introduction

Today, different definitions have been made on education by various authors. On the other hand, John Dewey, who was one of the most important educators of the 20th century, described the concept of education by saying "Education is life". The aim of education is to teach the individual to think not what to think. No doubt, visual

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media is used in all areas of everyday life. Visual literacy was first described by John Debes (1968); it is defined as "a group of visual abilities that people can develop by integrating with sight and other perception experiences". Visual literacy is defined as "a language consisting of images used to convey messages that need to be decoded for use, sense-making and interpretation" (Aslan, Cevik, & Senturk, 2019; Elyildirim, 2019; Kurt & Yavuz, 2018; Tavoosy & Jelveh, 2019; Yılmaz, 2013). On the other hand, in modern education, education through visual media is becoming more and more widespread.

2. Literature Review

It is known that the use of visual media by teachers increases the permanence of education (Çakmakçı, 2017; Pavlovic, Petrovic, & Vulic, 2017) and testing (García Laborda, Giménez López, & Magal Royo, 2011; García Laborda, Magal-Royo, & Bakieva, 2016). The use of visual media applications in education by teachers strengthens the interaction between students and teachers. Thus, the desired level of education is achieved (Bayraktar & Bayram, 2018). Information literacy is the ability to effectively solve a problem or to acquire and evaluate the information needed for a job to be accomplished (Polat, 2006). Çepni, Küçük, and *Gökdere (2002) have emphasized that the visual media should be used to capture what the modern age demands in education and that the visual media is independent of time and place. The importance and the place of today›s education in human life is increasing with the philosophy of life-long education. Granting the necessary support to the scientific work in the society will contribute to the level of development of the country positively and will guide the policy to be formed in the future (*Lai & Zou, 2018; García Laborda, Uzunboylu, & Ross, 2016; *Šoltés, Štofková, & Kutaj, 2016;* Turan, Karadağ, Bektaş, & Yalçın, 2014). In our age, societies are investing heavily in training and quality enhancement. Nowadays education is spreading at every stage of people's life. Education is a process that lasts from birth to death. In this process, individuals gain various knowledge, skills, attitudes and values. These also lead to visible changes in the behaviour of the individual (Cereci, 2018; Dereli, 2019; Erden, 1998; Manogharan, Karuppannan, & Chiong, 2018). This research will contribute to the determination of teachers' opinions from the basic elements of education and to the way these ideas are directed by new research

2.1. The Aim and Importance of the Study

It is thought that this research will contribute to the literature by examining the situation in which the education made through visual media technology is done. The purpose of this research is to examine the opinions of secondary school teachers in Northern Cyprus through the use of Visual Media Technology in education. The importance of research in this area is increasing steadily. The level of research done needs to be upgraded and updated. Education has become widespread in developed countries with the support of visual media technology. However, it is necessary to examine the perspective of key actors in education systems of developing countries through visual media technology and to make new findings in the literature. In this context, the aim of the present study is to examine the perspectives of the use of Visual Media Technologies in education and the usefulness of education for the individuals who perform teaching profession in various secondary school in Northern Cyprus. Studies on transferring information to students through visual media through education is becoming increasingly important both in Europe and in Turkey. However, there is no satisfactory work on providing visual media-based education in our country. Such a gap in the literature makes the present work attracting. The study has great precaution for similar studies to be made in the future with findings. Research on education is increasing its importance today. It is expected that the level of the investigations will be upgraded and updated. More scientific research in education will guide the solution of educational problems. It is known that necessary studies cannot be done at necessary level in educational problems.

2.2. Research Questions

1. What are the opinions of the teachers regarding the educational achievements of the use of visual media in the education system?
2. Is there a significant difference between the opinions on the use of visual media in the education system of the teachers regarding the in-service course taken by teachers?

3. Is there a significant difference between the opinions of the teachers regarding of the visual media according to the educational status of the teachers?

4. Is there a significant difference between the opinions of the teachers regarding of the visual media according to the professional experiences of the teachers?

3. Methodology

Survey model from quantitative research methods was used in the research. Quantitative research is a type of research that can be observed, measured, and numerically expressed by objectifying events and facts. Survey model was used in the research. The survey model is a research approach that aims to describe the past and present as it exists (Büyüköztürk et al., 2008).

4. Population and Sampling

In order to determine the educational effect of the use of visual media by teachers in Northern Cyprus, the teachers who gave lessons in secondary education (25 high schools and 14 secondary schools) affiliated to the Ministry of National Education of Northern Cyprus are determined as the population of the study. The random sampling method was applied in the study. The sample of the research consists of 110 teachers working in the districts of Nicosia, Famagusta and Iskele.

5. Data Collection Tool

Survey form was created by researchers using survey method in the collection of data in the research. Five academicians from the faculty of education at Near East University (NEU) received expert opinions in order to ensure the validity of the scope and appearance of the data collection tool developed by researchers to determine teacher opinions and to serve the purpose of the research. The questionnaire used as a data collection tool consists of two parts. In the first part of the questionnaire form, 5 items were put in order to obtain the socio-demographic information of the participating teachers. These include questions such as gender of participating teachers, experience in teaching profession, and level of knowledge relevant to the use of visual media in education. In the second part of the questionnaire, the items of teachers' achievements obtained by using visual technology in education were examined under 4 dimensions. These dimensions include the dimension of visual technology with the education system, the dimension of visual technology with respect to the storage of information, the dimension of visual education with the meaning of information, and finally the dimension of visual education with regard to the sustainability of information. There are 25 items in the dimension of visual technology related to the education system, seven items in the dimension related to the storage of information, six items in the dimension related to the meaning of information, and finally six items related to the sustainability of information. Participants indicated their answers in the light of Likert's rating scale of 5. In a broader sense, the codes in the measure are structured as; 1 "I definitely do not agree", 2 "I do not agree", 3 "not sure", 4 "Agree", 5 "I definitely agree". Information related to the size and substance range of the scale is given in the table below.

6. Data Analysis

In the study, teachers' opinions were analysed using statistical techniques in determining teacher opinions and explained in tables. The analysis of the data was made using the SPSS 23.00 program. In the study, frequency analysis, arithmetic mean, validity and reliability analysis (Cronbach Alpha) and finally independent samples t test analysis were used to detect significant differences. If the obtained value is $\alpha > = 0.65$ it is possible to state that the work is valid and reliable. The Cronbach Alpha value of the current study was 0.99. It is possible to say that working in this context is a valid and reliable work.

7. Findings

In this section, the findings and interpretations obtained from the statistical analysis of the data collected in the framework of the general and sub-objectives of the research are presented respectively.

Gender	N	%
Female	40	36.5
Male	70	63.5
Total	110	100
Occupational Seniority	N	%
1-5	14	12.7
5-10	37	33.6
10-15	9	8.2
15-above	50	45.5
Total	110	100
Educational Status	N	%
Undergraduate	80	72.7
Post Graduate	28	25.5
Doctorate Degree	2	1.8
Total	100	100
Visual technology knowledge levels	N	%
Quite Sufficient	18	16.3
Sufficient	43	39.1
Intermediately not sufficient	33	30
Not enough	8	7.3
Not quite sufficient	8	7.3
Total	110	100
In-Service Training Course	N	%
Yes	67	60.9
No	43	39.1
Total	110	100

Table 1. Frequency (f) and percent (%) values for the teachers who were included in the scope of the research.

The 63.5% of the participating teachers were female and 36.5% were male. It is seen that the sum of the male teachers in the schools is higher than the sum of the female teachers. Distribution of teachers by professional seniority, in the light of the obtained data; it is possible to say that 45,5% of the teachers who contributed to the survey worked for 15 years and above, 33.6% for 5-10 years and 12.7% for 1-5 years. Distribution of teachers according to their educational status, it was revealed that 72.7% of the participant teachers were undergraduates, 25.5% were postgraduates, and 1.8% were doctorate degree graduates. More than half of the teachers seem to have a 4-year undergraduate degree. Visual technology knowledge levels of teachers participating in the research were also examined. In terms of the data obtained, 16.3% of participating teachers were found to be quite sufficient 39.1% was found to be sufficient and 30% was found to be intermediately not sufficient. Teachers' visual technology usage levels are sufficient. Distribution of teachers by in-service course in the survey and the course status of participant teachers for visual education service was also examined. It is possible to say that 60.9% of the results obtained attended the in-service course 39.1% stated that they did not participate in the in-service training course.

Items	In-Service Training	N	$\overline{X}$	Sd	df	t	p
Worked on integration of visual technology in education system	Yes	67	3.00	1.20	108	-3.31	.001
	No	43	3.81	1.33			
It does not contribute to the educational system of the visual media.	Yes	67	3.05	1.28	108	-2.52	.013
	No	43	3.72	1.41			
I find the content of social media applications very simple.	Yes	67	3.05	1.28	108	-1.98	.049
	No	43	3.53	1.12			
I do not find social media suitable for students.	Yes	67	3.08	1.33	108	-2.03	.044
	No	43	3.62	1.38			
The sense of social media and traditional education are over.	Yes	67	2.97	1.33	108	-2.95	.004
	No	43	3.72	1.27			
Visual media literacy abstracts the students from the visionary education concept	Yes	67	3.25	1.24	108	-2.74	.007
	No	43	3.90	1.17			
Students who are educated with social and visual media have more active lessons.	Yes	67	3.29	1.30	108	-2.37	.020
	No	43	3.88	1.19			
Teachers who use social media users are more informed.	Yes	67	3.28	1.31	108	-2.50	.014
	No	43	3.90	1.21			
I think students do not store enough information in the existing education system	Yes	67	3.26	1.21	108	-2.88	.005
	No	43	3.88	1.00			
The use of electronic devices is necessary for storing new information.	Yes	67	3.43	1.17	108	-1.97	.049
	No	43	3.88	1.15			
In classical education understanding, students have less information.	Yes	67	3.10	1.37	108	-2.78	.006
	No	43	3.83	1.30			

Table 2. Independent samples t-test results according to in-service course on teachers' opinions about the use of visual media technologies in education.

According to the independent samples t-test results made in Table 2, there were a significant difference for all the items according to the in the in-service course teachers have taken on visual media technologies. It is stated that, there is a significant difference in favour of "No"for "Worked on integration of visual technology in education system" ($p<.05$). There was a significant difference between the teachers who said yes or no for "The visual media does not contribute to the education system" and there is a significant difference in favour of who said "No". There was a significant difference between the teachers who said yes or no for "I find the content of social media applications very simple" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "I do not find social media suitable for students" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "The traditional understanding of education with social media is over" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "Visual media literacy abstracts the students from the visionary education concept" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "Students who are educated with social and visual media have more active lessons" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "Teachers who use social media are more knowledgeable" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "I do not think that students can store enough information in the current education system" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "The use of electronic devices is essential for storing new information" ($p<.05$) and this significant difference is in favour of the teachers who said "No". There was a significant difference between the teachers who said yes or no for "Less storage of information by students in classical education" ($p<.05$) and this significant difference is in favour of the teachers who said "No". According to these

findings, it was determined that the teachers who took the in-service courses on the visual media technologies were more experienced and productive than the teachers who did not.

Items	Educational Status	N	$\overline{X}$	Sd	df	t	p
Using social media in education is necessary for faster reading of exams.	Undergraduate	80	3.60	1.22	108	2.68	.008
	post graduate	30	2.90	1.18			
I believe that the interactive board has changed training programs.	Undergraduate	80	3.21	1.21	108	2.60	.011
	post graduate	30	3.86	1.04			
The content of social media is very complex	Undergraduate	80	3.42	1.36	108	2.09	.038
	Post graduate	30	2.83	1.17			
I think that the motivation of the student should be good in the knowledge sustainability	Undergraduate	80	3.21	1.37	108	2.12	.036
	Post graduate	30	3.83	1.34			

Table 3. Independent samples t-test results on teachers' opinions about the use of visual media technologies in education according to educational status.

When we look at Table 3, according to the independent samples t-test results, when the teachers' education level is examined there was a significant difference between the teachers who graduated from undergraduate or post graduate degree level from a university for "Using social media in education is necessary for faster reading of exams" ($p<.05$) and this significant difference is in favour of the teachers who graduated from "Undergraduate" degree level from a university. Also, there was a significant difference between the teachers who graduated from undergraduate or post graduate degree level from a university for "I believe that the interactive board has changed training programs." ($p<.05$) and this significant difference is in favour of the teachers who graduated from "Post graduate" degree level from a university. There was a significant difference between the teachers who graduated from undergraduate or post graduate degree level from a university for "The content of social media is very complex" ($p<.05$) and this significant difference is in favour of the teachers who graduated from "Post graduate" degree level from a university. Also, there was a significant difference between the teachers who graduated from undergraduate or post graduate degree level from a university for "I think that the motivation of the student should be good in the knowledge sustainability" ($p<.05$) and this significant difference is in favour of the teachers who graduated from "Post graduate" degree level from a university. In the case of the independent samples t- test done, it was seen that the post graduate degree level of teachers has more positive opinions in applying the visual media technology to the education system than the teachers with undergraduate education.

The results of the analysis of variance test (ANOVA) to determine whether there is a significant difference between the teachers' opinions on visual technology usage by teachers' according to age variable is given in Table 4.

Dimension	Professional Experience	N	Mean Rank	Sum of Ranks	U	p
The use of electronic devices is necessary for storing new information.	Less than 1-5 years	14	33.71	472.00	151.0	.017
	Between 5-10 years	37	23.08	854.00		
Students who are educated with social and visual media have more active lessons.	Less than 1-5 years	14	15.32	214.50	16.5	.002
	Between 10-15 years	9	6.83	61.50		
The use of electronic devices is necessary for storing new information.	Less than 1-5 years	14	14.32	200.50	30.5	.028
	Between 10-15 years	9	8.39	75.50		

Smart boards are important for the student's efficiency in storing information.	Less than 1-5 years	14	15.32	214,50	16.5	.002
	Between 10-15 years	9	6.83	61.50		
In the storage of information, the use of teaching materials is necessary.	Less than 1-5 years	14	14.32	200.50	30.5	.028
	Between 10-15 years	9	8.39	75.50		

Table 4. Mann-Whitney U test results on teachers' opinions about the use of visual media technologies in education according to their professional Experiences.

In order to examine the teachers' opinions about the use of visual media technologies in education according to their professional Experiences a Kruskal Wallis H test revealed before the Mann Whitney U test. The items which have significant differences on the professional experience of the teachers is examined by Mann Whitney U test in Table 4. It is seen that there is a significant difference in the dimensions of "use of electronic devices in storing new information" ($U=151.0$, $p<0.05$). Students who are educated with social and visual media have more active lessons ($U=16.5$, $p<0.05$). The use of electronic devices is necessary for storing new information ($U=30.5$, $p<0.05$). Smart boards are important for the student efficiency in storing information ($U=16.5$, $p<0.05$). In the storage of information, the use of teaching materials is necessary ($U=30.5$ $p<0.05$). With these findings, it has been found that the teachers with 1-5 year of professional experiences have more positive on the use of electronic devices.

8. Discussion, Conclusions and Recommendations

Education with visual technology in modern education is widely used today (Wang, & Nuttall, 2017; Yıldız, Alkan, & Cengel, 2019). Studies examining aspects of visual technology have gained importance in Northern Cyprus, Turkey and in Europe. The present study has a prescription to shed light on similar work to be done in the future in Northern Cyprus. It is believed that the researcher's use of the visual media in education will be the source of information about the achievements in education, the need to investigate the views of teachers regarding the structuring and maintenance of information storage.

According to the results of the independent samples t-test according to the in-service course on the teachers' opinions on visual media technologies, there was a significant difference. With a deeper statement, 'Visual media literacy is abstracted from students' understanding of education. Teachers who participated in in-service courses find visual media more suitable for the students for the items "I do not find visual media suitable for students", "With the arrival of the visual media, traditional understanding of education is over" than those who did not participate in the in services courses and emphasized that they believed that the education offered by means of visual media was more concrete but that visual technology was not sufficiently integrated into the existing education system.

Students who are faced with an effective education designed with visual technology will have no difficulty in understanding and interpreting the message that is given if they have been educated with visual technology. Biographical studies show that the scientist Albert Einstein had difficulties in expressing himself by talking due to lack of verbal ability. However, Einstein it was emphasized that the power of spatial and visual thinking is high, that he solves problems with the power of visual thought by perceiving problems with the help of visual technology design (Faruque, 1984). Based on this result, it can be said that the visual skill of the developed individual is also improved by the visual skills. Heinich et al. (1989) proposed two approaches for developing visual technology skills. The first is to give the students the necessary analysis techniques to solve the code or to read the visuals which means to create and interpret meaning from the visual stimulant. The second is to teach how to encode images as a means of communication, in other words to organize visual messages, for example to express ideas with sketches or simple drawings.

Various suggestions can be made to improve teacher candidates by going through the findings obtained from the study. These suggestions can be listed as follows:

In-service and pre-service training should be given to teachers to develop their skills in visual literacy and visual message design in order to make effective use of visual design in instructional materials.

From the beginning of the pre-school, there should be an environment where students can develop their visual skills in order to express themselves better at every stage of teaching.

Visual technology should be among the goals of lessons.

How to teach and educate teachers, prospective teachers and students about visual technology education should be investigated.

Research should be done to determine the relationship between visual literacy and visual technology.

Also, as it can be seen from the results of the study that the visual technological viewpoints of the post graduate and doctorate graduates are higher than undergraduate teachers. For this reason, teachers can be encouraged to participate in post graduate programs to improve themselves.

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