

Student Perceptions of E-Portfolio-Based Formative Assessment in ESP Context

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Abstract: Digital tools are used in foreign language teaching to enhance teaching, learning and assessment practices. The focus of the present study is the integration and effectiveness of electronic portfolios in formative assessment in English for specific purposes (ESP) course for students of Economics at the University of National and World Economy in Bulgaria. The study presented in this paper set out to investigate the effect of formative assessment based on an electronic portfolio on ESP students' perceptions of the alternative approach compared to perceptions of students taught using the traditional approach to formative assessment. The research data were collected by administering, a pre-experiment and post-experiment surveys. The data analysis of the surveys on students' perceptions prior to the experiment and after it indicated that the experimental group evaluated the e-portfolio assessment tool as highly effective, showing statistically significant improvement in their post-experiment overall evaluation of the alternative approach, compared to the control group's overall evaluation of the traditional approach. Furthermore, the findings revealed the aspects related to the contribution of the e-portfolio to formative assessment, which the students in the experimental group considered as beneficial to their learning.

Keywords: ESP, Electronic Portfolio, Formative Assessment, Alternative Assessment, Student Perceptions

1. Introduction

Digital tools are used in foreign language teaching to support the modern teaching methods based on the constructivist theory, which include learners' active participation, cooperation, collaborative learning and focus on learners' individual needs, motivation and autonomy. Technology-based language learning provides students with access to authentic and more engaging materials and authentic communication, with opportunities to practice integrated skills. Technological innovations also equip teachers with advanced tools for giving feedback, tracking student progress and enhancing the effectiveness and objectivity of assessment practices.

Electronic portfolios are used as an alternative to traditional practices in assessment, as this approach establishes a link between learning, instruction and assessment, involves learners and peers as participants in the assessment process and emphasizes progress, efforts and achievement (Yang, 2003: 295).

Portfolios are defined as a collection of artefacts selected by learners as evidence of the progress made in the process of acquiring knowledge and skills (Paulson et al., 1991: 60). This widely cited definition emphasizes the importance of the systematic selection of portfolio artefacts, the active role of learners throughout the process, including assessment, and their reflection on outcomes as an integral part of learning. The portfolio can be used for a variety of purposes, including formative and summative assessment. It has a dual identity as a process and a product of learning as it aims to support the learning process through formative assessment and collect evidence for summative assessment. Developing a portfolio involves a number of processes, such as planning, sharing, discussing, feedback, reflection, which can be as important as the final product (Gray, 2008: 6). Therefore, the degree of engagement of learners in managing their own learning is enhanced through the portfolio tool (Hartnell-Young et al., 2007: 5).

The electronic portfolio (also known as: e-portfolio, digital portfolio, web portfolio, web-folio, online portfolio, e-folio or eFolio) has a number of advantages which can be summarized as follows:

- ◆ supports cognitive, motivational and affective processes, promoting through its structures and activities processes such as goal setting and planning; cooperation with peers and teachers; reflection and authentic assessment; acquisition of knowledge and competences and their improvement; contextualized learning; learning with educational technology (Dudeney & Hockly, 2008: 119, Hamp-Lyons & Condon, 2000: 5, Kahn, 2019, Little, 2007: 1, Kimball, 2005: 436, Shulman, 1998: 36, Drury, 2006: 2, Zubizarreta, 2008: 121, Belgrad, 2013: 334, Jones, 1994: 23, Brown & Abeywickrama, 2018: 322);
- ◆ significantly contributes to self-regulated learning, enhancing learner motivation and autonomy (Barrett & Wilkerson, 2004, Drury, 2006: 3, Hartnell-Young et al., 2007: 5, Jones, 1994: 23, Brown & Abeywickrama, 2018: 322);
- ◆ it is an innovative way of showing learner progress through multimedia products - audio, video, text, images, hyperlinks (Dudeney & Hockly, 2008: 119, Kuh et al., 2018: 16, Drury, 2006: 2, Bailey & Curtis, 2015: 238);
- ◆ learners receive fast feedback reinforcing their achievements and indicating knowledge gaps to act on (Abrami & Barrett, 2005: 2, Kuh et al., 2018: 9);
- ◆ enables learners to update its contents, including for professional purposes (Kuh et al., 2018: 18, Gibson & Barrett, 2003, Drury, 2006: 3, Dudeney & Hockly, 2008: 119, Lorenzo & Ittelson, 2005: 4, Bailey & Curtis, 2015: 237);
- ◆ learners own their e-portfolios - a space where they can experiment, customize and share it with others (Kuh et al., 2018: 18, Drury, 2006: 2, Dudeney & Hockly, 2008: 122, Hamp-Lyons & Condon, 2000: 162).

The overview of the disadvantages of using e-portfolios shows that they are mainly related to time-consuming workload, authorship and digital competence:

- ◆ the e-portfolio requires both learners and teachers to invest time and may be perceived as an additional unnecessary burden (Shulman, 1998: 35, Drury, 2006: 4, Poole et al., 2018: 7, Bailey & Curtis, 2015: 237, Jones, 1994: 27, Butler, 2006: 16, Brazdeikis & Valineviciene, 2015: 5, Brown & Abeywickrama, 2018: 323, Fox, 2017: 143);
- ◆ teachers cannot establish with certainty the authorship of the provided artifacts (Lafi, 2019:19, Lorenzo & Ittelson, 2005: 9, Butler, 2006: 16);
- ◆ teachers and learners may need support to develop their digital competence (Drury, 2006: 4, Lorenzo & Ittelson, 2005: 6, Poole et al., 2018: 13, Butler, 2006: 16, Brazdeikis & Valineviciene, 2015: 5).

The present study aims to add to the research in the area by implementing an e-portfolio model for ESP formative assessment, based on the constructivist principles of learning, an integrated approach to acquiring communicative competence in the students' academic and professional field, promoting learner participation through collaboration, self-assessment, peer assessment and reflection and providing a digital space for learners to experiment and develop their digital competence and 21st century skills.

The focus of the study is the integration and effectiveness of electronic portfolios in formative assessment in English for specific purposes (ESP) course for students of Economics at the University of National and World Economy in Bulgaria. The research seeks to investigate the e-portfolio potential to enhance student learning and significantly improve learners' communicative competence in their academic and professional area and to identify the benefits and pitfalls in using it.

The experiment was conducted for 2 semesters or 30 weeks (four hours per week). In order to establish the effectiveness of the alternative approach, pre- and post-experiment surveys and two tests (a pre- and post-test) were administered to both groups, two self-assessments of communication skills and interviews were conducted. Two groups of students participated in the experiment. The first one is the control group (CG), which consisted of 30 students who were taught using the traditional approach. This group acted as a benchmark against which the experimental group (EG) who was taught using e-portfolio-based formative assessment was compared.

The research data presented in the paper were collected by administering a pre-and post-experiment surveys and the findings of the statistical analysis indicate that there is a significant difference in the experimental group's overall evaluation of the e-portfolio-based formative assessment compared to the control group's overall evaluation of traditional formative assessment.

The research question which was addressed in the study is:

- ◆ To what extent does the e-portfolio approach affect students' perceptions of ESP formative assessment?

2. Materials and Methods

The participants were 60 undergraduate students majoring in Economics at the University of National and World Economy in Sofia, Bulgaria. They were divided into two groups - a control group and an experimental group, who were taught using traditional and e-portfolio-based approaches to formative assessment, respectively. The ages of the participants vary between 19 and 21. The control group consists of 16 female and 14 male students and the experimental group comprises 17 female and 13 male students.

The statistical methods used for data analysis are descriptive statistics and hypothesis significance testing, using 2 Independent Samples – Mann-Whitney test, 2 Independent Samples – T-test and 2 Related Samples – T-test to compare the mean for the two groups. P-values less than or equal to the predefined threshold value ($\alpha = 0,05$) were considered as statistically significant. The statistical methods were implemented using IBM SPSS Statistics 26 and the graphical representation was performed using Excel 2016.

This study aimed at investigating whether or not there is a significant difference in students' perceptions of different aspects of ESP formative assessment between the experimental group of students who were taught by adopting an alternative approach using an electronic portfolio and the control group of students who were taught by using the traditional approach.

3. Results

Students in the control and experimental groups completed a pre-experiment survey (October 2021) and a post-experiment survey (May 2022), consisting of 16 and 14 questions, respectively. Most of the items in the two surveys were closed-ended with preset response options using a 5-point Likert scale in ascending order (ranging from *Strongly disagree* to *Strongly agree*). The items are the same in the pre- and post-experiment surveys, a few differ, and a group of questions concerning the e-portfolio are completed only by the experimental group. Table 1 graphically presents the questions from the pre- and post-experiment surveys for the control and experimental groups.

Table 1: Pre- and post-experiment survey questions

SURVEY TYPE	GROUP TYPE		SYMBOLS
	CG	EG	
	QUESTIONS		
Pre-experiment Survey	1 Direct question about electronic assessment		Group K

Post-experiment Survey	1 Direct question about traditional formative assessment	1 Direct question about e-portfolio-based formative assessment	
Pre-experiment Survey	2 Supplementary question to question 1		
Post-experiment Survey	-	-	
Pre-experiment Survey	3-11 Questions related to e-assessment aspects		Group L
Post-experiment Survey	2-10 Questions related to traditional formative assessment aspects	2-10 Questions related to e-portfolio-based formative assessment aspects	
Pre-experiment Survey	12-13 Open-ended questions		Group M
Post-experiment Survey	-	11-12 E-portfolio Evaluation	Group N
Pre-experiment Survey	14-16 Demographic questions		Group O
Post-experiment Survey	11-12 Open-ended questions	13-14 Open-ended questions	Group M

The pre-experiment survey items refer to electronic formative assessment, based on students' prior experience for both groups. The post-experiment survey refers to formative assessment using a traditional approach in a blended learning environment for the control group (CG) and formative assessment based on an e-portfolio for the experimental group (EG). The questions have the same wording, but with a different focus. Thus, a comparison can be made between students' perceptions about formative assessment using the traditional and alternative approaches.

Group O Questions (Demographic Questions in the Pre-experiment Survey): The demographic questions determine the characteristics of the two populations of students - control and experimental groups. The distribution of male and female students in the two groups strived for balance. However, female students slightly outnumbered males in both groups (53.3% and 56.7% in the CG and EG, respectively). Students aged between 18 – 20 years were 80.0% in CG and 93.3% in EG. Students aged between 21 – 25 years were 20.0% in CG and 6.7% in EG.

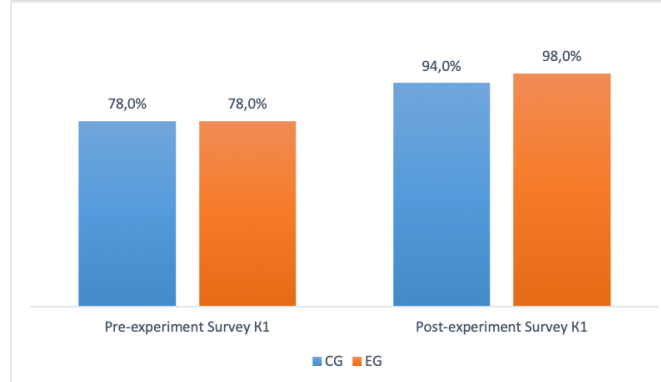
In both groups, a significant number of the respondents indicated that they have a very good digital competence (76.7% and 83.3% of CG and EG, respectively) which guaranteed a smooth running of the experiment for the majority of the students who should not face technical problems during the ESP course.

In general, the characteristics of the control and experimental groups appeared to be similar in terms of demographics.

Group K Questions (Direct and Supplementary Questions): The first question in the survey was “What is your attitude towards e-formative assessment in general?” and aimed to directly ask students about their perceptions of electronic formative assessment, based on their prior experience in the pre-experiment survey and traditional/e-portfolio-based formative assessment in the post-experiment survey.

After calculating the mean of student perceptions of the given type of formative assessment, it was transformed into a percentage, as presented in Figure 1.

Figure 1: Student perceptions of formative assessment (in %).



In the pre-experiment survey, no percentage difference was observed in the student perceptions towards electronic formative assessment in both groups. In the post-experiment survey, more positive perceptions of the e-portfolio-based formative assessment was observed in the experimental group, compared to the control group's perceptions of traditional formative assessment. Whether this difference is statistically significant was subject to hypothesis testing, shown in Tables 2 and 3.

Table 2: Results of hypotheses testing of the difference between the control and experimental groups' perceptions of formative assessment

Groups tested Survey	Characteristics	GROUP TYPE		Mann-Whitney Test
		CG	EG	
Pre-experiment Survey	Perceptions	78.0 ^A	78.0 ^A	p=1.000
	N	30		
Post-experiment Survey	Perceptions	94.0 ^A	98.0 ^B	p=0.047
	N	30		

* For groups with the same letter, no statistically significant difference was reported

Table 3: Results of hypotheses testing of the difference in each group's pre- and post-experiment perceptions of formative assessment

<div>Groups tested</div> <div>Group type</div>	Characteristics	SURVEY TYPE		Wilcoxon Signed Ranks Test
		Pre-experiment	Post-experiment	
CG	Perceptions	78.0 ^A	94.0 ^B	p=0.004
	N	30		
EG	Perceptions	78.0 ^A	98.0 ^B	p=0.001
	N	30		

* For groups with the same letter, no statistically significant difference was reported

The results shown in Table 2 indicate that there was no difference in the initial perceptions of e-formative assessment between the two groups. The significance level of student perceptions in the post-experiment survey is less than the predefined 5% threshold value ($p=0.047$), therefore the experimental group's perceptions of e-portfolio-based formative assessment were more positive than the control group's perceptions of traditional formative assessment. This means that both groups started with the same perceptions of e-formative assessment, but after the ESP course, the experimental group had a more positive attitude towards e-portfolio-based formative assessment.

The results from checking whether there was an improvement in each group before and after the experiment, presented in Table 3, showed that the significance levels for both groups were less than the 5% value ($p=0.004$ and $p=0.001$), therefore students' perceptions at the end of the experiment marked a statistically significant improvement in both the control and experimental groups.

The second question in the pre-experiment survey was related to various aspects of electronic formative assessment. Possible answers were:

- e-assessment is not different from traditional assessment
- e-assessment has a negative impact on my motivation
- e-assessment is more demanding because of the technical issues
- e-assessment contributes to improving my digital competence
- e-assessment provides fast feedback
- e-assessment enhances my motivation

Students may provide more than one answer. The results are presented graphically, with the percentage of responses equaled to 100%.

Figure 2: Different aspects of electronic formative assessment according to the control and experimental groups in the pre-experiment survey (in %).



The results show that the control and experimental groups' perceptions of electronic formative assessment in the pre-experiment survey was the same. The largest percentage of both groups believed that electronic formative assessment provides fast feedback (35.7% for CG and 34.4% for EG). The smallest percentage of students found it burdensome because of technical issues (7.1% for CG and 7.8% for EG) and believed it has a negative impact on their motivation (7.8% for CG and 10.7% for EG). At the same time, the percentage of students who indicated that it enhances their motivation was also not high (10.7% for CG and 9.4% for EG), which most likely means that according to them the impact on their motivation is neither positive nor negative.

Group L Questions (Questions Related to E-assessment Aspects): Group L questions aimed to capture student perceptions of formative assessment using traditional and alternative approaches, which coincides with the direct question in group K, but is achieved indirectly. Therefore, the results from the additional nine indirect questions carry more weight than the direct question, because they present a more complex picture of the students' perceptions.

Table 4: Group L questions

N	CG	EG
L1	I did most of the assignments in the ESP formative assessment.	
L2	The formative assessment had a positive impact on my ESP communicative competence.	
L3	Formative assessment assignments are worth the efforts.	
L4	The formative assessment assignments helped me to be consistent in learning.	
L5	The formative assessment assignments helped me to achieve higher results in the final test.	
L6	The formative assessment assignments were challenging.	
L7	Do you think that the grades in the electronic formative assessment are objective and correspond to your ESP knowledge?	
L8	I would have done the formative assessment assignments even if they hadn't been part of summative assessment.	
L9	In future, I would prefer to continue submitting ESP formative assessment assignments electronically.	

After calculating the mean of student perceptions on the questions, it was transformed into a percentage, as shown in Figure 3.

Figure 3: Control and experimental groups' perceptions of formative assessment based on responses to indirect questions (in %).



In the pre-experiment survey, the control group expressed the highest agreement (83.3%) with question L5 (The formative assessment assignments helped me to achieve higher results in the final test), while the experimental group rated the same question as second highest (79.3%) after question L9 (In future, I would prefer to continue submitting ESP formative assessment assignments electronically) which gained 84.7%. The students from both the control and experimental groups recorded the least agreement with question L6 (46.0% and 45.3%, respectively) (The formative assessment assignments were challenging) and with question L7 (58.7% for both groups) (Do you think that the grades in the electronic formative assessment are objective and correspond to your ESP knowledge?).

On the positive side, after completing the ESP course, for both groups these percentages increased significantly. In the post-experiment survey, the control and experimental groups recorded the highest agreement of 93.3% and 95.3%, respectively, with question L3 (Formative assessment assignments are worth the efforts) and the lowest agreement of 72.0% and 76.7%, respectively, with question L6 (The formative assessment assignments were challenging). There was one more question with the same percentage of agreement (72.0%) recorded by the control group - question L1 (I did most of the assignments in the ESP formative assessment) which means that the students in the control group did not do as many assignments as the experimental group who registered 90.7%.

The results from testing the difference between the pre- and post-experiment survey scores showed which questions marked significantly higher scores for the control and experimental groups.

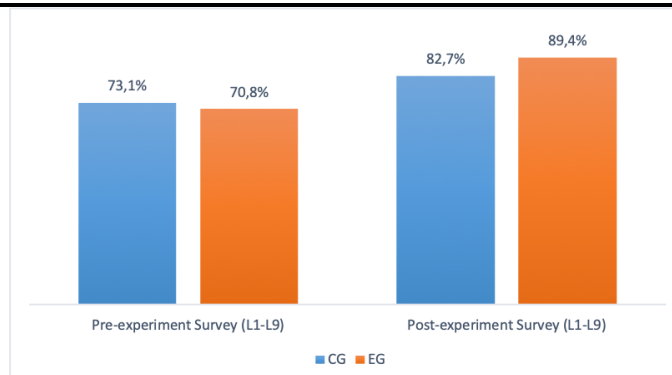
Table 5: Results from testing the difference between pre- and post-experiment survey scores for the control and experimental groups

Groups tested Group type	Characteristics	SURVEY TYPE		N	Wilcoxon Signed Ranks Test
		Pre- experiment	Post- experiment		
CG	Agreement	73.3 ^A	72.0 ^A	L1	p=0.921
		80.7 ^A	90.0 ^B	L2	p=0.046
		78.7 ^A	93.3 ^B	L3	p=0.002
		80.0 ^A	84.7 ^A	L4	p=0.309
		83.3 ^A	82.0 ^A	L5	p=0.975
		46.0 ^A	72.0 ^B	L6	p=0.000
		58.7 ^A	76.7 ^B	L7	p=0.009
		80.0 ^A	84.7 ^A	L8	p=0.355
		77.3 ^A	88.7 ^B	L9	p=0.036
	N	30			
EG	Agreement	64.7 ^A	90.7 ^B	L1	p=0.001
		75.3 ^A	92.7 ^B	L2	p=0.000
		78.0 ^A	95.3 ^B	L3	p=0.000
		72.0 ^A	88.7 ^B	L4	p=0.002
		79.3 ^A	88.7 ^B	L5	p=0.046
		45.3 ^A	76.7 ^B	L6	p=0.000
		58.7 ^A	88.7 ^B	L7	p=0.000
		79.3 ^A	90.0 ^A	L8	p=0.052
		84.7 ^A	93.3 ^B	L9	p=0.040
	N	30			

* For groups with the same letter, no statistically significant difference was reported.

The results show that the control group recorded a significant difference (increase in agreement) in five questions (L2, L3, L6, L7 and L9), which make up 56% of all questions, whereas there was a significant difference (increase in agreement) in eight of the questions in the experimental group's post-experiment responses, which make up 89% of all questions. In addition to the higher number of questions marking an increase in agreement, the experimental group also recorded higher percentage differences between the pre- and post-experiment responses which suggest that their improved attitude can be attributed to the e-portfolio experience. Whether this is really the case was verified by the control and experimental groups' overall evaluation based on the indirect questions.

Figure 4: The control and experimental groups' overall evaluation of formative assessment, based on the indirect questions (in %)



In the pre-experiment survey, there was a slight preponderance of the control group's evaluation (73.1%) compared to that of the experimental group (70.8%). At the end of the ESP course, however, the experimental group's evaluation of the e-portfolio-based formative assessment was more positive (89.4%) compared to the control group's overall evaluation of the traditional formative assessment (82.7%). In general, the results of the overall evaluation closely resembled those of Group K direct question. Whether there is a difference in the overall evaluation between the control and experimental groups and whether there is an improvement in each group before and after the experiment, was subject to hypothesis testing, shown in Tables 6 and 7.

Table 6: Results from testing the difference between control and experimental groups' overall evaluation

Groups tested		GROUP TYPE		Mann-Whitney Test
Survey	Characteristics	CG	EG	
Pre-experiment Survey	Evaluation	73.1 ^A	70.8 ^A	p=0.174
	N	30		
Post-experiment Survey	Evaluation	82.7 ^A	89.4 ^B	p=0.019
	N	30		

* For groups with the same letter, no statistically significant difference was reported.

Table 7: Results from testing the difference in each group's overall evaluation

<div>Groups tested Group type</div>	Characteristics	SURVEY TYPE		Wilcoxon Signed Ranks Test
		Pre- experiment	Post- experiment	
CG	Evaluation	73.1 ^A	82.7 ^B	p=0.001
	N	30		
EG	Evaluation	70.8 ^A	89.4 ^B	p=0.000
	N	30		

* For groups with the same letter, no statistically significant difference was reported

The results shown in Table 6 indicate that in the pre-experiment survey there was no difference in the overall evaluation between the two groups which means that both groups started the experiment with the same perceptions of e-formative assessment. In the post-experiment survey, the significance level in the overall evaluation of the two groups is less than the predefined 5% value (p=0.019), therefore the experimental group's overall evaluation of the e-portfolio-based formative assessment was more positive than the control group's evaluation of traditional formative assessment.

The results from checking whether there was an improvement in the overall evaluation in each group before and after the experiment, presented in Table 7, showed that the significance levels for both groups

are less than the 5% value ($p=0.001$ and $p=0.000$), therefore students' overall evaluation at the end of the experiment increased significantly in both the control and experimental groups.

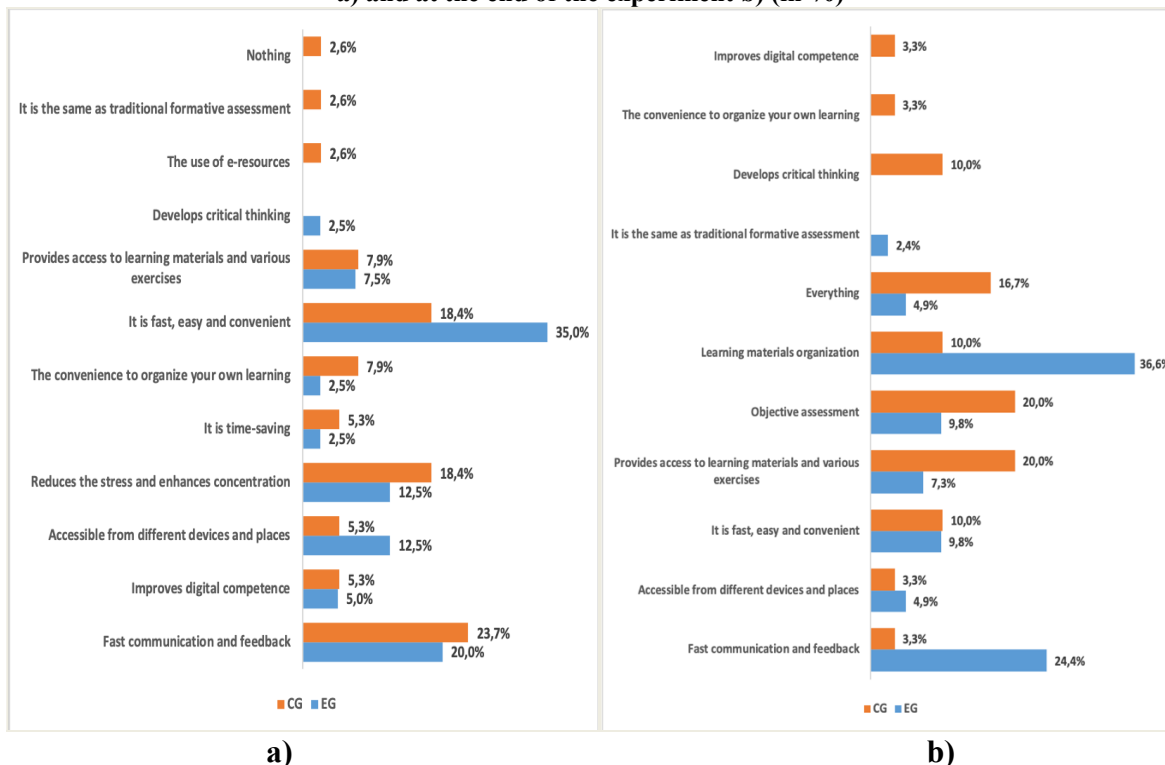
These findings fully confirm the results obtained from group K direct question.

Group M Questions (Open-ended Questions): Group M items include two open-ended questions in the pre- and post-experiment surveys for both groups and aim to find out what aspects students liked or disliked in the formative assessment using two different approaches.

Student may indicate more than one aspect, but the questions are structured to add up to 100%. However, the percentages should not be compared with the idea of upgrading the responses in the post-experiment survey compared to the pre-experiment survey, but with the idea of whether there was a restructuring of the aspects that the students liked or disliked.

The aspects which appealed to students are structured and presented in Figure 5.

Figure 5: Aspects that the control and experimental group liked in the formative assessment at the beginning a) and at the end of the experiment b) (in %)



Before starting the experiment, students in the control group liked most the following aspects of electronic formative assessment: fast communication and feedback (23.7%), speed, ease and convenience (18.4%), and stress reduction (18.4%). Students in the experimental group liked the same aspects as the control group: speed, ease, and convenience (35.0%), fast communication and feedback (20.0%), stress reduction (12.5%), and easy access from anywhere and via any device (12.5%). Among the other responses given was the convenience of organizing their own learning, time-saving, developing technical skills, developing critical thinking, etc. One student in the control group responded that s/he did not like anything (2.6%) about electronic formative assessment.

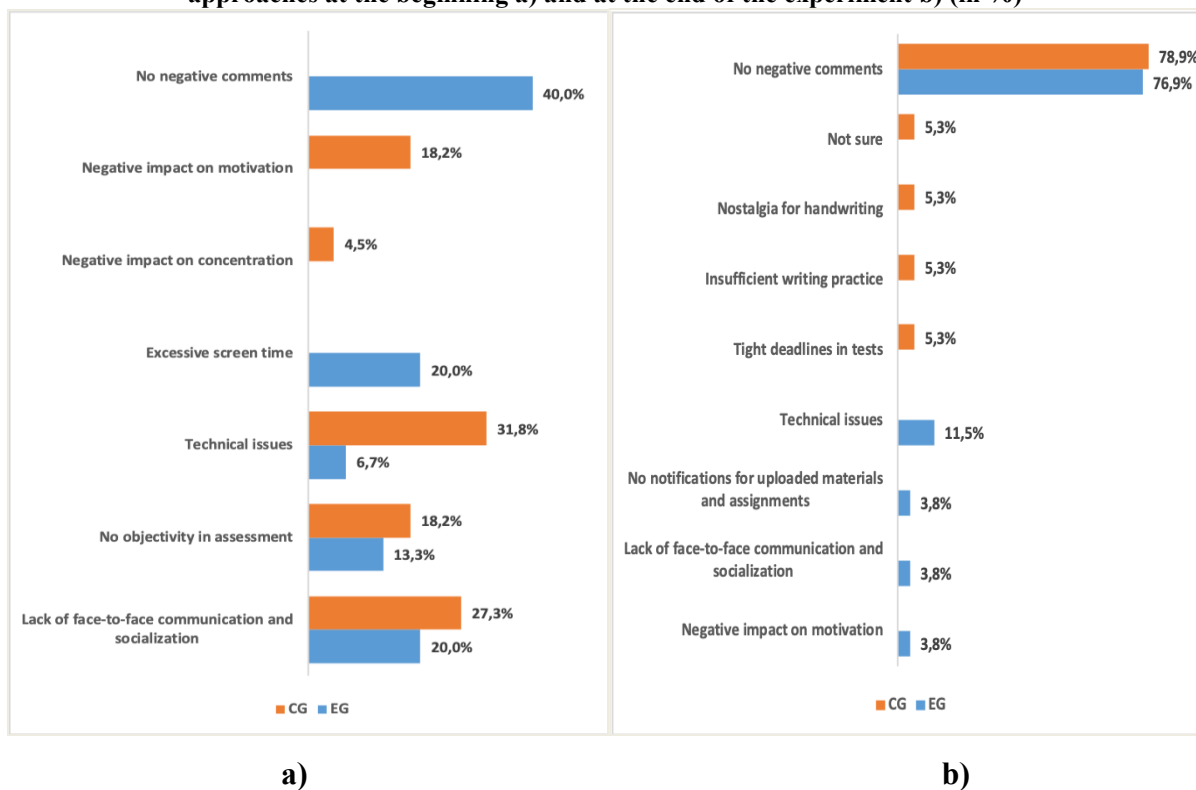
At the end of the experiment, students in the control group liked most the following aspects of traditional formative assessment: objective assessment (20.0%) and easy access to learning materials and a variety of

exercises (20.0%). The students in the experimental group liked most the following aspects of e-portfolio-based formative assessment: organization of learning materials (36.6%) and fast communication and feedback (24.4%). Among the other responses given were: speed, ease, convenience, easy access from anywhere, development of digital competence and critical thinking, etc. There was no longer a response from a student that they do not like anything. On the contrary, 16.7% of students in the control group and 4.9% of students in the experimental group responded that they liked everything.

The students' responses about aspects they disliked in formative assessment are structured and presented in Figure 6. Before starting the experiment, students from the control group indicated as aspects they disliked most: technical issues (31.8%) and lack of face-to-face communication and socialization (27.3%). The experimental group also pointed out the lack of face-to-face communication and socialization as the main disadvantage (20.0%), as well as excessive screen time (20.0%). Among the other responses given were: lack of objectivity in assessment, a negative impact on motivation and concentration. A fairly large percentage of students in the experimental group (40.0%) indicated that there was nothing in particular that they disliked.

At the end of the experiment, a significant percentage of students in the control and experimental groups had no negative comments on traditional formative assessment (78.9%) and e-portfolio-based formative assessment (76.9%), respectively.

Figure 6: Aspects which the control and experimental groups disliked about formative assessment using both approaches at the beginning a) and at the end of the experiment b) (in %)



Group N Questions (Evaluation of E-portfolio-based Formative Assessment): Group N questions are only found in the post-experiment survey and are only completed by the experimental group because they target e-portfolio-based formative assessment.

Table 8: Group N questions

N	KT	ET
N1	-	To what extent did the e-portfolio support your learning during the ESP course?
N1.1		It provided a storage space for my assignments and course materials, as an archive for myself
N1.2		It gave the tutor access to my work and completed assignments for formative assessment and contributed to more objective assessment
N1.3		It enabled me to self-assess my performance during the course
N1.4		It gave me the opportunity to self-assess my strengths and weaknesses and plan for improvement
N1.5		The individual feedback given by the tutor in the e-portfolio was beneficial to my progress
N1.6		The e-portfolio helped me to be better organized in my preparation
N1.7		It had a positive impact on my motivation
N1.8		It encouraged me to be more engaged and autonomous in my learning
N1.9		It boosted my confidence in ESP competence
N1.10		I used the additional materials in the e-portfolio to improve my skills
N2	-	To what extent do you agree with the following statements about the role of the e-portfolio in formative assessment?
N2.1		The e-portfolio has a positive role in formative assessment, making it more objective and holistic
N2.2		I faced technical issues while using the e-portfolio
N2.3		The e-portfolio has had a positive impact on my technical / computer skills
N2.4		I didn't feel comfortable while self-assessing
N2.5		I didn't feel comfortable assessing my peers
N2.6		I was not always open about self-assessment, peer assessment and communication with the teacher because I knew that content was part of formative assessment
N2.7		The e-portfolio takes more time compared to other ways of submitting completed assignments

After calculating the mean of students' agreement to the given question, it was transformed into a percentage. The results are presented in Figure 7 and Figure 8.

The students' agreement exceeded 90% in eight of the ten statements about the extent to which the e-portfolio supported learning during the ESP course. To the greatest extent, according to the students, this was done through the following aspects: N1.2 (It gave the tutor access to my work and completed assignments for formative assessment and contributed to more objective assessment: 98.7%) and N1.5 (The individual feedback given by the tutor in the e-portfolio was beneficial to my progress: 98.0%). The average degree to which the e-portfolio supported student learning was 91.9%.

Figure 7: Extent to which the e-portfolio supported learning during the ESP course

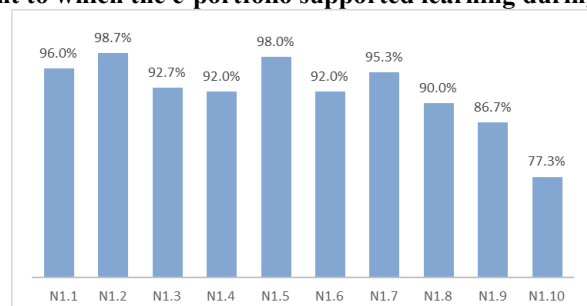
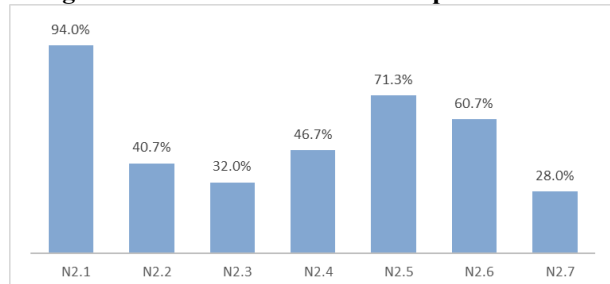


Figure 8: Degree of agreement about the role of the e-portfolio in formative assessment



Regarding the second group of questions, the students agreed to the greatest extent with statement N2.1 (The e-portfolio has a positive role in formative assessment, making it more objective and holistic: 94.%). To the least degree, the students agreed with statements N2.7 (The e-portfolio takes more time compared to other ways of submitting completed assignments: 28.0%) and N2.3 (The e-portfolio has had a positive impact on my technical/computer skills: 32%). The latter is not surprising, since about $\frac{3}{4}$ of the respondents were found to have very good digital competence as stated in the pre-experiment survey, and for them the e-portfolio had nothing to upgrade in their technical skills. There is no point in calculating the mean of student agreement to all statements about the role of the e-portfolio in formative assessment, as some of the items are in inverse relationship and the obtained evaluation will be shifted.

4. Discussion

This study set out to examine student perceptions of e-portfolio-based formative assessment in ESP context, in comparison with perceptions of students taught using the traditional approach, aiming to find out whether the alternative approach produced a more positive attitude to learning and assessment practices.

Based on the results of the data analysis in this paper, it appears that the experimental group evaluated the e-portfolio assessment tool as highly effective, showing statistically significant improvement in their post-experiment overall evaluation of the alternative approach, compared to the control group's overall evaluation of the traditional formative assessment. Furthermore, the findings revealed the aspects related to the contribution of the e-portfolio to formative assessment, which the students in the experimental group considered as beneficial to their learning. In line with previous studies (Prihandoko et. al., 2020: 8295, Mircheva, 2022: 337, Wijayani & Weny, 2017: 51, Pop, 2013: 337), learners pointed out that the e-portfolio enhanced the objectivity of formative assessment. Another aspect emphasized in prior research (Abrami & Barrett, 2005: 2, Kuh et al., 2018: 9, Goldsmith, 2007, Reese & Levy, 2009) and appreciated by students participating in the experiment was the contribution of the individual feedback given by the tutor in the e-portfolio to their progress. Moreover, the data analysis revealed that the e-portfolio provided students with an efficient learning environment which helps to develop their communication competence and skills for the 21st century, which also echoes the findings of previous studies (Brazdeikis & Valineviciene, 2015: 5, Kuh et al., 2018: 18). Similar to prior research (El-Senousy, 2020: 49, Ministry of Education, New Zealand, 2011: 4), the students pointed out that the e-portfolio provides access to learning resources "anytime-anyplace".

Despite the students' highly positive evaluation, respondents also reported a number of challenges hindering the e-portfolio successful integration, which should be addressed to make the use of e-portfolios more satisfying in the future. Difficulties reported by these respondents included technical issues and lack of notifications for uploaded materials and assignments.

Regarding the time-consuming nature of the e-portfolio which is often depicted in previous studies (Shulman, 1998: 35, Drury, 2006: 4, Harmer, 2015: 411, Poole et al., 2018: 7), students in the

experimental group expressed a low degree of agreement that it takes considerably more time compared to other ways of submitting assignments. Also, prior research claims that learners acquire technical skills while constructing their e-portfolios (Kuh et al., 2018: 16, Drury, 2006: 2). However, the data analysis in this paper showed that only one third of the respondents agreed that the e-portfolio had a positive impact on their technical/computer skills.

5. Conclusion

The findings presented in this paper are part of a project seeking to investigate not only student perceptions of e-portfolio-based formative assessment but also to gauge the e-portfolio impact on students' ESP communicative competence in their academic and professional area by collecting data from pre- and post-tests, as well as its effect on student confidence by administering and analyzing self-assessment of students' ESP communicative competence using descriptors (can-do statements).

This study sheds light on various aspects of the e-portfolio integration in English language teaching and gives food for thought on tailoring the digital tool to learners' needs and interests.

6. References

- Abrami, P., Barrett, H. (2005). Directions for Research and Development on Electronic Portfolios. Canadian Journal of Learning and Technology, 31(3). Available at: <https://www.cjlt.ca/index.php/cjlt/article/view/26487/19669>
- Bailey, K. & Curtis, A. (2015). Learning about Language Assessment: Dilemmas, Decisions, and Directions. National Geographic Learning and Heinle.
- Barrett, H. & Wilkerson, J. (2004). Conflicting Paradigms in Electronic Portfolio Approaches. Available at: <http://electronicportfolios.org/systems/paradigms.html#model>
- Belgrad, S. (2013). Portfolios and E-Portfolios: Student Reflection, Self-Assessment, and Goal Setting in the Learning Process. In: McMillan, J. (ed.), SAGE Handbook of Research on Classroom Assessment. California: SAGE Publications, 331–346.
- Brazdeikis, V. & Valineviciene, G. (2015). Review of Existing ePortfolio Policies and Practices. Available at: http://eufolio.eu/wp/wp-content/uploads/2018/08/eportfolio-implementation-guide_bg.pdf
- Brown, H. & Abeywickrama, P. (2018). Language Assessment: Principles and Classroom Practices. 3rd ed. Pearson Education ESL.
- Butler, P. (2006). A review of the literature on portfolios and electronic portfolios. Massey University College of Education. Digital Portfolios Guidelines for beginners. Ministry of Education, Wellington, New Zealand, 2011: 4.
- Drury, M. (2006). E-Portfolios - An Effective Tool? UNiVersitas: Journal of Research, Scholarship, and Creative Activity: Vol. 2 : Iss. 2 , Article 3.
- Dudeney G. & Hockly, N. (2008). How to Teach English with Technology. Harlow: Pearson Education Limited.
- El-Senousy, Hala. (2020). E-Portfolio to Assess the 21st Century Skills of Students in Smart E-Learning Environment. International Journal for Quality Assurance, Vol. 3, 49-56.
- Gibson, D. & Barrett, H. (2003). Directions in electronic portfolio development. Contemporary Issues in Technology and Teacher Education, [Online serial], 2(4).
- Goldsmith, D. (2007). Enhancing learning and assessment through e-portfolios: A collaborative effort in Connecticut. New Directions for Student Services, 119, 31-42.
- Gray, L. (2008). Effective Practice with e-Portfolios: Supporting 21st century learning. JISC. Available at: <https://repository.jisc.ac.uk/5997/1/effectivepracticeeportfolios.pdf>
- Hamp-Lyons, L. & Condon, W. (2000). Assessing the portfolio: Principles for practice, theory, and research. Cresskill, NJ: Hampton Press.
- Hartnell-Young, E., Harrison, C., Crook, C., Joyes, G., Davies, L. & Fisher, T. (2007). The Impact of e-portfolios on Learning. Coventry, UK: British Educational Communications and Technology Agency (Becta).
- Jones, J. (1994). Portfolio Assessment as a Strategy for Self-Direction in Learning. New Directions for Adult and Continuing Education, (64), 23-29.
- Kahn, S. (2019). Transforming assessment, assessing transformation: eportfolio assessment trends. In: Trends in Assessment: Ideas, Opportunities and Issues for Higher Education, Stephen P. Hundley (editor), Susan Kahn (editor) Stylus Publishing.

- Kimball, M. (2005). Database e-portfolio systems: A critical appraisal. *Computers and Composition*, 22, 434-458.
- Kuh, G. D., Gambino, L. M., Bresciani Ludvik, M., & O'Donnell, K. (2018, February). Using ePortfolio to document and deepen the impact of HIPs on learning dispositions. (Occasional Paper No. 32). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA). Available at: <https://learningoutcomesassessment.org/documents/Occ%20paper%2032Final.pdf>
- Lafi, T. (2019). Alternatives in Assessment. Available at: https://www.academia.edu/25264065/ALTERNATIVES_IN_ASSESSMENT
- Lorenzo, G., Ittelson, J. (2005). An Overview of E-Portfolios. Educause review. Available at: https://ctl.tedu.edu.tr/sites/default/files/content_files/eportfolio-educausedocument.pdf
- Mircheva, V. (2022: 337). Evaluation of School-Age Students Through a Portfolio. In Angeloska Galevska, N., Tomevska-Ilievska, E., Janevska, M., Bugariska, B. (eds.). *Educational Challenges and Future Prospects: Conference Proceedings. International Scientific Conference "75th Anniversary of the Institute of Pedagogy – Educational Challenges and Future Prospects"*, Ohrid, 16-18 May 2022. Skopje: Institute of Pedagogy / Faculty of Philosophy, Ss. Cyril and Methodius University in Skopje, pp. 332-338.
- Paulson, F. L., Paulson, P. R., & Meyer, C. A. (1991). What makes a portfolio a portfolio? *Educational Leadership*, 48(5), 60–63.
- Poole, P., Brown, M., McNamara, G., O'Hara, J., O'Brien, S. & Burns, D. (2018). Challenges and supports towards the integration of ePortfolios in education. Lessons to be learned from Ireland. *Heliyon* 4.
- Pop, A. (2013: 337). Edmodo E-portfolios in EFL – A Case Study. Proceeding from The 8th International Conference on Virtual Learning. Rumania: University of Bucharest.
- Prihandoko, Y., Wahab, R., Wilujeng, I., Kartowagiran, B. (2020). How Is the Perception of Teachers in Indonesia about Portfolio Assessment for Elementary School? *Universal Journal of Educational Research*, 8(12B), 8294-8303.
- Reese, M. & Levy, R. (2009). Assessing the Future: E-Portfolio Trends, Uses, and Options in Higher Education. *ECAR Research Bulletin*.
- Shulman, L. (1998). Teacher Portfolios: A Theoretical Activity. Cn N. Lyons (ed.) *With Portfolio in Hand*. (pp. 23-37) New York: Teachers College Press.
- Wijayani, P. W., & Wen, E. Y. (2017: 51). EDMODO: EXTENDING ENGLISH LEARNING BEYOND THE CLASSROOM. *LUNAR: Journal of Language and Art*, 1(1).
- Yang, N. (2003). Integrating portfolios into learning strategy-based instruction for EFL college students. *Iral-international Review of Applied Linguistics in Language Teaching*, 41, 293-317.
- Zubizarreta, J. (2008). The Learning Portfolio for Improvement and Assessment of Significant Student Learning. In: Clark, L. & Zubizarreta, J. (Eds.), *Inspiring Exemplary Teaching and Learning: Perspectives on Teaching Academically Talented College Students*. Lincoln, NE: National Collegiate Honors Council, 121–136.

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