

The Degree of Using Electronic Alternative Evaluation Strategies among Faculty Members and Obstacles of Using Them According to Some Demographic Variables

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Abstract

This study aims at identifying the degree of using Electronic Alternative Evaluation (E-AE) strategies among Faculty Members and obstacles of using them, as well as identifying significant differences in their using according to their Faculty type, years of experience, and training courses. The study used judgmental/purposive sampling method which enabled the research to choose 162 Faculty Members from two faculties (Education & Arts and Social Sciences) at Sultan Qaboos University in Muscat- Oman, during the academic year 2017/2018; that fully filled in a 19-items survey instrument that was used to collect primary data. Secondary semi- structured interviews were conducted with 14 faculty members from the two faculties; to detect the obstacles of using E-AE strategies. The study used both qualitative and quantitative techniques such as (SPSS) and ANOVA for data analysis. The findings revealed that the degree of using E-AE strategies was intermediate. The results also revealed no statistically significant differences in Faculty Members' using for E-AE strategies due to their years of experience, while these differences were observed due to their Faculty type, and training courses.

Keywords: Student Evaluation, Electronic Alternative Evaluation Strategies and Tools, Authentic Assessment, E-Portfolios.

1. Introduction

E-Evaluation is an umbrella term that comprises a complex array of tools varying capacities from the perspective of its strategic institutional development in higher education. Also, it identify how technology played a role in evaluation. High-stakes summative assessment shows a hybrid process, where both paper and electronic modes fulfill substantive roles in supporting the Evaluation stages (Tomas, Borg & McNeil, 2015). However, one of the most difficult evaluation changes for faculty members to implement is a willingness to encourage students to choose any strategy through which to demonstrate their knowledge and understanding of concepts or objectives (Lam, 2016; Reeves, 2000).

Recently, educational evaluation focus on one of the most influential contemporary trends which is the move away from traditional testing methods toward another one, called "Electronic Alternative Evaluation, E- AE" which move the students learn to measure performance in real life situations by using mobile or computer (Al-Smadi & Guetl, 2011; Mable & Minishi, 2005; Ozdemir & Erdemci, 2017). And by reference to the literature of educational measurement and evaluation note many synonyms or equivalent concepts for Alternative Evaluation (AE), such as: Authentic Assessment; Alternative Assessment; Qualitative Assessment; Direct Assessment; Performance Assessment and Balanced Assessment (Demir, Ozturk and Dokme, 2011; Goacher, 2014; VanWeelden, 2017).

Allam (2005) defines Alternative Evaluation (AE) as a different set of evaluation methods require the learner to show his competence and experience in order to form his efficiency or create responses or product innovation, while Newby (2012) defines it as an integration of students in meaningful and meaningful activities, and require high-level thinking skills, including oral interviews and tasks to solve problems collectively. On the other hand, Boud (2003) defined AE as a classification form of student performance that allows a full approach of their evaluation. Furthermore, E- AE refers to a new style of evaluation faced by a person, where s/he has executing AE by using the computer (Al-Smadi & Guetl, 2011; Anthopoulos & Fitsilis, 2015).

Savescu, Crista and Tulbure (2016) see that many faculty members agree on the importance of using a variety of (AE) techniques in the classroom, implementing them is difficult. In other words, many faculty members may be unsure of how to combine quality assessment with daily practice.

Corcoran, Dershimer and Tichenor (2004) noted that the most commonly used of (AE) are rubrics, portfolios, and checklists. These types of evaluation are often used in kindergarten or early primary grades. Their use decreases proportionally as students move to the middle grades. One of the main strategies that are used in (AE) is: concept maps, performance- base and project work, pencil and paper, observation, communication and reflection assessment, self-assessment, interview, portfolio and E-portfolios (Ayas, 2005; Demir et al., 2011; Miller & Morgaine, 2009; Petre, 2017).

It is also important to note that (AE) strategies have a variety of uses and aims; they can be used in the process of training needs analysis and of identifying the best teaching materials to be used, they are also valuable tools in the process of monitoring progress and evaluating the extent to which the course objectives have been reached, and can be used in all kind of foreign language programs, including those in universities of applied sciences (Awwad & Abu-Sneenah, 2011; Muirhead, 2002; Tuncer & Özeren, 2015).

Peter and Katie (2016); and Merritt (2017) mentioned some advantages of (AE) such as: it contributes examinees' better communication, critical thinking that cannot be directly assessed with traditional tests; focus on examinee performance and the quality of work performed by examinees; easily aligned with established learning outcomes; provide a more realistic setting for examinee performance, and it can be understanding the link with the real life than traditional tests.

According to Tuncer and Özeren (2015), Developments in science and technology makes the change in(AE) strategies inevitable. In order to bring up persons in line with the needs of the modern age, up-to-date curricula are based on the approaches to help raise inquisitive and productive persons who are for their learning, have problem solving skills, can think critically and use technology. Within this framework, a fundamental studies in (AE) have been conducted. Due to the lack of local studies that have addressed (E- AE) strategies using modern technology. The researcher reviews studies related to (AE) strategies and E- portfolios, in general; to benefit from their procedures and instruments building and arranged from oldest to newest.

Miller and Morgaine (2009) study on the benefits of E-portfolios for students and the faculty in the U.S mentions that, E-portfolios offer a rich resource for both students and faculty to learn about achievement of important outcomes overtime and develop identities as learners or as facilitators. Also, E-portfolio can build learners' personal and academic identities as they complete complex projects, facilitate the integration of learning, and be focused on developing self-assessment abilities in which students judge the quality of work using the same criteria experts.

Stödberg (2012) study about A research review of e-assessment showed that, the use of e-assessment in higher education is a relatively new educational practice that has been more frequently studied in recent years; Research of e-assessment practices is often conducted as small-scale studies in which the e-assessment task comprises closed questions such as multiple-choice questions. Also, it concludes that there is a need for more studies on e-assessment in online courses as well as for longitudinal studies.

Alkan (2013) conducted a study on teacher centered education on chemistry competency perception and chemistry success of prospective science teachers; the findings showed there is a significant effect of AE techniques supported by learning cycle model on chemistry competency perceptions and chemistry success of prospective science teachers; and there is significant effect of traditional teacher centered education on chemistry success; Also it has been revealed that there was an increase in chemistry competency scores of prospective science teachers in control group, however this increase was not statistically significant.

Similarly, Ozturk and Sahin (2014) conducted a study on the effects of AE and evaluation methods on academic achievement in mathematics, persistence of learning, self-efficacy perception and attitude; the results revealed that AE and evaluation methods positively increased fifth grade students' math-related academic achievement, self-efficacy levels, attitudes and persistence of their learning when compared to traditional assessment and evaluation methods.

Gökhan (2015) study about explore alignment between reform-based Turkish primary science curriculum and AE practices of a classroom teacher revealed that, the teacher's use of traditional assessment activities was more dominant than AE activities although the latter was strongly emphasized by the curriculum; and implementation

of AE activities was not in line with what the curriculum stated; Moreover, Decisions of policy makers, lack of instructional time, exclusion of the curriculum by the teacher, inadequate pedagogical content knowledge and insufficient teacher training on assessment were found to be the elements that might have negatively affected the alignment negatively.

Ozdemir and Erdemci (2017) conducted a study which aims to determine the effect of mobile portfolio supported mastery learning model on students' success and attitudes towards using internet. The research was carried out in the Academic Year 2014-2015 with students, taking Computer-I course at Primary School Teacher Education and Social Sciences Teaching Departments in Faculty of Education in Siirt University. The developed internet usage attitudes scale, was used to determine student attitudes towards internet usage. The scale was prepared as a five point Likert type scale. As a result of research, the effect of mobile portfolio supported mastery learning model on students' academic achievement was found to be positive. Furthermore, use of mobile portfolio among students tested in research, a positive increase was seen in their attitudes towards internet use.

Finally, Poirier and Others (2017) study to conduct a prospective evaluation for effectiveness of an error disclosure assessment tool and video recordings to enhance student learning and metacognitive skills. Student (dental, nursing and pharmacy) self-assessment of performance before and after viewing the recordings of their encounters were obtained, the results showed that use of video recordings made a significant difference in student self-assessment for communication and process categories of error disclosure; There were significant differences between student self-assessment and faculty assessment for all paired comparisons, except communication in student post-video self-assessment. Conclusion, The use of assessment instruments and video recordings may have enhanced students' metacognitive skills for assessing performance in inter professional error disclosure.

Despite the benefit drawn by the researcher from previous studies regarding current study procedures, towards AE strategies in general, which was almost positive, but the researcher could not finding study address E-AE strategies and its obstacles among Faculty Members. The study therefore sought to find out the degree of using Electronic Alternative Evaluation (E-AE) strategies among faculty members at Sultan Qaboos University (SQU) and obstacles of using them according to some demographic variables.

1.2 Research Questions

The study sought to answer the following research questions:

- i. What is the degree of using E-AE strategies by faculty members at SQU from their points of view?
- ii. Do these uses by faculty members at SQU from their points of view differ due to their: Faculty type, years of experience, and training courses?
- iii. What are the obstacles of using E-AE strategies by faculty members at SQU from their points of view?

1.3 Significance of the Research

The significance of the study includes: This study focuses on the recent efforts that should be implemented by faculty members at SQU toward E-AE strategies and obstacles of using them according to some demographic variables. The findings of the study will form a basis on which faculty members can do further studies on E-AE strategies at other Universities. Thus, it may be provide decision makers and those interested in AE strategies with empirical findings which will enabled them make policy recommendations towards E-AE strategies. The study will also bridge the gap and variance between those who supported or opposed using AE strategies in general, using combines quantitative and qualitative approaches in data collection, analysis and findings.

1.4 Objectives of the Research

The current study seeks to achieve the following three objectives: first, it aims at detecting degree of using E-AE strategies by faculty members at SQU from their points of view; second, it aims at identifying whether these uses differ due to faculty members' Faculty type, years of experience, and training courses; third, it aims at identifying the obstacles of using E-AE strategies by faculty members at SQU from their points of view.

1.5 Operational Definitions

- The Degree of Use: the frequency of using E-AE strategies by faculty members in two academic colleges (Education & Arts and social sciences) at SQU from their points of view. This is measured by subjects score in responding to the study instrument prepared for this purpose.

- Electronic Alternative Evaluation (E-AE) Strategies: All electronic strategies that include evaluation- based performance, observation, communication, pencil and paper, interviews, and self-assessment. Hence, this is measured by the subjects score on the study instrument.
- Obstacles: Set of difficulties encountered faculty members at SQU when using an E-AE strategy, from their points of view. Hence, this is measured by the semi- structured interviews.
- Faculty Members: They are all Faculty Members (male and female) in two academic colleges (Education & Arts and social sciences) at SQU in Muscat- Oman for the academic year 2017/2018.

1.6 Limitations of the Research

The study was confined to a sample of male and female faculty members in two academic colleges (Education & Arts and social sciences) at SQU in Muscat- Oman, during the academic year 2017/2018. Also, the study instrument was limited to E-AE strategies scale; therefore, the generalization of its results will be dependent on its validity and reliability indications.

2. Methodology

2.1 Participants

The study population consisted of all 286 male and female faculty members in two academic colleges (Education & Arts and Social Sciences) at SQU in Muscat- Oman, during the academic year 2017/2018, distributors on 19 departments, by 8 departments for Education, and 11 departments for Arts and social sciences. It was aimed at reaching the whole population. However, some of these faculty members were not willing to take part in the study and also some of the data collection instrument were filled missing: so, the study used judgmental/purposive sampling method which enabled the research to choose 162 faculty members were included in the data analysis, distributors on 83 for Education Faculty, and 79 for Arts and Social Sciences Faculty. Furthermore, 14 faculty members of the two academic colleges were interviewed for qualitative research, and they were selected by using a simple random sampling method. Table 1 shows the distribution of the study participants according to three independent variables (Faculty Type, Years of Experience, and Training Courses).

Table 2.1: Distribution of the study Participants According to Three Independent Variables (Faculty Type, Years of Experience, and Training Courses)

Variables	Levels	Numbers
Faculty Type	Education	83
	Arts and Social Sciences	79
Years of Experience	Less than 5 Years	41
	5- 10 Years	89
	More than 10 Years	32
Training Courses	Yes	84
	I didn't remember	19
	No	59

2.2 Instruments

A- Questionnaire

Depending on previous literature and studies related to alternative evaluation strategies in general, a questionnaire measuring faculty member uses of AE strategies, in general and E-AE strategies in particular, where researcher benefited from previous literature and modern studies on this subject. The researcher reviewed published articles on different electronic sites related to E-AE strategies, and in light of the above, a questionnaire of 25 items to measure the uses of E-AE strategies was formulated. Face validity of the instrument was assured by reviewing it by a group of experienced and efficient referees in various specialties (Measurement and Evaluation, Educational Psychology, Teaching Methods) and were asked to give their opinions in its items in terms of items clarity and language correctness, and items suitability in measuring the study purpose; and after this process (6) items were deleted.

The questionnaire consisted of 19 items in the final form, it was prepared as a five point Likert type scale (always, often, sometimes, very rarely, never) and given grades (5, 4, 3, 2, 1), respectively. The instrument was administered on a sample of (15) faculty members from outside the study sample.

It was applied twice with an interval of 10 days. Reliability was estimated by using Test- retest Method. Total reliability coefficient of the instrument was (0.84) which is considered acceptable for the purpose of the study.

B- Interviews

To answer the questions of the study from the qualitative side, the faculty members were interviewed at their offices. A pre-appointment was made with 14 faculty members whom selected randomly from the study sample. Each interview took about a quarter of an hour, recorded on special recording tapes, then their responses were literally emptied onto special sheets.

2.3 Procedures

Faculty members in the two academic colleges (Education & Arts and Social Sciences) at SQU in Muscat- Oman, during the academic year 2017/2018 were determined, and the researcher distributed the questionnaire (19) items to the participants of the study. The researcher explained to them that this questionnaire aims to detect the degree of using E-AE strategies from their point of view. It also aims to identify whether these uses differ due to faculty members' Faculty type, years of experience, and training courses, with respect to identifying the importance of E-AE strategies. He asked the participants to give the questionnaire the importance it deserves, and to answer its items accurately and credibility. Thus, their answers will be subject to analysis in order to identify the most E-AE strategies used. The questionnaires were corrected, and a score was extracted for each Faculty member in the total tool, the degree of each item was considered in order to answer the study questions. Furthermore, the interviews were recorded on special recording tapes and then written on special sheets; to answer the questions of the study from the qualitative side.

2.4 Statistical Analysis

Data was analyzed using Statistical Package for Social Sciences (SPSS), where descriptive statistics (means, standard deviation), T-test for independent samples, 1-way ANOVA and LSD post hoc test were used in analysis of the data obtained from the research.

3. Results and Discussion

3.1 The degree of using E-AE strategies by faculty members at SQU from their points of view. Means and standard deviations of faculty members responses were calculated in Table 3.1.

Table 3.1: Means and Standard Deviations for Faculty Members Responses on Each E-AE Strategy and the Instrument as a Whole in Descending Order.

No	E-AE Strategies	Mean	Standard Deviation	No	E-AE Strategies	Mean	Standard Deviation
12	E-Portfolio.	3.78	0.63	5	E-Peer Evaluation.	3.04	0.89
6	E-Rubric.	3.63	0.86	11	E- Exhibition.	2.93	0.85
9	E-Reports.	3.61	0.98	16	Conceptual Maps Via Computer.	2.89	0.97
2	E- Communication.	3.58	0.71	17	Inventions Via Computer	2.87	0.97
15	E-Presentation.	3.49	0.98	10	E-Thinking Logs.	2.82	0.85
3	Projects Via Computer	3.44	0.94	18	E-Open Ended Questions.	2.75	0.94
14	E-Chick List.	3.41	0.83	1	E-Observations.	2.63	0.98
8	E-Tasks.	3.34	0.79	13	E-Conferences.	2.57	0.97
4	E- Discussions.	3.26	0.93	7	E-Interview.	2.46	1.03
19	Self Evaluation Via Computer.	3.17	0.82				
Total Scale		3.01	0.89				

Table 3.1 shows that total means score of using E-AE strategies by faculty members at SQU was (3.01), with Standard Deviation 0.89, suggesting that factors influencing faculty members' using E-AE strategies were medium, in general [To identify the degree of appreciation, the researcher used the following appreciation: (1- 2.33: Low; 2.34- 3.66: Mid.; 3.67- 5: high and positive)]. Where strategy No. 12 ranked first in the highest mean Account (3.78); whereas strategy No. 7 ranked last in mean Account (2.46).

This might be due to the fact that teachers are feeling the need for such strategies to facilitate their role in students evaluation, seeking and encouraging new technological strategies in order to evaluate students performance better than classical methods that depend on chalkboard. In addition, the recent interest in these strategies emanating from the philosophy of education at SQU; in the light of the modern concept of E-AE, which did not deepen in the minds of faculty members. This finding is inconsistent with Stödberg (2012). The author reported that the use of e-assessment in higher education is a relatively new educational practice; on the other hand, this study is in agreement with the results obtained by Ozdemir and Erdemci (2017); Poirier and Others (2017). This authors emphasized the motivate teachers adopting technology and introducing it to evaluate students performance in their classroom.

3.2 Using of E-AE strategies by faculty members at SQU from their points of view differ according to the Faculty type, years of experience, and training courses.

In answering this question, each variable was treated alone; due to the presence of cells with fewer than (5) persons, as follows: Faculty Type variable; t-test was used, and results are displayed in Table 3.2.

Table 3.2: Results of T-test on the Effect of the Faculty Type on Using of E-AE Strategies by Faculty Members.

Faculty Type	N	Mean	Standard Deviation	df	t	Significance
Education	83	3.125	0.912	160	3.092	0.004
Arts and Social Sciences	79	2.718	0.847			

Table 3.2 shows statistically significant differences in using of E-AE strategies by faculty members at SQU from their points of view according to the Faculty type, these differences were in favor of those education faculty members, this might be due to the fact that education faculty has more specialized courses in measurement and evaluation, in general. Also, it has a special department on education technology called "Instructional and Learning Technologies" which aims to encourage vision and culture regarding technology, so they perceive the importance of motivating faculty members a caption of E-AE strategies and its introduction to their classroom. This finding rhythm well with, Ozdemir and Erdemci (2017) which states that educational faculty members have more vision and culture regarding E-AE strategies, also pointed out that use of mobile portfolio among students tested in research, a positive increase was seen in their attitudes towards internet use.

A) Years of Experience variable; means, standard deviation were computed as shown in Table 3.3.

Table 3.3: Means, and Standard Deviations According to Years of Experience Variable.

Years of Experience	N	Mean	Standard deviation
Less than 5 Years	41	3.04	0.88
5- 10 Years	89	2.89	0.93
More than 10 Years	32	3.16	0.84
Total	162	3.01	0.89

Table 3.3 shows apparent differences between means, and to find out difference significance, 1- way ANOVA was performed and results are shown in Table 3.4.

Table 3.4: 1-Way ANOVA according to Years of Experience Variable.

Source of variance	SS	df	MSS	F	Significance
Between groups	2.608	2	1.304	1.702	0.186
Within groups	121.738	159	0.766		
Total	124.346	161			

Table 3.4 shows no statistically significant differences in using of E-AE strategies by faculty members at SQU from their points of view due to their years of experience, and this might be due to the importance attached on faculty member need for technological application in the evaluation of teaching process. Therefore no significant differences were observed between the levels. This finding is consistent with, Miller and Morgaine (2009) study.

B) Training Courses variable; means, standard deviations were computed as shown in Table 3.5.

Table 3.5: Means, and Standard Deviations according to Training Courses Variable

Training Courses	N	Mean	Standard deviation
Yes	84	3.36	0.80
I didn't remember	19	3.03	0.81
No	59	2.79	1.09
Total	162	3.01	0.89

Table 3.5 shows apparent differences between means, and to find out difference significance, 1- way ANOVA was performed and results are shown in Table 3.6.

Table 3.6: 1-Way ANOVA according to Training Courses Variable

Source of variance	SS	df	MSS	F	Significance
Between groups	7.981	2	3.990	5.551	0.010
Within groups	114.243	159	0.719		
Total		161			

Table 3.6 shows statistically significant differences in using of E-AE strategies by faculty members at SQU from their points of view due to their training courses. To determine between which levels of training courses these differences got in the degree faculty members use E-AE strategies, Post Hoc Comparisons (Scheffe' Test) were used, as shown in Table 3.7.

Table 3.7: Results of Post Hoc Comparisons (Scheffe' Test), According to Training Courses Variable

Training Courses	I didn't remember	No
Yes	0.000	0.645*
I didn't remember		0.000

Table 3.7 shows that the use of E-AE strategies by by faculty members at SQU who have training courses was higher than faculty members who have not training courses. It can be attributed to the high utilization of these courses in the professional development of faculty members. Depending on the impact of these courses on building knowledge about these strategies and how they are used to evaluate students' learning. This result is consistent with Gökhan (2015) study. This result can also be explained by the fact that SQU focuses on the need to evaluate student performance using a program called "LiveText".

3.8 The obstacles of using E-AE strategies by faculty members at SQU from their points of view.

In answering this question, the results of the interviews with 14 faculty members were analyzed, and the results related to the current study were presented and discussed, as follows:

- A)- Do you think it is necessary to use E-AE strategies to evaluate student learning? And why?
- b)- What are the different E-AE strategies you use to evaluate student learning?
- c)- What are the main obstacles you face while implementing E-AE strategies?

Most faculty members from both colleges (Education & Arts and Social Sciences) agreed that multiple forms of E-AE strategies should be used both inside and outside the classroom to properly assess students' learning and judge their learning appropriately. Some faculty members noted that the use of various E-AE strategies enabling them to identify strengths and weaknesses of their students' learning quickly and accurately; and the need to use strategies commensurate with the type of skills and knowledge to assess the students' learning. While only two faculty members felt that there was no need to use more than two E-AE strategies in one semester, and justified that traditional tests were sufficient to measure the degree of student learning. On the other hand, despite the agreement of the majority of faculty members on the need to use different E-AE strategies (most widely used: E-Portfolio; E-Rubric; and E-Reports) to assess students' learning, their views on the obstacles to their use have differed in general. While, the researcher was able to deduce the common obstacles between more than half of the faculty members based on their common views. Therefore, it can be summarized as below:

- 1- The burdens of the faculty members: Supervising of preparing theses, academic committees, community service and preparing scientific researches.
- 2- Lack of material incentives that encourages faculty members to diversify in use E-AE strategies.
- 3- The concept of E-AE is not clear to most faculty members.

This finding rhythm well with, Gökhan (2015) which states that inadequate pedagogical content knowledge and insufficient teacher training on assessment were found to be the elements that might have negatively affected the alignment negatively.

4.1 Conclusions

What can be deduced from the results of the current study, in general, is as follows:

1. Using E-AE strategies among Faculty Members at SQU in Muscat- Oman, during the academic year 2017/2018 were intermediate.
2. There are no statistically significant differences in Faculty Members' using for E-AE strategies due to their years of experience, while these differences were observed due to their Faculty type, and training courses; the differences were in favor of those education faculty members, and who have training courses, respectively.

4.2 Recommendations

Based on the findings of the current study, the researcher recommends the following:

1. The need to notify those in charge of evaluation units at SQU to highlight the importance of E-AE strategies, and their importance in evaluating students' performance.
2. It is important that evaluation units at SQU make preparing awareness leaflets for faculty members on the concept of E-AE besides preparation of training programs on the use of the strategies that have a low degree of use, such as, E-Interview, E-Conferences and E-Observation.
3. More similar studies be conducted on the using of E-AE strategies among faculty members, while including other demographic variables that might have an effect on their uses, as well as expanding the study scope to include other areas.

References

- Alkan, F. (2013). The effect of alternative assessment techniques on chemistry competency perceptions and chemistry success of prospective science teachers. *Journal of Baltic Science Education*, 12(6), 774- 783.
- Allam, S. (2005). *Measurement and evaluation of educational and psychological fundamentals and applications and orientations contemporary*. Cairo: Dar Alfecker.
- Al-Smadi, M., & Guetl, C. (2011). Service-oriented flexible and interoperable assessment: Towards a standardized e-assessment system. *International Journal of Continuing Engineering Education and Life-Long Learning*, 21(4), 289- 307.
- Anthopoulos, L., & Fitsilis, P. (2015). *Social networks in smart cities: Comparing evaluation model*. Paper presented at the 1st IEEE International Smart Cities Conference, ISC2 2015; Guadalajara; Mexico, October, 25- 28.
- Awwad, F., & Abu-Sneenah, O. (2011). The beliefs of social studies teachers in the basic schools at UNRWA about alternative assessment. *Journal of Al-Quds Open University*, 1(24), 229- 269.
- Ayas, A. (2005). *Concept teaching, theory to practice science and technology teaching*. Ankara: Pegem Press.
- Boud, D. (2003). *Enhancing learning through Self-assessment*. New York: Rout ledge Flamer.
- Corcoran, C., Dersheimer, E., & Tichenor, M. (2004). A Teacher's guide to alternative assessment taking the first steps. *Clearing House*, 77(5), 213- 216.
- Demir, R., Ozturk, N., & Dokme, I. (2011). The views of the teachers taking in-service training about alternative measurement and evaluation techniques: The sample of primary school teachers. *Procedia Social and Behavioral Sciences*, 15, 2347-2352.
- Goacher, R. (2014). Advancing lignocellulose bioconversion through direct assessment of enzyme action on insoluble substrates. *Current Opinion in Biotechnology*, 27(1), 123-133.
- Gökhan, S. (2015). Alternative assessment practices of a classroom teacher: Alignment with reform-based science curriculum. *Eurasia Journal of Mathematics, Science & Technology Education*, 11(2), 277- 297.
- Lam, R. (2016). Assessment as learning: examining a cycle of teaching, learning, and assessment of writing in the portfolio-based classroom. *Studies in Higher Education*, 41(11), 1900- 1918.
- Mable, k., & Minishi, M. (2005). Information and communication technologies in library and information science education in south Africa. *Department of Information Science*, UNISA.
- Merritt, R. (2017). Alternative Assessment. *Database: Research Starters - Education*, 4 January, 2017.
- Miller, R., & Morgaine, W. (2009). The benefits of E-Portfolios for students and faculty in their own words. *Peer Review*, 11(1), 8- 12.

- Muirhead, B. (2002). Relevant assessment strategies for online colleges and universities. *USDLA Journal*, 16(1), 1-7.
- Newby, D. (2012). *Insights into the European Portfolio for student teachers of languages (EPOSTL)*. British: Cambridge Scholars Publishing.
- Ozdemir, O., & Erdemci, H. (2017). The effect of Mobile Portfolio (M-Portfolio) supported mastery learning model on students' achievement and their attitudes towards using internet. *Journal of Education and training Studies*, 5(3), 62- 70.
- Ozturk, Y., & Sahin, C. (2014). The effects of alternative assessment and evaluation methods on academic achievement, persistence of learning, self-efficacy perception and attitudes. *Journal of Theory and Practice in Education*, 10(4), 1022-1046.
- Peter, G., & Katie, W. (2016). An alternative grading tool for enhancing assessment practice and quality assurance in higher education. *Innovations in Education and Teaching International*, 53(5), 73- 83.
- Petre, A. (2017). The impact of alternative assessment strategies on students. *Proceedings of the Scientific Conference AFASES*, 2, 157- 160.
- Poirier, T., Pailden, J., Jhala, R., Ronald, K., Wilhelm, M., & Jingyang, F. (2017). Student self-assessment and faculty assessment of performance in an interprofessional error disclosure simulation training program. *American Journal of Pharmaceutical Education*, 8(3), 1- 8.
- Reeves, T. (2000). Alternative assessment approaches for online learning environments in higher education. *Educational Computing Research*, 3(1), 101- 109.
- Savescu, I., Crista, N., & Tulbure, C. (2016). Methods of assessment used in the agronomic higher education. *Research Journal of Agricultural Science*, 38(3), 29- 33.
- Stödberg, U. (2012). A research review of e-assessment. *Assessment and Evaluation in Higher Education*, 37(5), 591- 604.
- Tomas, C., Borg, M., & McNeil, J. (2015). E-assessment: Institutional development strategies and the assessment life cycle. *British Journal of Educational Technology*, 46(3), 588-596.
- Tuncer, M., & Özeren, E. (2015). A meta-analysis on alternative measurement and assessment instruments. *Journal of Research in Education and Teaching*, 4(2), 2146-9198.
- VanWeelden, K. (2017). Steps to designing authentic assessments for students with disabilities in music classes. *Music Educators Journal*, 104 (2), 27-31.