Reverse Tullip Education

Social Scientific Centered Issues

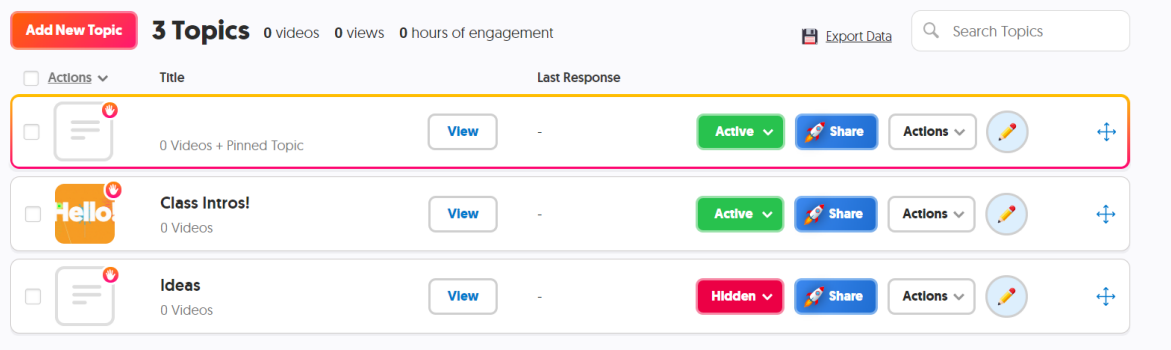
December 2019-1(2)
http://dergipark.gov.tr/ssci

Received: 12.12.2019
Accepted: 18.12.2019

Use of Technology in Measurement and Evaluation: Electronic Portfolios

[1] Fatma BAKAR, [2]Çağrı AVAN

Graphical Abstract



Abstract

The rapid increase of scientific knowledge makes it diffucult to keep pace with. At this point, technology has become to guide us. Using technology for our needs and to access scientific knowledege has been adopted by all segments of society. Thus, it is easier to understand the rapidly developing and changing world. One of the areas where technology is effective is education. Technology reshapes both traditional relationships between teachers and students and the educational environment. The use of technology in education comes up with different examples in each part of the lessons. Traditional assessment and evaluation approaches are far from measuring high-level thinking skills. Alternative measurement and assessments are process-based methods which place students on center, help them express their ideas,and allow them to involve actively in all processes of learning. It is a known fact that alternative measurement and assessment techniques are insufficient in Turkey and the world. Technological pedagogical field knowledge research has emphasized the gap in this field in recent years. Portfolios are important tools in a process-oriented assessment. Electronic portfolios offer a lot of convenience for both the learner and the evaluator compared to traditional portfolios. In addition, the evaluator can reach full and realistic results about the learner .The study was carried out with 48 students with different socio-economic characteristics who participated in the project “I learn about nature by exploring from Microworld to Macroworld in the Ilgaz Mountain National Park- 3, which was realized within the scope of TÜBİTAK 4004 Nature Education and Science schools support program in 2016-2017 academic year. 30 students actively participated in the study and were able to create an electronic portfolio via the flip grid site during the training period. The students recorded 60-90 seconds of videos about the education and recorded them in the system. Project practitioners actively evaluated the training process and provided feedback using multimedia environments. In this way, whether the participants can achieve the related gains and the missing aspects of the training process were examined from a different perspective.

Keywords:Flip grid, technology, measurement and evaluation, electronic portfolio.

1. Kastamonu Provincial Directorate of Education, Science and Art Center, Teacher, fbakar37@hotmail.com
2. KastamonuUniversity, Teacher, cagriavan@gmail.com

Citation:
Bakar, F., & Avan, Ç., (2019). Use of Technology in Measurement and Evaluation: Electronic Portfolios. *Social Scientific Centered Issues*, 1(2), 37-42.

INTRODUCTION

Today, the rapid increase of scientific knowledge makes it difficult to follow. The rapidly changing world and developments in information technologies force changes in all areas of life and people to adapt to the change. Especially education is one of the most affected areas of technology. During education process; it is possible to see the traces of information technologies in all areas from pre-class preparation to evaluation.

Measurement and evaluation is an indispensable part of education (Heritage, 2007). Traditionally, measurement and evaluation has been considered as a process that begins with the end of teaching (Graue, 1993). Traditional measurement and evaluation approaches are inadequate to measure knowledge and comprehension levels in Bloom taxonomy and to measure high level cognitive skills. This only meets the level of remembering and directs the students by heart (Sönmez, 1992; Ataman, 1992; Torrance, 1968; Rıza, 1999; Sungur, 1992; Tezci et al, 2003). Measurement and evaluation is carried out in order to determine the success of students and education in the teaching and learning process, to identify deficiencies, to reveal weaknesses and strengths of the curriculum and to monitor the development of the student (Toptaş, 2011). However, measurement and evaluation are often used as a complement. (Türnüklü, 2003).

Educational reforms in the world have brought about some changes in our country. The main aim of the new curricula has been to train individuals who are the center of the learning with the skills of 21st century and come up with solutions to the problems around them. In most of the new approaches, individual differences and the meaning of each student's knowledge come to the forefront (Yetkin & Daşçan, 2006). In order to meet these expectations, the educational environment should be rearranged, the measurement and evaluation should be shaped to measure the process. The aim of the process, called as an alternative measurement and evaluation in the literature, is not only to give grades to the students but to monitor the progress and determine the deficiencies of the students in a timely manner (Eren Yavuz, 2005). In order for the measurement and evaluation to be meaningful for both the student and the teacher, it is necessary to make the student and the teacher a part of the process. Thus, a full evaluation can be made about the process (Akkoç, 2012). If the student establishes an emotional connection with his / her learning, the probability of failure is very low. At the same time, every student needs to be successful. Alternative measurement and evaluation approaches allow the student to actively participate and to express clearly what they think. In this way, students' motivation to the course is provided and high-level cognitive and affective skills are measured (Yıldız and Uyanık, 2004; Hodges and Ark, 2005; Stiggins, 2007; Kuran and Kanatlı, 2009).

Portfolio and e-portfolio which are not used commonly in Turkey have been in use in primary, secondary, high schools, universities even at master and doctorate levels for the purpose of measuring and evaluating. Electronic portfolios are tools designed for presentation purposes in order to determine the development of an individual or group over time. Electronic portfolios provide information not only about the learner's development but also how he / she performs the learning. E-portfolios allow the student to create new knowledge based on his / her experience and to develop himself / herself by creating new relationships between unrelated topics in the learning process. (MacDonald et al., 2004; Özyeğiner, 2006). Electronic portfolios are a good evaluation tool and are used as a kind of self-evaluation tool using the reflective feature of the system. (Yılmaz et al., 2018; Karaoğlan and Ertaul, 2010; Dipace, 2009).

Technology is a product of creativity. Effective and creative thinking can be developed by using technology. It is a fact that there is not enough work on the use of technology measurement and evaluation. (Karamustafaoğlu et al., 2012). With the introduction of smart boards in the classroom, the use of technology in measurement and evaluation has started to increase but it is often used only for results-oriented evaluation(Adıgüzel et al.., 2011). Due to the rapid advances in information technologies. there is a trend towards the use of the alternative measurement tools such as electronic portfolios . It will also facilitate the teacher's assessment as it will include the results of successful learning and provide the student with feedback and correction in the process. (Davis ve Ponnamperuma, 2005). However, the negative thoughts about the use of information technologies in our country make the use of electronic portfolios difficult. Due to insufficient technological infrastructure in our country, problems are experienced in practice. Therefore, it is not widely used in our country (Yaşar, 2010; Höçük, 2012; Polat ve Köse, 2013).

Social networking sites are the most popular means of communication and correspondence today. People can log in to social networks with their own username and share pictures, videos, audio or text.

Social networks can be used by people for promotion and friendship purposes, as well as for educational purposes. Most of the students use the internet every day and Access social media. Research on the use of social media in education has shown that students support active, creative, collaborative, questioning and problem-solving skills called 21st century skills (Gülbahar et al., 2010; Brady et al., 2010). However, age is an important element in the use of social media for educational purposes. Users over the age of 45 use social media only for communication (Tiryakioglu and Erzurum, 2011; Baris and Tosun, 2013).

In this study, the education period of a project is aimed to assessed through electronic portfolios. The Project's name is " I learn about nature by exploring from Microworld to Macroworld in the Ilgaz Mountain National Park- 3". It is within the scope of 4004 nature and science schools supported by TUBITAK, For this purpose, social media applications Flip Grid and Kahoot were used. One of these applications, Flip Grid allowed students to create electronic portfolios. Kahoot enabled students to answer test questions online.

METHOD

As a research method, , one-group posttest ,one of the experimental designs ,model was used. The project was implemented in 2016-2017 academic year with 48 students with different socio-economic characteristics. 30 students actively participated in the study and were able to create an electronic portfolio with the flipgrid website during the training. The students recorded 60-90 seconds of videos about the education and recorded them in the system. Project practitioners actively evaluated the training process and provided feedback using multimedia environments. Furthermore, the activities performed at the end of each day during the project implementation process were assessed with kahoot application. The opinions of students and teachers were taken.

Study Group

The study group was determined by stratified sampling method (Kılıç, 2013). In this context, 48 students were selected in the 2015-2016 academic year. 24 students from the regional boarding schools in Kastamonu province, 4 students from the Child Care Houses affiliated to the Ministry of Family Social Policies, 10 students from the central district and 5 students from the villages in the the central district, were selected in terms of their academic success. In the data, the students selected from the Care Houses were evaluated among the Central district students.

Table 1: Distribution of sample by school type and gender

		Girl	Boy
School Type	Boarding school	14	9
	City center	11	9
	Village schools	3	2

When the demographic characteristics of the participants were examined, the 58.3% are girls, 41.7% are boys, 47.9% are from Regional Boarding Schools, 41.7% are from Central district students and 10.42% were from village schools.

Table 2: Distribution of parents by educational status

	Primary	Secondary	High School	University
Level of Father Education	16	10	10	11
Level of Mother Education	25	8	6	8

As can be seen in Table 2, 35.4% of the fathers of the students are graduates of primary school, 20.8% are graduates of secondary school, 20.8% are graduates of high school and 22.9% are faculty or college graduate. 54.2% of the mothers are from primary school, 16.7% are from secondary school, 12.5% are from high school or equivalent schools and 16.7% from faculty or college.

Data collection tool

The qualitative data used in this study were collected by using the flipgrid application, which is one of the multimedia products that the participants recorded online using videocast technologies, which is one of the Web 2.0 tools. With this application, all kinds of feelings and thoughts of the students participating in the nature camp can be recorded and shared on the internet.

Data analysis

Content analysis method was used in the analysis of qualitative data. Two different analyzes were performed in the study of Flipgrid application. These are students' use of computer technologies and teachers' views on the evaluation process.

RESULTS

Only 63% of the participants were able to participate in the process. The most important reason for this is students' inability to use technology and lack of technological equipment. 80% of the students who created the portfolio said that the electronic portfolio application was very entertaining and enabled them to express themselves freely. Teachers stated that electronic portfolios provide convenience for evaluation. With the Kahoot application, the participants divided into three groups were provided to reinforce the knowledge they learned.

When the electronic portfolios were analyzed, the results were explained within the themes; (1) The most interesting activities and (2) The benefits of the camp.

1. Most interesting events
It was determined that the activities that attracted the most attention of the students participating in the nature education camp were field trips, art workshop activities and telescope observation of the sky.

2. Benefits of the camp
2 a. Entertaining
The students who participated in the nature camp stated that the activities were appropriate and instructive for their own levels and that they learned by having fun in all activities.

The colorful bird houses we built for the little birds were a very entertaining activity. All living things have a right to life. # Ö3

It was very exciting to try to find wild animal footprints in the field. Biodiversity and wildlife activity was very enjoyable. # Ö21

Ö3 and Ö21 emphasized that nature education is very impressive for them in terms of their answers. In addition, the students' involvement in the process and the search for wild animals found in nature are very important for them in terms of their personal development and their perspective on life.

2.b Increasing environmental awareness
As I joined this camp, my respect for the environment increased. I got more conscious. # Ö11

I learned in this camp that we should take only pictures from nature and leave our footprints. We live together on this Earth with other all living things. We should not pollute our environment and remember that other living things have the right to live. # Ö12

All living things are like a ring of a chain. The order will continue as long as all the rings are together. # Ö1

I will share the information I have learned in this camp with my family, friends and teachers. # Ö9

The students of Ö11, Ö12 and Ö1 mentioned that their views on the environment have changed through camp and it made possible for them to realize that many living things survive in the forests. As the students emphasize in their portfolios, it was found that their sensitivity to the environment increased

3. Improving friendship and communication skills
I have made new friendships with people from many schools. I made good friends. # Ö27
The entire project team involved in the camp took care of us. University professors chatted with us. They answered questions we were curious about. # T18

Ö27 and Ö18 students emphasize that these activities are important for making new friends. It was also found that students increased their communication skills, which are considered among 21st century skills.

CONCLUSION AND DISCUSSION

According to the data obtained, electronic portfolios were found to be useful tools for education. When used effectively during the training, it is possible to examine the participants' achievements and their missing aspects from a different perspective.

In order for assessment to be meaningful for both the student and the teacher, it is necessary to make the student and the teacher a part of the process. Thus, a full evaluation can be made about the process (Akkoç, 2012). In this study, 63% of the students were able to participate in electronic portfolio and kahoot activities. Although most of the individuals participated in the evaluation process, an important part has not been participated yet. This is an indication that our country is still inadequate in terms of technology. Many of the advantages of the technological age are still difficult to achieve and are insufficient in terms of use. The most important reason for this may be the insufficiency of the information infrastructure given in schools.

Thanks to their portfolio, students can demonstrate their knowledge, emotions and behaviors. Therefore, learning and evaluation of the process have different importance in many respects. Alternative assessment approaches allow the student to actively participate in the center and to express clearly what they think. In this way, students' motivation to the course by providing high-level cognitive and affective skills are measured (Yıldız and Uyanık, 2004; Hodges and Ark, 2005; Stiggins, 2007; Kuran and Kanatlı, 2009; Avan et al., 2019).

In this study, the responses of students through electronic portfolios are examined and measures are taken to organize, develop and be more effective in the activities in nature education. Thus, a self-improving system emerges with an innovative approach.

References

Adıgüzel, T., Gürbulak, N., & Sarıçayır, 2011. Akıllı Tahtalar ve Öğretim Uygulamaları, Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 8(15).
Akkoç, H. (2012). Bilgisayar destekli ölçme-değerlendirme araçlarının matematik öğretimine entegrasyonuna yönelik hizmet öncesi eğitim uygulamaları ve matematik öğretmen adaylarının gelişimi. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 3(2).
Alkan, C. (1995). Eğitim Teknolojisine Giriş. Ankara: Önder Matbaacılık.
Ataman; A. (1992). Eğitim Sürecinde Yaratıcılık. (Yayına Hazırlayan: Ayşegül Ataman). Yaratıcılık ve Eğitim, (105-124). Ankara: Türk Eğitim Derneği, Eğitim Dizisi, (17).
AVAN, Ç., GÜLGÜN, C., YILMAZ, A., & DOĞANAY, K. (2019). STEM EĞİTİMİNDE OKUL DIŞI ÖĞRENME ORTAMLARI: Kastamonu Bilim Kampı. Journal of STEAM Education, 2(1), 39-51.
Barış, M. F., & Tosun, N. (2013). Sosyal ağ ve e-portfolyo entegrasyonu: Facebook örneği. Eğitim ve Öğretim Araştırmaları Dergisi, 2(2), 122-129.
Brady, K., Holcomb, B., Smith, B. (2010). The Use of Alternative Social Networking Sites in Higher Educational Settings: A Case Study of the E-Learning Benefits of Ning in Education. Journal of Interactive Online Learning, www.ncolr.org/jiol, Volume 9, Number 2, Summer 2010, ISSN: 15414914
Davis, M. H. and Ponnamperuma, G. G. (2005). Portfolio Assessment. Journal of Veterinary Medical Education, 32(3), 279-284.
Dipace, A. (2009). Evaluatıon of learnıng and e-portfolıo: authentıc assessment ın the experıence of on lıne master. 1st International Conference on Education and New Learning Technologies, 6-8 July, 2009, Barcelona, Spain.
Eren, Yavuz, K. (2005). Aktif Öğrenme Yöntemleri. Ceceli Yayınları, Ankara.
Graue, M. E. (1993). Integrating theory and practice through instructional assessment. Educational Assessment, 1(4), 283-309.
Gülbahar, Y., Kalelioğlu, F., Madran, O. (2010). Sosyal Ağların Eğitim Amaçlı Kullanımı. 10.11.2017 tarihinde inet-tr.org.tr/inetconf15/ozet/10.html adresinden alınmıştır.
Heritage, M. (2007). What Do Teachers Need to Know and Do? Phi Delta Kappan, 89 (2), 140 – 145.
Hodges W.J., Lamb P., Brown M.H. & Foy D.S. (2005), Assessment For All, Science Scope, January, 43-44.

Höçük, S. (2012). İlköğretim öğretmenlerinin elektronik portfolyoların kullanımı ile ilgili görüşleri. IV. Uluslararası Türkiye Eğitim Araştırmaları Kongresi, 4-7 Mayıs 2012, İstanbul: Yıldız Teknik Üniversitesi.

Karamustafaoğlu, S., Çağlak, A., & Meşeci, B. (2012). Alternatif Ölçme Değerlendirme Araçlarina İlişkin Sinif Öğretmenlerinin Öz Yeterlilikleri. Amasya Üniversitesi Eğitim Fakültesi Dergisi, 1(2), 167-179.

Karaoğlan, B. ve Ertaul, L. (2010). A Practice in using E-Portfolio in a Higher Education Course Taught at Distance. Electronıcs And Electrıcal Engıneerıng, 6(102), 115-118.

Kissane, B., Kemp, M. ve Bradley, J. (1996).Graphics calculators and assessment. In P. Gomez & B. Waits (Eds) Roles of calculators in the classroom, (Electronic proceedings of Topic Group 18), International Congress on Mathematics Education, Seville, Spain

Kissane, B., Bradley, J. ve Kemp, M. (1994).Graphics calculators, equity and assessment.Australian Senior Mathematics Journal, 8(2), 31-43.

Kuran, K., & Kanatlı, F. (2009). Alternatif Ölçme Değerlendirme Teknikleri Konusunda Sınıf Öğretmenlerinin Görüşlerinin Değerlendirilmesi/The Evaluation of Classroom Teachers' Opinions on the Alternative Assessments Techniques. Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 6(12).

Macdonald, L., Lui, P., Lowell, K., Tsai, H., Lohr, L. (2004). Graduate Student Perspectives on the Development of Electronic Portfolios. Techtrends : Lininking Research & Practice to Improve Learning, 48(3), 52-55.

Özyenginer, E. (2006). Bilgisayar dersinde elektronik portfolyo yöntemi kullanımı üzerine bir çalışma (Doctoral dissertation, DEÜ Eğitim Bilimleri Enstitüsü).

POLAT, M., & KÖSE, Y. (2013). Okullarda Bir Performans Değerlendirme Aracı Olarak E-Portfolyo Kullanımına Yönelik İlköğretim Öğretmenlerinin Görüşleri. Journal of Computer and Education Research (ISSN: 2148-2896), 1(1), 57-82.

Rıza, E. T. (1999). Yaratıcılığı Geliştirme Teknikleri. İzmir

Rice, M. L. & Wilson, E. K. (1999) "How Technology Aids Constructivism in the Social Studies Classroom"The Social Studies, 90 (1), 28-33.

Sungur, N. (1992). Yaratıcı Düşünce. İstanbul: Özgür Yay.

Tezci, E., Gürol, A., & Enstitüsü, F. S. B. (2003). Oluşturmacı Öğretim Tasarımı ve Yaratıcılık (Constructivist Instructional Design And Creativity). The Turkish Online Journal Of Educational Technology–TOJET, ISSN: 1303, 6521.

Tiryakioğlu, F., Erzurum, F. (2011). Bir Eğitim Aracı Olarak Ağların Kullanımı. 2nd International Conference on New Trends in Education and Their Implications. Antalya, Turkey. www.iconte.org

Toptaş, V. (2011). Sınıf öğretmenlerinin matematik dersinde alternatif ölçme ve değerlendirme yöntemlerinin kullanımı ile ilgili algıları. Eğitim ve Bilim, 36(159).

Torrance E. P. (1995). Why to Fly? A Philosophy of Creativity. New Jersey, Norwood: Alex.

Türnüklü, E. (2003). Türkiye ve İngiltere'deki Matematik Öğretmenlerinin Değerlendirme Biçimleri, Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 12 (24), 108 - 118.

Uzun, N. (2006). Çevre bilinci geliştirmede portfolyo değerlendirmenin katkısı konusunda öğretmen adaylarının görüşleri.

Yaşar, B. (2010). Sınıf öğretmenlerinin portfolyo değerlendirme sürecine ilişkin görüşleri (Balıkesir ili örneği). Yayınlanmamış Yüksek Lisans Tezi, Balıkesir Üniversitesi, Balıkesir.

Yetkin, D & Daşçan, Ö. (2006). Son Değişikliklerle İlköğretim Programı 1- 5. Sınıflar. Anı Yayıncılık.

Yıldız İ. & Uyanık N. (2004). "Matematik Eğitiminde Ölçme Değerlendirme Üzerine". Gazi Üniversitesi Kastamonu Eğitim Dergisi, Mart, 12/1, 97–104.

Yılmaz, A., Gülgün, C., Çetinkaya, M., & Doğanay, K. (2018). Initiatives and New Trends Towards Stem Education in Turkey. Journal of Education and Training Studies, 6(11a), 1-10.