Research in English Language Pedagogy (2025) 13(3): 130302

 DOI: 10.71673/relp.2025.1204674

Original Research

Attitude and Perception of EFL Learners toward Speaking E-portfolio

Narges Chaharmahali[1*], *Enayat A. Shabani*[2]
[1]Department of English Language, Khatam University
[2]Department of Foreign Languages, Tehran University of Medical Sciences, Tehran, Iran

Submission date: 22-04-2025 Acceptance date: 25-07-2025

Abstract

E-portfolios are considered bridges to demonstrate students' efforts, learning process, and self-observation. The present study attempted to work with ISE (Individual speaking e-portfolio) and GSE (Group speaking e-portfolio). Generally, the study aimed to explore students' attitudes and perceptions towards speaking e-portfolios, as well as to compare the attitudes and perceptions of these two groups. This is a mixed-methods study with two qualitative questions. The students were divided into three main classes: a GSE group, an ISE group, and a control group. Eighty-four intermediate EFL learners (43 male and 41 female) were selected to participate in the study using a test of general English language proficiency. Six groups of students (two groups of males and females out of each main class) with about 15 participants were supposed to record their voices according to the weekly schedule. While two groups (15 male, 14 female) were immediately recorded during the discussions, the other two groups (14 male, 14 female) were individually recorded. All the groups received peer feedback each session. The students were 16 to 17 years of age. Data analysis was run to compare attitudes and perceptions. In addition, thematic representatives supported the results as well. Generally, both groups agreed on the benefits of the e-portfolio; however, the ISE group showed a more positive attitude. Besides, both groups had positive perceptions, while the GSE group had more positive perceptions toward keeping the e-portfolio. It can be concluded that e-portfolios can be considered a technical aid in L2 learning.

Keywords: Cooperative learning,ELF learners' attitude, E-portfolio, Online language learning

[*] Corresponding Author's E-mail: en_shabani@yahoo.com

1. Introduction

In the realm of teaching English as a foreign language (TEFL), speaking is widely regarded as a challenging skill. Unlike other language skills, speaking requires instant processing, real-world context practice, fluency, and confidence, which are inaccessible in conventional classrooms. In addition, it should be blended with interaction, feedback, and the courage to make mistakes. Technology, as an assistant, can help bridge such a challenging gap.

With the recent challenges of the twenty-first century, there is a need to use educational technology in language classrooms. Digital tools like e-portfolios can provide authentic, true-to-life settings for online learning by allowing students to create speaking artifacts, such as movie portions and recordings. Besides, cooperative learning can help this situation by allowing students to share their feedback notes. Then, the combination of a promising digital platform and the feedback exchange can enhance foreign/ second language speaking ability.

In this study, the researcher attempted to scrutinize the attitudes and perceptions of Iranian high-school students toward keeping e-portfolios to document, alongside the feedback processing done simultaneously. Students can track their progress, share it with others, and reflect on their experiences, which are known benefits of such a technology. While overall performance and writing skill have been traced by some researchers, speaking, particularly from the perspectives of students, remains unexplored. Investigating students' attitudes and perceptions is essential, since it directly influences their success or failure in using this technological tool.

According to Eagly and Chaiken (1993), attitude refers to a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor. In the context of language learning, it represents learners' positive or negative feelings towards specific aspects of the learning process Eagly and Chaiken. Additionally, it indicates (Brown, 2000; Gardner, 1985) learners' evaluative stances towards language learning methods, tools, or environments, such as speaking e-portfolios.

Perception refers to the process by which individuals organize and interpret their sensory impressions to give meaning to the environment (Robbins et al., 2013). In the educational context, Robbins et al. refer to how learners view and understand specific instructional tools or processes, such as speaking e-portfolios. Learners' perceptions are

formed by prior experiences, expectations, and the perceived benefit or utility of the tool in supporting their language development (Oxford & Burry-Stock, 1995; Robbins et al., 2013)

A speaking e-portfolio is a digital collection of learners' spoken language samples that are recorded, stored, and assessed gradually. It is often used to track language development, provide feedback, and encourage reflection. In addition to increasing learner autonomy and self-assessment, speaking e-portfolios can serve as dynamic evidence of oral proficiency growth and communicative competence. (Abrami & Barrett, 2005; Barrett, 2007; Yastibas & Yastibas, 2015)

Among the reported studies, authors usually apply questionnaires to discover attitudes, views, perceptions, etc.; only quantitative data are available (Assaggaf & Bamahra, 2016), while the present study covers both qualitative and quantitative data. The researcher also examines whether ideas differ in the form of the speaking e-portfolios. The study explores the differences in attitudes between EFL students who used the ISE (Individual speaking e-portfolio) and those who used the GSE (Group speaking e-portfolio). Indirectly, this issue shows whether students prefer cooperative learning to individual learning.

This study is part of broader experimental research, which aims to explore Iranian high-school students' attitudes and perceptions toward using speaking e-portfolios as a new learning strategy. By focusing on the students' voices, this research hopes to provide valuable insights for teachers, instructors, policymakers, and program designers. Such an application of e-portfolios is both learner-centered and technology-integrated, providing more speaking practice.

2. Literature Review

Speaking e-portfolios can be implemented either individually or collaboratively. In individual speaking e-portfolios, learners record and submit their oral tasks independently, often receiving personalized feedback and engaging in self-reflection. In contrast, group speaking e-portfolios involve collaborative speaking tasks where learners work in pairs or small groups to prepare and record oral performances, which promotes peer interaction and responsibility. While perception refers to learners' awareness and interpretation of the e-portfolio process, attitude encompasses their emotional evaluation, including whether they

feel positively or negatively about participating in such tasks. In this sense, perception is more cognitive, whereas attitude includes an affective dimension. (Ajzen, 1991; Barrett, 2007; Eagly & Chaiken, 1993; Yastibas & Yastibas, 2015)

Studies such as Apple and Shimo (2004), Wong (2006), Chang and Tseng (2011), Lam (2013), and Ghoorchaei and Tavakoli (2020) proved students' positive perceptions toward portfolios. Kwak and Yin (2018), Aghazadeh and Soleimani (2020), Muin et al. (2021), and Duong and Nguyen (2022) demonstrated EFL learners' positive perceptions toward e-portfolios. Likewise, Aghazadeh and Soleimani (2020) revealed that teachers and students showed positive perceptions toward using e-portfolios. Aghazadeh and Soleimani concluded that the e-portfolio affected students' education, attainments, and careers. In addition, Muin et al. proved that an e-portfolio developed learners' competence in English.

Demirel and Duman (2015) investigated the effect of a portfolio on achievement. They scrutinized the four skills and students' attitudes. The researchers tried to determine if a portfolio affects learning outcomes. They observed that the portfolio affected reading, writing, and listening skills, though not speaking. The results showed that the learners liked using the portfolio. They had a positive attitude toward it. Besides, Kusuma et al. (2021) and Wu (2023) investigated how an e-portfolio affected learners' attitudes. Their study illustrated the learners' positive attitudes toward learning English after using the e-portfolio, which enhances learners' performance (Kara, 2009; Kwak & Yin, 2018) and engagement (Kusuma et al., 2021; Wu, 2023). As a result, positive attitudes toward learning are a characteristic of outstanding students, and this helps them learn more progressively (Pan et al. 2010).

Kwak and Yin (2018), Farahian and Avarzamani (2018), Namaziandost et al. (2020), and Wu demonstrated students' positive attitudes toward e-portfolios in their respective studies. A large number of investigations about e-portfolios have explored positive perceptions of students; at the same time, they introduce e-portfolios as interchangeable skill development tools for developing reflective, critical considerations, autonomous learning, proficiency, and organized self-directed learning (Aghazadeh & Soleimani, 2020; Cambridge, 2010; Contreras-Higuera, Lopez-Fernandez & Rodriguez-Illera, 2009; Martínez-Olmo et al., 2016; Zubizarreta, 2009). Sidharta (2020) scrutinized students' perceptions of the COVID-19 pandemic. In the study, Sidharta discovered students' positive perceptions toward a speaking e-portfolio.

Winberg and Pallitt (2016)examined e-portfolios in vocational higher education, finding that maintaining an e-portfolio increased tensions in the context. This finding contrasts with Kwak and Yin (2018) and Sidharta (2020), who reported decreased tensions associated with e-portfolio use. Sidharta considered this decrease in anxiety as an opportunity to have unlimited chances and few interlocutors to run a speaking test. Sidharta stated that the anxiety-free setting of the speaking e-portfolio made students' assessments more reliable and consistent.

Further, Sidharta (2020) concluded that the two-sided (pass or fail) process of traditional speaking exams can be replaced with speaking e-portfolios as a segment of learning. In line with Muin et al. (2021), Sidharta added that this intrinsic process of learning motivated the students to speak English. In particular, speaking e-portfolios helped the students have a better perspective on speaking English, which results in more confidence and stimulation to talk (Cabrera-Solano, 2020; Kwak & Yin, 2018; Sidharta, 2020).

Cabrera-Solano (2020) scrutinized the effectiveness of an e-portfolio to improve speaking skills. Cabrera-Solano proved that the e-portfolio affected students' pronunciation and fluency. Also, he showed an increase in students' motivation to speak more fluently in the target language by using the e-portfolio. Cabrera-Solano revealed that the e-portfolio developed grammatical and lexical knowledge, as well as improved fluency and pronunciation. He concluded that practice makes perfect! Therefore, by using the speaking e-portfolio, learners can enhance their speaking skills since this systematic rerecording process gives them more confidence to talk.

San Jose (2017) tested two e-portfolio systems. San Jose found out students' attitudes toward e-portfolios. He noticed slight differences between the two systems. The students reported many difficulties encountered while using the systems, which belonged to the systems, not to the use of the two e-portfolios. Then, San Jose supported Shrof et al.'s (2014) suggestion that students ought to utilize e-portfolios for "authentic learning, personal growth, and leverage their educational experience for enhanced career prospects" (San Jose 2017, p. 494). Gugino (2018) describes a shift from a traditional teacher showcase to a virtual artifact such as Google Docs. Gugino explained that this could be a practice for the teachers to work on reflection and evaluation as well. In addition, Namaziandost et al. (2020) investigated students' attitudes toward an e-portfolio in an EFL

setting. They found out the students' positive attitudes toward the e-portfolio. The participants liked the e-portfolio and the progressive, adjustable surroundings.

Gao, Samuel, and Asmawi (2016) scrutinized an e-portfolio for business English writing and peer feedback. Gao et al. in this study revealed the strengths and weaknesses of the e-portfolio, the students' positive perceptions toward it, and its peer feedback. Wang and Jeffrey (2017) suggested an e-portfolio as a complementary assessment tool in the Chinese exam-based traditional educational system. As a result, students showed a greater inclination towards using e-portfolios. Sidharta (2020) showed that in comparing traditional speaking exams with speaking e-portfolios, students preferred the latter since they did not have to remember long scripts; instead, the e-portfolio assessments were more similar to ordinary class activities.

Contreras-Higuera et al. (2016) scrutinized students' perceptions toward an e-portfolio and rubrics. In general, students had positive perceptions of keeping the e-portfolio and rubrics simultaneously. However, the findings revealed that, despite utilizing the e-portfolio and rubrics for the students, each was considered self-reliant. Furthermore, the students believed the e-portfolio had a minimal impact on their willingness to learn, retain it, or enhance their transferable skills. Generally, the students considered rubrics more beneficial.

Abbaszad Tehrani (2010)reported that students have positive attitudes and perceptions toward writing e-portfolios. Therefore, students could be measured and taught by keeping a speaking e-portfolio. Yastibas and Cepik (2015) confirmed that students' attitudes toward keeping an e-portfolio in oral classes are positive. Moreover, Ngo and Luu (2023) investigated English-speaking e-portfolio assessment. Ngo and Luu revealed students' positive attitudes and perceptions toward the e-portfolio. On the other hand, Alawdat (2013) demonstrated questionable attitudes towards the use of e-portfolios. Consequently, Alawdat suggested larger groups and settings with different raters to find a solution.

Yastibas and Cepik (2015) examined teachers' attitudes and perceptions regarding using an e-portfolio. Through semi-structured teacher interviews, this qualitative study revealed that teachers as well as students had positive attitudes and perceptions toward the e-portfolio in EFL speaking classes. However, they faced some challenges likewise. Khodashenas and Rakhshi (2017) discovered that an e-portfolio can motivate assessment

strategies. Likewise, in her study, Esmaeilee (2024) investigated teachers' attitudes toward an e-portfolio in EFL oral classes with the same instrument. The findings showed teachers' positive attitudes. In addition, Gök et al. (2024) proved that teachers' technological skills and confidence affect their attitudes toward an e-portfolio.

The research by Yang, Tai, and Lim (2016) investigated students' perceptions of keeping an e-portfolio as a tool for productive learning. In their qualitative study, Yan et al. researched productive learning by e-portfolios. The findings showed there were some requirements essential in the e-portfolio, which were absent as reinforced formative function of the e-portfolio to assess consistently, students' inspiration for genuine performances to heighten students' curiosity, students' involvement in learning reflection as vital learning progress, a constructive-feedback requirement to assist students persistently, and ultimately, autonomous learning advocacy through cooperative information sharing mediation.

The present study tried to answer the following questions:

1. How are the attitudes of the EFL learners who keep the individual-speaking e-portfolio different from the attitudes of the EFL learners who keep the group-speaking e-portfolio?
2. How are the perceptions of the EFL learners who keep the individual-speaking e-portfolio different from the perceptions of the EFL learners who keep the group-speaking e-portfolio?

3. Methodology

This study has considered several interrelated theoretical perspectives that explain how learners' attitudes and perceptions are changed by technological learning tools such as e-portfolios. The central theoretical framework lies in Ajzen's (1991) Theory of Planned Behavior (TPB), which shows that individuals' attitudes toward a specific behavior influence their intention to engage in that behavior. In the context of language learning, learners' positive or negative attitudes toward tools such as speaking e-portfolios are likely to impact their willingness to participate, engage, and benefit from the process. Moreover, the study is informed by constructivist learning theory, which emphasizes the active role of the learners in constructing their knowledge through experience and reflection. E-portfolios, especially in speaking skills, provide learners with opportunities to monitor

their progress, reflect on their speaking performances, and develop their speaking competence. This reflective aspect also aligns with Schön's (1983) Reflective Practice theory, which highlights the importance of self-evaluation in the learning process.

Additionally, this study draws on Vygotsky's sociocultural theory (Vygotsky & Cole, 1978), particularly in analyzing the group speaking e-portfolio. From this perspective, social interaction is a critical component of learning. Learners in group e-portfolio settings engage in negotiation of meaning, peer feedback, and collaborative speaking tasks, all of which are hypothesized to influence their attitudes and perceptions in distinct ways compared to those who work individually. Therefore, by integrating these theoretical perspectives, the study seeks to explore how different modes of speaking e-portfolios implementation (individual versus group) affect EFL learners' attitudes and perceptions, providing insights into both cognitive and social dimensions of language learning.

3.1. Design and Context of the Study

This study was a sequential explanatory mixed-methods research within a descriptive framework. In fact, it employed a sequential explanatory mixed-methods design, where quantitative data were first collected by a questionnaire, which was followed by qualitative data gathered through semi-structured interviews to explain the findings further. Although the original study was experimental in nature, the current article focuses on examining learners' attitudes and perceptions, adopting a descriptive approach. Following the intervention, this paper studies students' attitudes and perceptions toward the speaking e-portfolios. The experiment of the original study went through a 9-session course, with short weekly discussions (TEFL_setting) in two high schools in Tehran, which is not the aim of this study. The participants were male and female students aged 16-17. Their English proficiency level was elementary as determined by the Oxford Placement Test (OPT).

3.2. Participants

The participants consisted of Iranian EFL high-school students. The target population included male and female students studying in two public high schools in Tehran. Eighty-four (43 male and 41 female) students volunteered to participate through opportunity

sampling. To investigate the effects of different speaking e-portfolio formats, they were divided into six groups: two control groups, two ISE groups, and two GSE groups. Each experimental situation was applied in both schools to check gender balance and generalizability.

The rationale behind this kind of group division was to compare learners' attitudes and perceptions across different implementation modes. Having both ISE and GSE conditions allowed the researcher to examine whether the mode of collaboration influences learners' responses to the use of e-portfolios in speaking tasks. Two groups were assigned to each condition (boys and girls separately) to balance gender distribution and increase internal validity.

Logistical accessibility, students' availability, and students' willingness led the research to this sampling approach. All participants were at the same English proficiency level, as determined by the OPT. Almost all the students achieved the Elementary level, ensuring group comparability.

3.3. Instruments

3.3.1. Questionnaires

A combined attitude and perception questionnaire (Appendix A) was developed by adapting items from two attitude questionnaires and one perception questionnaire. Items 1–39 and 46–47 represented the attitude component, while items 40–45 measured perception. This arrangement aimed to minimize response bias between sections and ensure more authentic data. The attitude items were adapted from Aydin's (2014) F-portfolio Attitude Scale – originally based on the Computer Attitude Scale by Papanastasiou and Angeli (2008) and from Özdemir-Cağday's (2012) 40-item questionnaire (36 Likert-scale and four open-ended items). The perception section was based on Aydin's (2010) 26-item scale.

The final instrument consisted of 47 Likert-scale items (1 = strongly disagree to 5 = strongly agree) and an initial demographic form. Reported Cronbach's alpha values confirmed reliability: 0.83 for the attitude scale and 0.89 for the perception scale. Construct validity of the perception scale was examined using principal component analysis (PCA), and item-total correlations supported internal consistency.

3.3.2. Interviews

Interviews were conducted (Appendix B) to discover students' attitudes toward keeping the speaking e-portfolio. Semi-structured interviews with 12 open-ended questions. This interview type was applied to qualify the data and facilitate a more straightforward conclusion. The questions were translated into Persian, just like the questionnaires. An EFL expert and a Persian literature expert reviewed and modified the translated questions. Finally, the researcher recorded the students using an Android audio recorder application.

Each interview lasted approximately fifteen to twenty minutes. Fourteen students voluntarily participated in the interviews. Eight students were from the GSE (the Group speaking e-portfolio) group, and six were from the ISE (the Individual speaking e-portfolio) group. Interview questions, adapted from Özdemir-Cağday (2012), enabled the researcher to gather more reliable data through a combination of qualitative and quantitative analyses.

3.3.3. Website

To collect the data for the speaking e-portfolio, a WordPress Website was designed with the required add-ons as the main platform for submission. Students were asked to record and upload their voices to their accounts through the website, which they could only access using their usernames and passwords. In addition, another recording was randomly assigned to each student for peer feedback, so they received feedback on their submissions each session.

3.4. Data Collection Procedure

The data collection process involved both qualitative and quantitative instruments. Two questionnaires (Appendix A) were applied to assess the attitudes and perceptions of EFL learners toward the speaking e-portfolios. The participants were 84 students (43 male and 41 female) from two high schools in Tehran, divided into six groups: two control groups, two ISE groups, and two GSE groups. The questionnaires were administered after the implementation of the experiment (the speaking e-portfolio activities).

Each questionnaire consisted of multiple Likert-scale items. The students answered the questionnaires in a classroom setting, under the supervision of the researcher. Additionally, semi-structured interviews (Appendix B) containing twelve open-ended

questions were conducted with fourteen volunteer students to validate the quantitative analysis of the study. The students used the e-portfolios in each session and provided peer feedback in the group GSE and individual peer feedback (ISE); each had to review the GSEs and the ISEs, respectively, for the next session.

The students had a group discussion each session at school, where they recorded their audio responses based on the topic they discussed in class. The voice recording feature on the e-portfolio website was utilized to share the samples. They logged into their accounts individually, regardless of whether they were in the ISE group or the GSE group.

3.5. Data Analysis Procedure

To answer the first research question, descriptive statistics were used to calculate the mean score of each questionnaire item regarding learners' attitudes. The normality of the data was examined using skewness and kurtosis values. Since the total attitude scores were normally distributed (ratios within ±1.96), a one-sample t-test was employed to compare them against the theoretical mean. However, due to the ordinal nature of Likert-scale items, a Wilcoxon signed-rank test was also performed. To examine differences between groups, each item was treated as a dependent variable and analyzed using multivariate analysis of variance (MANOVA), supported by Levene's test to confirm the homogeneity of variances. A semi-structured interview with 14 participants was also analyzed qualitatively to triangulate and support the findings of the attitude questionnaire.

For the second research question, the same procedures were applied to assess students' perceptions of the speaking e-portfolio. The theoretical mean of the total perception scale (78) and individual items (3) were compared with participants' responses using one-sample t-tests or Wilcoxon signed-rank tests, based on the normality of each item. MANOVA was used again to examine group differences, with Levene's test confirming variance homogeneity.

Item total correlations were calculated for both questionnaires to determine item discrimination. Principal Component Analysis (PCA) with varimax rotation was employed to evaluate the construct validity of the perception questionnaire, using the full sample data for factor analysis.

4. Results

In examining the preliminaries for the suitability of data for factor analysis, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .716, considered acceptable based on Field (2024), with values below .50 indicating insufficient sampling. Additionally, Bartlett's test of sphericity was significant [$\chi^2(325) = 734.12$, $p < .001$], confirming that the correlations among items were sufficient for running PCA. An examination of the scree plot (Figure 1) revealed an inflection point at the second factor, indicating a sharp change in slope. Despite the extraction of two factors, the analysis suggests a predominant first factor, explaining 32.37% of the total variance. Varimax rotation showed that the majority of items loaded strongly on the first factor, suggesting that the scale is predominantly unidimensional and reflects a single underlying construct. A larger sample would likely reinforce this one-dimensionality.

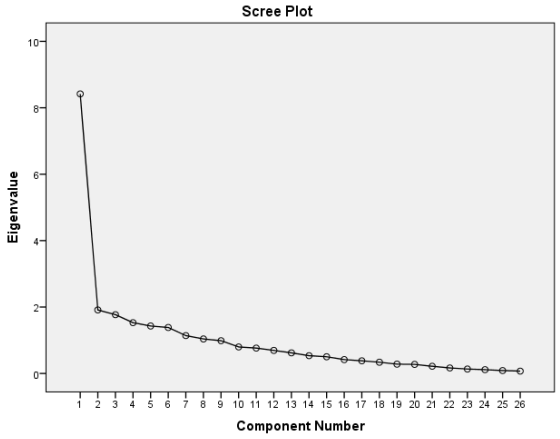

Figure 1.
Screen Plot

To address the first research question, mean scores were calculated for each item by group. Most items in both groups received scores above the midpoint, indicating generally positive attitudes toward the speaking e-portfolio. To determine whether these means significantly differed from the theoretical population mean/median, appropriate inferential tests were used: either one-sample *t*-tests or Wilcoxon signed-rank tests, depending on the normality of item-level data. Skewness and kurtosis values from Table 1 indicated that the total attitude score was normally distributed (values within ±1.96). As shown in Table 2, both groups demonstrated significantly higher total attitude scores than the theoretical mean ($p < .05$), indicating a favorable perception of e-portfolios. However, when comparing total scores between the two groups, the ISE group (individual speaking e-

portfolio) showed a significantly more positive attitude than the GSE group (group speaking e-portfolio), as reflected in Tables 2 to 3.

Table 1
Descriptive Statistics (total questionnaire)

		N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
Group		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Individual	Attitude.Total	28	162.00	227.00	189.18	17.34	.46	.44	-.49	.86
	Valid N (listwise)	28								
Group	Attitude.Total	29	141.00	209.00	179.93	17.21	-.92	.43	.70	.84
	Valid N (listwise)	29								

Table 2
One-Sample Test

		Test Value = 156					
						95% Confidence Interval of the Difference	
Group		t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Individual	Attitude.Total	10.124	27	.000	33.17857	26.4540	39.9031
Group	Attitude.Total	7.490	28	.000	23.93103	17.3860	30.4761

Table 3
Multivariant Test

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.969	114.937[b]	12.000	44.000	.000	.969
	Wilks' Lambda	.031	114.937[b]	12.000	44.000	.000	.969
	Hotelling's Trace	31.346	114.937[b]	12.000	44.000	.000	.969
	Roy's Largest Root	31.346	114.937[b]	12.000	44.000	.000	.969
Groupp	Pillai's Trace	.392	2.361[b]	12.000	44.000	.019	.392
	Wilks' Lambda	.608	2.361[b]	12.000	44.000	.019	.392
	Hotelling's Trace	.644	2.361[b]	12.000	44.000	.019	.392
	Roy's Largest Root	.644	2.361[b]	12.000	44.000	.019	.392

a. Design: Intercept + Groupp
b. Exact statistic

A detailed comparison of attitude patterns is presented in Tables 4 to 8 (Appendix C), which categorize items based on whether participants expressed positive, neutral, or negative attitudes, helping to illustrate both shared and differing viewpoints between the groups.

Finally, to identify where the greatest differences between the groups existed, each questionnaire item was treated as a dependent variable and analyzed using MANOVA. The overall multivariate test showed no significant group differences when all items were considered simultaneously ($p > .05$). However, between-subjects effects revealed that the two groups differed significantly on specific individual items ($p < .05$), as reported in Table 9 (Appendix D) Levene's test confirmed homogeneity of variances across all items ($p > .05$), validating the assumptions for the subsequent analyses.

Specifically, according to Tables 9 and 10 (Appendix D), the individual-group students have a significantly more positive attitude towards all the items in Table 10. The group-portfolio group students have a significantly more positive attitude towards items 35 and 39 in Table 10.

Thematic analysis of the interviews revealed that the ISE group held significantly more positive attitudes toward most items (Table 10), while the GSE group showed higher positivity for items 35 and 39. Both groups identified five common benefits of speaking e-portfolios: learning and contextualizing new words and phrases, discussing various ideas, and improving speaking skills. Unique to the GSE group were enhanced fluency, cultural awareness, listening skills, error detection, and improved grammar. In the GSE group, 58% noted speaking and error identification improvement; 43% emphasized vocabulary and grammatical gains; 29% cited better listening and speaking; and 14% reported enhanced fluency, cultural knowledge, and contextual vocabulary use. In the ISE group, 50% highlighted vocabulary learning, 43% reported speaking progress and reduced anxiety, 29% noted increased confidence, fluency, and writing development, and 14% mentioned better contextual word use, idea expression, and classroom engagement.

Regarding challenges, 71% of both groups reported no significant issues. GSE concerns included time limits, inactive group members, and vocabulary recall. ISE challenges included stress, difficulty with sentence formation, a lack of integrated skill focus, and having weaker partners. As shown in Tables 11 and 12, most interviewees in both groups reported no difficulty with voice recording; 70% of GSE and 42% of ISE

found it easy, while only 14% of GSE rated it as moderately difficult. Regarding benefits, 57% of GSE students used recordings to identify mistakes, while 43% of ISE students highlighted gains in vocabulary, fluency, and error recognition. Additionally, 29% of ISE students noted increased confidence and speaking development.

Both groups believed teachers could assist in error detection (43% of GSE, 57% of ISE), especially due to their grammatical knowledge (29% GSE, 57% ISE) and by offering checklists (43% both groups). Specifically, 57% of GSE students valued teachers' help in learning tenses and reinforcing grammatical rules. While 57% in both groups reported no issue evaluating their own recordings, 29% of GSE students admitted struggling to form correct sentences due to focus on accuracy, and 14% cited lexical and grammatical weaknesses. Stress was a key issue for 43% of ISE students, who feared peer judgment and often rerecorded for perfection. Slips of the tongue hindered 29% of them; nevertheless, 57% in both groups believed e-portfolios enhanced their speaking skills over time.

Peer feedback was limited: 57% of GSE students felt unable to help peers due to a lack of confidence in error detection. Conversely, 43% found peer evaluation useful for improving their own performance and boosting confidence. Standard speaking exams were deemed more stressful than e-portfolio tasks by 57% of both groups. Still, 43% of ISE students found recording e-portfolios easier, allowing them to better showcase their abilities, despite initial anxiety. Lastly, 43% of GSE and 57% of ISE students stated they were unable to speak comfortably in class.

Most participants from both groups reported a shift in perception after using the speaking e-portfolio, realizing that speaking English was more accessible than they had assumed. One GSE participant noted no change, as she already enjoyed speaking English. In the ISE group, 43% reported increased motivation, and 14% mentioned reduced fear, greater self-awareness, and encouragement to speak.

All GSE and most ISE participants (71% fully, 29% partially) observed improvement in their speaking skills. All interviewees in both groups confirmed enhanced fluency through the e-portfolio experience. Despite the initial effort required—reported by 43% of GSE and 71% of ISE participants—all agreed that the process was worthwhile and preferable to traditional exams. Some (43% GSE, 29% ISE) criticized conventional exams for focusing only on writing, while e-portfolios supported multi-dimensional language use.

Additional comments highlighted that e-portfolios helped in mastering speaking, revealed student realities, and were described as lasting, engaging, and low-fatigue. One interviewee suggested combining e-portfolios with traditional exams for a more holistic approach. Regarding specific gains, 57% of GSE and 29% of ISE interviewees reported learning new words, phrases, and sentence structures. Prior to e-portfolio use, 43% of GSE students could not speak on most topics, and 29% struggled to express ideas, but this improved significantly with e-portfolio practice. In the ISE group, 29% saw improvements in pronunciation, and another 29% overcame initial speaking difficulties through regular use of the tool.

First, the mean score answer for each item (i.e., perceptions of speaking e-portfolio process) was counted for each group separately. Evidently, all of the items in both groups have mean answers above the midpoint answer, showing some positive perception. To ensure that the mean answer to the total perceptions questionnaire and each item is significantly above or below the mean answer, depending on the normality of the data for each item, one sample t-test or one sample Wilcoxon signed ranks test were run to compare the mean answer to total questionnaire and each item with their relevant theoretical mean/median of the population representing the average response.

To check the normality of the data, skewness and kurtosis ratios for the total perceptions scale were computed from the information in Table 11 . Within ±1.96 attitude scores, normally distributed, one one-sample t-test was applied for theoretical mean comparison. According to Table 12 , which presents the one-sample t-test results, both groups exhibit significantly higher total perception means than the population or the theoretical mean ($p < .05$). Generally, both groups share a positive perception of the speaking e-portfolios.

Table 11

Descriptive Statistics (total questionnaire)

		N	Mean	Std. Deviation	Skewness		Kurtosis	
Group		Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Individual	Total.Perception	28	96.6429	12.91630	-.204	.441	-.500	.858
	Valid N (listwise)	28						
Group	Total.Perception	29	104.4138	14.55658	.185	.434	-1.174	.845
	Valid N (listwise)	29						

Table 12
One-Sample Test

		Test Value = 78					
						95% Confidence Interval of the Difference	
Group		t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Individual	Total.Perception	7.638	27	.000	18.64286	13.6344	23.6513
Group	Total.Perception	9.772	28	.000	26.41379	20.8768	31.9508

Table 13 also shows the t-test results comparing the total perception scores of both groups. As shown, the difference is significant ($p < .05$). According to Table 11, the GSE group has a significantly more positive perception of the e-portfolios than the ISE group. In addition, both the ISE and the GSE groups agree with the positive perception of the e-portfolios; the individual e-portfolio group had a significantly more positive perception of the e-portfolios.

Table 13
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Total. Perception	Equal variances assumed	1.153	.288	-2.129	55	.038	-7.77094	3.64985
	Equal variances not assumed			-2.134	54.619	.037	-7.77094	3.64211

After comparing the total perception scores, the comparison of the students' average responses to each item between the two groups became evident. The items marked as above average are those with which the students agreed, indicating a positive perception, and the items marked as below average are those with which the students disagreed, indicating a negative perception. In sum, the two groups differ in terms of items 42b, 42c, 43b, and 43c, of which the ISE group has an average perception, while the GSE group has an above-average perception.

Comparing the item means between the two groups separately served to check if the most significant differences exist between the two groups in terms of their perception regarding the use of speaking e-portfolios with feedback. Each item was considered a

dependent variable, and then, a multivariate analysis of variance (MANOVA) compared the two groups. The initial MANOVA output (Table 14) presents the multivariate test results, indicating that when all items are considered together, there are no significant differences among them ($p < .05$).

Considering each dependent variable separately between the groups resulted in the investigation of the items that had specifically different mean answers (test of between-subjects effect), as shown in Table 14. One of the assumptions of this part of the analysis was homogeneity of variances, showing that for all the items, it is homogeneous ($p > .05$), except a few items; thus, the significance threshold was adjusted to a stricter value ($\alpha = 0.025$) for these items to compensate for Type 1 error (esp. Item 45).

Table 14
Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.993	164.111[b]	26.000	29.000	.000	.993
	Wilks' Lambda	.007	164.111[b]	26.000	29.000	.000	.993
	Hotelling's Trace	147.134	164.111[b]	26.000	29.000	.000	.993
	Roy's Largest Root	147.134	164.111[b]	26.000	29.000	.000	.993
Group	Pillai's Trace	.473	1.001[b]	26.000	29.000	.496	.473
	Wilks' Lambda	.527	1.001[b]	26.000	29.000	.496	.473
	Hotelling's Trace	.897	1.001[b]	26.000	29.000	.496	.473
	Roy's Largest Root	.897	1.001[b]	26.000	29.000	.496	.473

a. Design: Intercept + Group
b. Exact statistic

5. Discussion

According to the thematic representations of the interviews and the statistical investigations of the questionnaire, most of the items in both groups had mean answers above the midpoint answer, demonstrating positive attitudes. In addition, interviews revealed the positive aspects of the speaking e-portfolio, including learning new words and their usage, applying words in appropriate contexts, acquiring new phrases, discussing various ideas, and enhancing English speaking skills.

However, most interviewees concurred that they did not consider any opposing sides to the speaking e-portfolios, except for limited time, stress, and a one-dimensional approach. These could stem from a lack of technological knowledge about e-portfolios (Gök et al., 2024), similarly to teachers, although the interviewees reported their stress decreased later as they became familiar with the process. Their stress while using the e-

portfolios was in line with Winberg and Pallitt (2016), and in contrast with Kwak and Yin (2018) and Sidharta (2020), whose studies showed students had less stress in test taking and English speaking while using the e-portfolios.

The findings align with Sidharta (2020), as the interview results showed more opportunities to rerecord students' performances, and less audience (i.e., ISE group) provided the students with a more relaxed, anxiety-free environment than the traditional exams. Consistent with Muin et al. (2021), the results revealed that the e-portfolio helped the students learn English better. Consequently, following Cabrera-Solano's (2020) and Sidharta's (2020) study, the present research demonstrated the confidence and English-speaking skills development of the students. During interviews, all participants mentioned they encountered no difficulty with audio-recordings. Moreover, they considered error recognition, speaking more fluently, and confidence development as positive sides of audio recordings.

In addition, most students in both groups concurred that the instructor could provide help in error and mistake discovery, grammatical structure recognition, and feedback checklist provision. Most interviewees confirmed that they had no difficulty when they listened to their audio-recorded performance and assessed it. However, some students mentioned correct sentence recognition, weakness in grammatical knowledge, tension-provision, and tongue-slips as challenges when evaluating and listening to their audio-recorded performance.

Furthermore, interviewees answered how they felt about their peers' performances in this online learning environment. Most interviewees in both the Individual-Speaking E-portfolio and Group-Speaking E-portfolio groups affirmed that they felt gradual development in their speaking. Moreover, more than half of the interviewees stated that traditional exams are more stressful due to their scoring-based evaluation method. Then, the interviewees mainly noted that the speaking e-portfolio as an evaluation method altered their views about speaking English, and they felt more comfortable when speaking in English with others. However, speaking English proved more straightforward than they had assumed after they used the e-portfolio. Besides, they all agreed that they gained better fluency in English with the help of the speaking e-portfolio.

Interviewees from both groups confirmed that the audio-recording activities required more effort initially. Interviewees declared that it was worth continuing to speak

about e-portfolios. Remarkably, all interviewees in both groups agreed that speaking e-portfolios were more effective than traditional examinations. Almost all the interviewees from both groups stated that by using the speaking e-portfolios, their speaking skills improved. According to the interviewees' statements, they could reach better grammatical knowledge after they utilized the speaking e-portfolio.

The interview results indicated that all the participants from both groups noticed improvements in their speaking performance after using the speaking e-portfolio through cooperative learning. However, they reported several challenges in using the speaking e-portfolio, including delays in feedback, time deficiency, difficulties with word and sentence structure, and incorrect comprehension. Subsequently, the interviewees advocated for implementing similar programs across other grades and subjects. As a result of all interview outcomes, interviewees had a positive attitude toward keeping the speaking e-portfolio.

Concerning the students' positive attitudes toward keeping the speaking e-portfolio, descriptive statistics also revealed that the students had positive perceptions toward keeping the speaking e-portfolio. Compared to the Individual-speaking E-portfolio group, the Group-Speaking E-portfolio group had more positive perceptions toward keeping the speaking e-portfolio. While both groups reported positive perceptions toward keeping the speaking e-portfolio, the Individual-Speaking E-portfolio group showed more positive perceptions and favorable views.

The study findings align with Aydin (2010), who found that students have positive perceptions and attitudes toward keeping portfolios. In addition, other studies like Caner (2010), Assaggaf and Bamahra (2016), and Ghoorchaei and Tavakoli (2020) showed the same conclusion about students' positive attitudes toward portfolios. Additionally, this study revealed language learners' positive perceptions toward keeping an e-portfolio, somewhat aligning with findings of Apple and Shimo (2004), Wong (2006), Chang and Tseng (2011), Lam (2013), and (Kara, 2009; Kwak & Yin, 2018) who had the same results for keeping portfolios; in other studies, Gao et al. (2016), Kwak and Yin (2018), Aghazadeh and Soleimani (2020), Sidharta (2020), Muin et al. (2021), Duong and Nguyen (2022), and Ngo and Luu (2023) showed positive perceptions toward e-portfolios.

Consistent with Yastibas and Cepik (2015), Kwak and Yin (2018), Farahian and Avarzamani (2018), and Wu (2023), the results of this study showed students' positive

attitudes toward keeping a speaking e-portfolio. Also, Abbaszad Tehrani (2010), Wang and Jeffrey (2017), Aghazadeh and Soleimani (2020), Namaziandost et al. (2020), and Muin et al. (2021) demonstrated the positive attitudes of the students toward e-portfolios. In addition, the findings of the present study follow Al-Hidabi et al.'s (2019) study, in which they concluded that the learners' attitudes toward learning English were altered positively by using e-portfolios. This results in high performance (Kara, 2009; Kwak & Yin, 2018), engagement (Kusuma et al., 2021; Wu, 2023), and success (Pan et al.,2010) of the students, which some of the interviewees in the present study confirmed. However, Wu (2023) reported that some students showed negative attitudes toward e-portfolio, which were due to the workload and technical issues.

Furthermore, in the present study, in line with Yastibas & Cepik (2015) and Sidharta (2020), students' perceptions towards keeping speaking e-portfolios were investigated, which supported students' positive perceptions. The findings about the students' positive perceptions toward keeping the speaking e-portfolio were also in line with Yang et al. (2016). Also, in line with another study by Huang and Hung (2010), the present study showed that students had lexical improvements.

However, the study results contrast with a study by Contreras-Higuera et al. (2016), in which students had positive perceptions towards both e-portfolios and rubrics; they considered rubrics more valuable and reported that e-portfolios impacted their motivation and language proficiency.

6. Conclusions

Generally, both groups confirmed the merits of speaking in an e-portfolio. In particular, the ISE group demonstrated significantly more positive attitudes toward keeping the speaking e-portfolio. In addition, the results showed that when all the items were taken together, there were no significant differences among the items. Finally, the two groups have significantly different response patterns regarding some items. Remarkably, the ISE group showed significantly more positive attitudes toward the following:

- the speaking e-portfolio contributed to their speaking skills in planning their talk, their stress, intonation, and vocabulary;
- e-portfolio assisted them with reflecting on coping and having an outlet for feelings;

- initially skeptical about using e-portfolios for speaking, the use of e-portfolios for speaking English helped them understand concepts more effectively;
- Finally, using the e-portfolio for speaking helped them speak English, since it allowed them to express their thoughts in better and different ways.

Moreover, the GSE group showed significantly more positive attitudes toward the following:

- the e-portfolio did not initially seem conducive to English-speaking users, because it was not easy to use;
- Using an e-portfolio for speaking in English was not effective due to technical issues.

Interviewees' positive attitudes toward keeping the speaking e-portfolio and peer feedback revealed the following positive sides of the speaking e-portfolio in both groups:

- learning new words and their use
- using words in their correct contexts
- learning new phrases
- being able to talk about different ideas
- and improving speaking ability

Most interviewees in both groups agreed that there were no negative views of the speaking e-portfolios. In addition, to some extent, both groups reported minimal difficulties with voice recordings, describing the process as straightforward. The interviewees shared different views about the positive sides of voice recordings. These views for the GSE group included identifying their mistakes and weak points, developing grammatical knowledge, and developing listening and speaking skills. The ISE group emphasized several key aspects of voice recordings, including learning new words, speaking more fluently, recognizing mistakes and errors, building confidence, and improving speaking skills.

Interviewees from both groups emphasized that the instructor can help identify mistakes and errors, clarify grammatical points, and provide a checklist for feedback processing. More than half of the interviewees in both groups reported that they faced no problem and no difficulty listening to and evaluating their performance in the audio recording in the e-portfolio. Besides, more than half of these interviewees added that their speaking skills developed gradually by keeping the speaking e-portfolios.

In another comparison, interviewees from both groups (nearly half of them) agreed that speaking exams were more anxiety-inducing since there was scoring and no error identification, features that were presented differently in the e-portfolios. Almost all the interviewees reported that their perspectives had changed through using speaking e-portfolios, and they were subsequently more motivated to speak publicly. Further, they added that they had not spoken English in class before, while by keeping the speaking e-portfolios, speaking English proved more manageable than they thought.

Interviewees assessed whether their speaking skills and fluency had improved through the speaking e-portfolio. Nearly all of them in both groups confirmed that their speaking skills improved. Moreover, interviewees answered the question about the difficulty of the e-portfolio steps. Almost half of the GSE and more than half of the ISE group interviewees stated that the activities preceding the use of the e-portfolio required more energy, as preparation was prioritized, necessitating accurate grammar in e-portfolio submissions. Interviewees were also asked if it was worth keeping the speaking e-portfolio, to which all the interviewees from both groups concurred.

Based on the interview results, all the interviewees in both groups confirmed that the speaking e-portfolios were better than traditional exams. In addition, nearly all the interviewees from both groups declared that their speaking skills improved through speaking e-portfolio use. Almost all the interviewees in both groups agreed that the speaking e-portfolio and peer feedback enhanced their grammatical knowledge.

Accordingly, all the interviewees in both groups insisted that they had felt some modifications in their speaking accuracy after keeping speaking e-portfolios and cooperative learning using peer feedback. Finally, the interviewees were asked if they had any suggestions for maintaining the speaking e-portfolios. The interviewees in both groups requested more time to keep the e-portfolios. A student from the GSE group requested more straightforward topics than those covered in their textbooks after interviewing students from the ISE group. In contrast, the other student from the ISE group demanded more complicated ideas than the topics provided in their textbooks.

Concerning how the perceptions of the EFL learners who keep the ISE are different from the perceptions of the EFL learners who keep the GSE, the students answered a questionnaire. Mean scores were calculated for each item of this questionnaire (i.e., perceptions of the speaking e-portfolio process). All the items in both groups had the mean

answers above the midpoint answer, demonstrating some positive perception. Afterward, based on one sample t-test result, both groups generally concur with a positive perception of speaking e-portfolios.

In addition, by comparing the total perception scores of both groups, the differences were significant. Moreover, the GSE group had a significantly more positive perception of keeping the e-portfolios. After the comparison, comparing the students' average responses to each item resulted in the two groups differences in the items: learning to find the main ideas in the speech, learning to see the details in speech, learning to classify the mistakes in speech, and learning to use a checklist when examining speech, of which the ISE had an average perception, but the GSE group has an above average perception.

Despite the obtained analysis concerning the items in the two groups, the item means were compared between the groups. These comparisons resulted in the most significant differences between the two groups' perceptions. The MANOVA revealed that when the items were combined, there were no significant differences between them. Thus, the two groups had significantly different response patterns for some items. The GSE group students had a significantly more positive perception of these items: using grammatical subjects in various contexts; paying attention to others' speech details; and reflecting on their ideas, feelings, and thoughts.

Teacher educators and supervisors should assist instructors in establishing a connection between theoretical knowledge from teacher training courses and practical classroom activities. Instructors should also understand how to develop students' speaking ability, oral accuracy, and communication skills. For instance, using electronic devices such as e-portfolios suited for cell phones, websites, or any other applications could be beneficial.

Besides, educational administrators play a crucial role in guiding instructors to employ effective alternative assessment tools, such as speaking e-portfolios, which are highly beneficial in pedagogy. They can emphasize the importance of student engagement and their ability to communicate and talk accurately for EFL instructors, and provide feedback on practical implementations.

Making e-portfolios an obligatory tool in their school schedule would also motivate students to take it more seriously and find it more advantageous than they previously thought. Further research can investigate teachers' observations, attitudes, or perceptions.

Moreover, other studies can use questionnaires other than the questionnaires used in this study.

Acknowledgements

The authors highly appreciate the assistance of Dr. Masoomeh Estaji for her valuable contributions to this study. The authors also gratefully acknowledge support administrators and staff at Nourolhoda and Narjes High Schools for facilitating this research.

Authors' Contribution

Dr. Enayat A. Shabani: Conceptualization, Methodology, Formal Analysis, Writing-reviewing and editing, Supervision.

Narges Chaharmahali: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing- original draft, Writing-reviewing and editing.

References

Abbaszad Tehrani, F. (2010). Using Netfolio to improve writing skills. *Unpublished PhD Thesis, Institute of Educational Sciences. Gazi University, Ankara-Turkey*.

Abrami, P., & Barrett, H. (2005). Directions for research and development on electronic portfolios. *Canadian Journal of Learning and Technology/La Revue Canadienne de l'apprentissage et de La Technologie*, *31*(3).

Aghazadeh, Z., & Soleimani, M. (2020). The effect of e-portfolio on EFL learners' writing accuracy, fluency, and complexity. *The Reading Matrix: An International Online Journal*, *20*(2), 182–199.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211.

Alawdat, M. (2013). Using e-portfolios and ESL learners. *Online Submission*, *3*(5), 339–351.

Al-Hidabi, D. A., Kabilan, M. K., & Shakfa, M. D. (2019). Using E-Portfolio to Enhance Student's Attitudes Towards Learning English at University College of Applied Sciences. *IOSR Journal of Research & Method in Education*, *9*(5), 1–9.

Apple, M., & Shimo, E. (2004). Learners to teacher: Portfolios, please! Perceptions of portfolio assessment in EFL classrooms. *Proceedings of JALT Pan-SIG Conference. Tokyo Keizai University*, 53–58.

Assaggaf, H. T., & Bamahra, Y. S. (2016). The effects of portfolio use in teaching report writing: EFL students' perspective. *International Journal of Applied Linguistics and English Literature*, *5*(3), 26–34.

Aydin, S. (2010). EFL writers' perceptions of portfolio keeping. *Assessing Writing*, *15*(3), 194–203.

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, *42*(5), 815–824.

Cabrera-Solano, P. (2020). The use of digital portfolios to enhance English as a foreign language speaking skills in higher education. *International Journal of Emerging Technologies in Learning (IJET)*, *15*(24), 159–175.

Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment*. John Wiley & Sons.

Caner, M. (2010). Students views on using portfolio assessment in efl writing courses. *Anadolu University Journal of Social Sciences/Anadolu Üniversitesi Sosyal Bilimler Dergisi*, *10*(1).

Chang, C.-C., & Tseng, K.-H. (2011). Using a web-based portfolio assessment system to elevate project-based learning performances. *Interactive Learning Environments*, *19*(3), 211–230.

Contreras-Higuera, W. E., Martínez-Olmo, F., José Rubio-Hurtado, M., & Vilà-Baños, R. (2016). University students' perceptions of e-portfolios and rubrics as combined assessment tools in education courses. *Journal of Educational Computing Research*, *54*(1), 85–107.

Demirel, M., & Duman, H. (2015). The use of portfolio in English language teaching and its effects on achievement and attitude. *Procedia-Social and Behavioral Sciences*, *191*, 2634–2640.

Duong, M. T., & Nguyen, L. T. (2022). An e-portfolio: A promising tool for promoting learners' autonomous learning competencies in an EFL speaking course. *VNU Journal of Foreign Studies*, *38*(6).

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* Harcourt brace Jovanovich college publishers.

Esmaeilee, S. (2024). English language teachers' attitudes toward using electronic portfolio on Iranian EFL learners' speaking: a grounded theory approach. *Language Testing in Asia*, *14*(1), 11.

Farahian, M., & Avarzamani, F. (2018). The impact of portfolio on EFL learners' metacognition and writing performance. *Cogent Education*, *5*(1), 1450918.

Field, A. (2024). *Discovering statistics using IBM SPSS statistics*. Sage Publications Limited.

Gao, X., Samuel, M., & Asmawi, A. (2016). Online features of the Qzone weblog for critical peer feedback to facilitate business english writing. *Journal of Educational Technology Systems*, *45*(2), 285–301.

Ghoorchaei, B., & Tavakoli, M. (2020). Students' perceptions about writing portfolios: A case of Iranian EFL students. *Research in English Language Pedagogy*, *8*(1), 21–42.

Gök, B., Ayaz, M., & Erdem, Y. (2024). Development of Electronic Portfolio Attitude Scale. *Journal of Computer and Education Research*, *12*(23), 31–56.

Gugino, J. (2018). Using Google Docs to enhance the teacher work sample: Building e-portfolios for learning and practice. *Journal of Special Education Technology*, *33*(1), 54–65.

Huang, H.-T. D., & Hung, S.-T. A. (2010). Effects of electronic portfolios on EFL oral performance. *Asian EFL Journal*, *12*(2), 192–212.

Kara, A. (2009). The effect of learning theories' unit on students' attitudes toward learning. *Australian Journal of Teacher Education (Online)*, *34*(3), 100–113.

Khodashenas, M. R., & Rakhshi, F. (2017). The effect of electronic portfolio assessment on the writing performance of Iranian EFL learners. *International Journal of Research in English Education*, *2*(3), 67–77.

Kusuma, I. P. I., Mahayanti, N. W. S., Gunawan, M. H., Rachman, D., & Pratiwi, N. P. A. (2021). How well do e-portfolios facilitate students' learning engagement in speaking courses during the COVID-19 pandemic? *Indonesian Journal of Applied Linguistics*, *11*(2), 351–363.

Kwak, Y., & Yin, J. (2018). Using Electronic Speaking Portfolios for Assessment in the EFL Classroom: Students' Perspectives. 영어학, *18*(4), 442–469.

Lam, R. (2013). Two portfolio systems: EFL students' perceptions of writing ability, text improvement, and feedback. *Assessing Writing*, *18*(2), 132–153.

Lopez-Fernandez, O., & Rodriguez-Illera, J. L. (2009). Investigating university students' adaptation to a digital learner course portfolio. *Computers & Education*, *52*(3), 608–616.

Muin, C., Hafidah, H., & Daraini, A. (2021). Students' Perceptions on the Use of E-Portfolio for Learning Assessment. *AL-ISHLAH: Jurnal Pendidikan*, *13*, 497–503. https://doi.org/10.35445/alishlah.v13i1.485

Namaziandost, E., Alekasir, S., Hassan Mohammed Sawalmeh, M., & Miftah, M. Z. (2020). Investigating the Iranian EFL learners' attitudes towards the implementation of e-portfolios in English learning and assessment. *Cogent Education*, *7*(1), 1856764.

Ngo, N. T. D., & Luu, T. M. V. (2023). Implementing E-portfolios in English Speaking Assessment: Vietnamese Students' Perspectives. *AsiaCALL Online Journal*, *14*(2), 98–117.

Oxford, R. L., & Burry-Stock, J. A. (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the Strategy Inventory for Language Learning (SILL). *System*, *23*(1), 1–23.

Pan, G., Zang, Y., & Wu, D. (2010a). A survey on English learning motivation of students in Qingdao Agricultural University. *Journal of Language Teaching and Research*, *1*(2), 151–156.

Pan, G., Zang, Y., & Wu, D. (2010b). A survey on English learning motivation of students in Qingdao Agricultural University. *Journal of Language Teaching and Research*, *1*(2), 151–156.

Robbins, S., Judge, T. A., Millett, B., & Boyle, M. (2013). *Organisational behaviour*. Pearson Higher Education AU.

San Jose, D. L. (2017). Evaluating, comparing, and best practices in electronic portfolio system use. *Journal of Educational Technology Systems*, *45*(4), 476–498.

Schön, J. (1983). *Petrophysik: Physikalische eigenschaften von gesteinen und mineralen*. Walter de Gruyter GmbH & Co KG.

Shroff, R., Deneen, C. C., & Lim, C. P. (2014). Student ownership of learning using an e-portfolio for career development. *Journal of Information Systems Technology & Planning*, *7*(18).

Sibel Özdemir-Cağday. (2012). *Speaking portfolios as an alternative way of assessment in an EFL context* [Thesis]. Bilkent University.

Sidharta, I. (2020). Learning Attitude: Student Perception on Pandemic Covid-19 in Bandung, Indonesia. *Jurnal Ekonomi, Bisnis & Entrepreneurship (e-Journal), 14*(2), 72–81.

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.

Wang, P., & Jeffrey, R. (2017). Listening to learners: An investigation into college students' attitudes towards the adoption of e-portfolios in English assessment and learning. *British Journal of Educational Technology*, *48*(6), 1451–1463.

Winberg, C., & Pallitt, N. (2016). "I am trying to practice good teaching": Reconceptualizing eportfolios for professional development in vocational higher education. *British Journal of Educational Technology*, *47*(3), 543–553.

Wong, A. T. Y. (2006). Writing portfolio and the teaching and learning of writing as a process: Opportunities and challenges. *Enhancing Effective English Language Assessment in Secondary Schools: Integrating Theory and Practice. Quality Educational Fund/Faculty of Education, the University of Hong Kong*.

Wu, C. (2023). EFL Students' Experiences and Attitudes toward Situated e-Portfolio English Writing. *Journal of English Teaching*, *9*(2), 225–238.

Yang, M., Tai, M., & Lim, C. P. (2016). The role of e-portfolios in supporting productive learning. *British Journal of Educational Technology*, *47*(6), 1276–1286.

Yastibas, A. E., & Cepik, S. (2015). Teachers' attitudes toward the use of e-portfolios in speaking classes in English language teaching and learning. *Procedia-Social and Behavioral Sciences, 176*, 514–525.

Yastibas, A. E., & Yastibas, G. C. (2015). The use of e-portfolio-based assessment to develop students' self-regulated learning in English language teaching. *Procedia-Social and Behavioral Sciences, 176*, 3–13.

Zubizarreta, J. (2009). *The learning portfolio: Reflective practice for improving student learning*. John Wiley & Sons.

Appendices

Appendix A

Attitude questionnaire and perception questionnaire:
Personal information: First name: …….
Last name: ……

- Gender: Male ( ) Female ( )
- Age: ……..Institute name: …….
- Level at English: ……
- How long have you been studying English? 1-4 ( ) 5-8 ( ) 9-12 ( ) +13 ( )
- How do you find your level of English? a. good ( ) b. Not so bad/good c. Bad
- Do you like learning English? Yes ( ) No ( )
- Do you like speaking English? Yes ( ) No ( )

Please check one box for each statement below to show how much you agree or disagree with it.
1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	1 Strongly disagree	2 disagree	3 neutral	4 agree	5 Strongly agree
1. In my previous education (before taking part in e-portfolio process), my speaking skill was not as well as it is now.	1	2	3	4	5
2. In my previous education, I did not know anything about the e-portfolios.	1	2	3	4	5
3. At the beginning of the term, I did not know anything about e-portfolios.	1	2	3	4	5
4. Before I came to this preparatory program, we used to give feedback to our peers' performances	1	2	3	4	5
5. Thanks to speaking e-portfolio, I can now follow my progress in speaking more easily.	1	2	3	4	5
6. It took me a lot of time to prepare the speaking e-portfolio.	1	2	3	4	5
7. Thanks to the speaking e-portfolio, I have become more motivated to learn English.	1	2	3	4	5
8. The speaking-portfolio enabled me to practice speaking on a regular basis.	1	2	3	4	5
9. Speaking e-portfolios are a good evaluation tool for speaking skills.	1	2	3	4	5
10. The speaking e-portfolio served to ease my fears related to speaking in English.	1	2	3	4	5
11. While listening to the audio-recordings, the corrections my classmates made helped me realize my mistakes.	1	2	3	4	5
12. Listening to the audio recordings later, for giving	1	2	3	4	5

feedback/rerecording it for the e-portfolio, helped me evaluate myself.					
13. As compared with the first days of using the speaking e-portfolio, now I feel more positive about it.	1	2	3	4	5
14. It was easy for me to complete the speaking e-portfolio.	1	2	3	4	5
15. The speaking e-portfolio contributed to my speaking skills in the following aspects:					
a. Planning my talk	1	2	3	4	5
b. Stress	1	2	3	4	5
c. Intonation	1	2	3	4	5
d. Vocabulary	1	2	3	4	5
e. Grammar	1	2	3	4	5
16. Speaking for the speaking e-portfolio in front of the audio recorder did not reflect the speaking experiences that I will have in real life.	1	2	3	4	5
17. I felt nervous and anxious during the speaking e-portfolio talks.	1	2	3	4	5
18. Listening to the speaking samples of my classmates helped me improve my speaking e-portfolio.	1	2	3	4	5
19. The speaking e-portfolio helped me reflect on my speaking performance.	1	2	3	4	5
20. I found it useful to listen to my classmates' speaking performance samples.	1	2	3	4	5
21. Thanks to the speaking e-portfolio, I have learned how to correct my speaking mistakes.	1	2	3	4	5
22. The positive sides of preparing a speaking e-portfolio are more than its negative sides.	1	2	3	4	5
23. During my speaking e-portfolio talks, I was afraid to make mistakes.	1	2	3	4	5
24. The speaking e-portfolio helped me see my strengths and weaknesses in speaking.	1	2	3	4	5
25. I found it difficult to give feedback to my classmates' performances.	1	2	3	4	5
26. E-portfolios help with….					
a. problem solving	1	2	3	4	5
b. communication	1	2	3	4	5
c. own learning and performance	1	2	3	4	5
d. decision making	1	2	3	4	5
e. using information technology	1	2	3	4	5
f. reflecting on coping	1	2	3	4	5
g. reflecting on ethical issues	1	2	3	4	5
h. having outlet for feelings	1	2	3	4	5
27. E-portfolios are useful for speaking development.	1	2	3	4	5
28. I feel comfortable with the idea of e-portfolio as an environment for speaking in English.	1	2	3	4	5

29. The use of e-portfolio for speaking in English stresses me out.	1	2	3	4	5
30. If something goes wrong when I study on e-portfolio, I will not know how to fix it.	1	2	3	4	5
31. The idea of using e-portfolio for speaking in English makes me skeptical.	1	2	3	4	5
32. E-portfolio is a valuable environment for speaking in English.	1	2	3	4	5
33. E-portfolio changes the way I speak in English.	1	2	3	4	5
34. I can speak equally as well in real situations as I speak in e-portfolio.	1	2	3	4	5
35. E-portfolio is not conducive to speaking in English because it is not easy to use.	1	2	3	4	5
36. The use of e-portfolio for speaking in English helps me understand concepts in more effective ways.	1	2	3	4	5
37. The use of e-portfolio for speaking helps me speak because it allows me to express my thinking in better and different ways.	1	2	3	4	5
38. The use of e-portfolio for speaking in English helps me learn in more effective ways.	1	2	3	4	5
39. The use of e-portfolio for speaking in English is not conducive to good speaking in English because it creates technical problems.	1	2	3	4	5
While using e-portfolio…..					
40. I improved my vocabulary knowledge	1	2	3	4	5
a. I learned new vocabulary.	1	2	3	4	5
b. I learned to use words in context	1	2	3	4	5
c. I used a variety of words.	1	2	3	4	5
41. I improved my grammar knowledge.	1	2	3	4	5
a. I learned to produce complex and compound sentences.	1	2	3	4	5
b. I learned to use signal words when I combine sentences.	1	2	3	4	5
c. I learned to speak more fluent sentences.	1	2	3	4	5
d. I learned to use grammatical subjects in context.	1	2	3	4	5
42. I improved my speaking skills	1	2	3	4	5
a. I gained information about the topics I spoke about.	1	2	3	4	5
b. I learned to find the main ideas in the speech.	1	2	3	4	5
c. I learned to see the details in speech.	1	2	3	4	5
43. I learned how to give feedback.	1	2	3	4	5
a. I learned how to find the mistakes in speech.	1	2	3	4	5
b. I learned to classify the mistakes in speech.	1	2	3	4	5
c. I learned to use a checklist when I examine speech.	1	2	3	4	5
44. Peer feedback helped me:					

a. To notice and correct my mistakes	1	2	3	4	5
b. To revise my speech	1	2	3	4	5
45. I acquired information about speaking development methods and techniques	1	2	3	4	5
a. I learned the characteristics of speaking.	1	2	3	4	5
b. I learned how to produce coherent speech.	1	2	3	4	5
c. I learned how to produce original speech.	1	2	3	4	5
d. I began to speak creatively.	1	2	3	4	5
e. I began to speak in English without translating from Persian	1	2	3	4	5
f. I learned to reflect my ideas, feelings and thoughts.	1	2	3	4	5
46. E-portfolio changed the way I speak in English.	1	2	3	4	5
47. The use of e-portfolio for speaking in English helped me learn in more effective ways.	1	2	3	4	5

Appendix B

Students' Interview Questions

1. In your opinion, what are the positive sides of the speaking e-portfolio? What are the things that have helped you? What benefits have you observed in keeping speaking e-portfolio?
2. What are the negative sides, disadvantages of it? What did not you like? Have you had any difficulty in it? (If yes, what?)
3. A. Did you have any difficulty in recording your voice to put into your speaking e-portfolio? Or was it quite easy for you? B. If you have experienced any positive side of recording, what is that benefit? C. your instructor helped you to record your voice, do you think it would be better if you had recorded it on your own? Do you think that it would be much easier?
4. Let's focus on the statement "I need the instructor's guidance in deciding what to focus on when giving feedback in the speaking performance." In your opinion, what kind of guidance should your instructor provide you with?
5. Did you have any difficulty in listening to and evaluating your performance on the audio-recordings in your e-portfolio?
6. How did you feel listening to your peers' performance and assessing it? Have you ever noticed something by listening to and evaluating them? Can you say an example?
7. In which of the following situations do you feel more anxious? During a speaking exam or during the e-portfolio audio-recording? In your opinion what might be the reason for it?
8. Did your opinion, feeling, and perspective toward speaking change after using e-portfolio? (For example, would you like to speak more in the classes?)
9. Do you think that your speaking skill has changed because of the speaking portfolio? For example, do you speak more fluently than you did in the past or vice versa? Or, is it the same?
10. Before, during, or after the performance for speaking e-portfolio, which stage needs more effort? Do you think it is worth keeping speaking e-portfolio?
11. Do you think that traditional exams are better than speaking e-portfolios?(e.g. all the exams at school and your institute are considered as traditional exams)
12. Did you feel any improvement in your speaking during the e-portfolio process? (If yes, make some examples)

Appendix C

Table 4

Results of Wilcoxon Signed Ranks (GSE)

Hypothesis Test Summary

	Null Hypothesis	Sig.	Decision
1	The median of q1 equals 3.00.	.010	Reject the null hypothesis.
2	The median of q2 equals 3.00.	.001	Reject the null hypothesis.
3	The median of q3 equals 3.00.	.004	Reject the null hypothesis.
4	The median of q4 equals 3.00.	.079	Retain the null hypothesis.
5	The median of q5 equals 3.00.	.029	Reject the null hypothesis.
6	The median of q6 equals 3.00.	.885	Retain the null hypothesis.
7	The median of q7 equals 3.00.	.012	Reject the null hypothesis.
8	The median of q8 equals 3.00.	.665	Retain the null hypothesis.
9	The median of q9 equals 3.00.	.000	Reject the null hypothesis.
10	The median of q10 equals 3.00.	.003	Reject the null hypothesis.
11	The median of q11 equals 3.00.	.013	Reject the null hypothesis.
12	The median of q12 equals 3.00.	.004	Reject the null hypothesis.
13	The median of q13 equals 3.00.	.000	Reject the null hypothesis.
14	The median of q14 equals 3.00.	.570	Retain the null hypothesis.
15	The median of q15.1 equals 3.00.	.026	Reject the null hypothesis.
16	The median of q15.2 equals 3.00.	.071	Retain the null hypothesis.
17	The median of q15.3 equals 3.00.	.451	Retain the null hypothesis.
18	The median of q15.4 equals 3.00.	.000	Reject the null hypothesis.
19	The median of q15.5 equals 3.00.	.000	Reject the null hypothesis.
20	The median of q16 equals 3.00.	1.000	Retain the null hypothesis.
21	The median of q17 equals 3.00.	.624	Retain the null hypothesis.
22	The median of q18 equals 3.00.	.000	Reject the null hypothesis.
23	The median of q19 equals 3.00.	.000	Reject the null hypothesis.
24	The median of q20 equals 3.00.	.000	Reject the null hypothesis.
25	The median of q21 equals 3.00.	.000	Reject the null hypothesis.
26	The median of q22 equals 3.00.	.003	Reject the null hypothesis.
27	The median of q23 equals 3.00.	.893	Retain the null hypothesis.
28	The median of q24 equals 3.00.	.000	Reject the null hypothesis.
29	The median of q25 equals 3.00.	.015	Reject the null hypothesis.
30	The median of q26.1 equals 3.00.	.452	Retain the null hypothesis.
31	The median of q26.2 equals 3.00.	.003	Reject the null hypothesis.
32	The median of q26.3 equals 3.00.	.010	Reject the null hypothesis.
33	The median of q26.4 equals 3.00.	.059	Retain the null hypothesis.
34	The median of q26.5 equals 3.00.	.005	Reject the null hypothesis.
35	The median of q26.6 equals 3.00.	.299	Retain the null hypothesis.
36	The median of q26.7 equals 3.00.	.314	Retain the null hypothesis.
37	The median of q26.8 equals 3.00.	.094	Retain the null hypothesis.
38	The median of q27 equals 3.00.	.000	Reject the null hypothesis.
39	The median of q28 equals 3.00.	.000	Reject the null hypothesis.
40	The median of q29 equals 3.00.	.128	Retain the null hypothesis.
41	The median of q30 equals 3.00.	.070	Retain the null hypothesis.
42	The median of q31 equals 3.00.	.548	Retain the null hypothesis.
43	The median of q32 equals 3.00.	.000	Reject the null hypothesis.
44	The median of q33 equals 3.00.	.001	Reject the null hypothesis.
45	The median of q34 equals 3.00.	.024	Reject the null hypothesis.
46	The median of q35 equals 3.00.	.001	Reject the null hypothesis.
47	The median of q36 equals 3.00.	.006	Reject the null hypothesis.

48	The median of q37 equals 3.00.	.007	Reject the null hypothesis.
49	The median of q38 equals 3.00.	.000	Reject the null hypothesis.
50	The median of q39 equals 3.00.	.029	Reject the null hypothesis.
51	The median of q40 equals 3.00.	.007	Reject the null hypothesis.
52	The median of q41 equals 3.00.	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 5

Results of Wilcoxon Signed Ranks (ISE)

Hypothesis Test Summary

	Null Hypothesis	Sig.	Decision
1	The median of q1 equals 3.00.	.011	Reject the null hypothesis.
2	The median of q2 equals 3.00.	.003	Reject the null hypothesis.
3	The median of q3 equals 3.00.	.020	Reject the null hypothesis.
4	The median of q4 equals 3.00.	.686	Retain the null hypothesis.
5	The median of q5 equals 3.00.	.000	Reject the null hypothesis.
6	The median of q6 equals 3.00.	.005	Reject the null hypothesis.
7	The median of q7 equals 3.00.	.001	Reject the null hypothesis.
8	The median of q8 equals 3.00.	.011	Reject the null hypothesis.
9	The median of q9 equals 3.00.	.000	Reject the null hypothesis.
10	The median of q10 equals 3.00.	.003	Reject the null hypothesis.
11	The median of q11 equals 3.00.	.001	Reject the null hypothesis.
12	The median of q12 equals 3.00.	.037	Reject the null hypothesis.
13	The median of q13 equals 3.00.	.000	Reject the null hypothesis.
14	The median of q14 equals 3.00.	.026	Reject the null hypothesis.
15	The median of q15.1 equals 3.00.	.000	Reject the null hypothesis.
16	The median of q15.2 equals 3.00.	.000	Reject the null hypothesis.
17	The median of q15.3 equals 3.00.	.001	Reject the null hypothesis.
18	The median of q15.4 equals 3.00.	.000	Reject the null hypothesis.
19	The median of q15.5 equals 3.00.	.002	Reject the null hypothesis.
20	The median of q16 equals 3.00.	.950	Retain the null hypothesis.
21	The median of q17 equals 3.00.	.591	Retain the null hypothesis.
22	The median of q18 equals 3.00.	.002	Reject the null hypothesis.
23	The median of q19 equals 3.00.	.000	Reject the null hypothesis.
24	The median of q20 equals 3.00.	.015	Reject the null hypothesis.
25	The median of q21 equals 3.00.	.000	Reject the null hypothesis.
26	The median of q22 equals 3.00.	.000	Reject the null hypothesis.
27	The median of q23 equals 3.00.	.302	Retain the null hypothesis.
28	The median of q24 equals 3.00.	.001	Reject the null hypothesis.
29	The median of q25 equals 3.00.	.457	Retain the null hypothesis.
30	The median of q26.1 equals 3.00.	.078	Retain the null hypothesis.
31	The median of q26.2 equals 3.00.	.001	Reject the null hypothesis.
32	The median of q26.3 equals 3.00.	.000	Reject the null hypothesis.
33	The median of q26.4 equals 3.00.	.000	Reject the null hypothesis.
34	The median of q26.5 equals 3.00.	.000	Reject the null hypothesis.
35	The median of q26.6 equals 3.00.	.000	Reject the null hypothesis.
36	The median of q26.7 equals 3.00.	.002	Reject the null hypothesis.
37	The median of q26.8 equals 3.00.	.000	Reject the null hypothesis.
38	The median of q27 equals 3.00.	.000	Reject the null hypothesis.
39	The median of q28 equals 3.00.	.000	Reject the null hypothesis.
40	The median of q29 equals 3.00.	.863	Retain the null hypothesis.
41	The median of q30 equals 3.00.	.783	Retain the null hypothesis.
42	The median of q31 equals 3.00.	.008	Reject the null hypothesis.

43	The median of q32 equals 3.00.	.000	Reject the null hypothesis.
44	The median of q33 equals 3.00.	.003	Reject the null hypothesis.
45	The median of q34 equals 3.00.	.012	Reject the null hypothesis.
46	The median of q35 equals 3.00.	.499	Retain the null hypothesis.
47	The median of q36 equals 3.00.	.000	Reject the null hypothesis.
48	The median of q37 equals 3.00.	.000	Reject the null hypothesis.
49	The median of q38 equals 3.00.	.000	Reject the null hypothesis.
50	The median of q39 equals 3.00.	.222	Retain the null hypothesis.
51	The median of q40 equals 3.00.	.000	Reject the null hypothesis.
52	The median of q41 equals 3.00.	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 6

Summary of disagreeing responses

Below average (negative attitude)		Items by both groups are below average
Individual e-portfolio	Group e-portfolio	
2	2	2
3	3	3
6		

Table 7

Summary of Neutral Responses

Average (neutral attitude)		
Individual e-portfolio	Group e-portfolio	Items by both groups as average
	8	4
	6	30
	4	14
	31	26.1
4	30	23
39	29	17
35	26.8	16
30	26.7	29
29	26.6	
26.1	26.4	
25	26.1	
23	23	
17	17	
16	16	
14	15.3	
	15.2	
	14	

Table 8

Summary of agreeing responses

Above average (positive attitude)		Items by both groups as above average
Individual e-portfolio	Group e-portfolio	
41	41	41
40	40	40
38	39	38
37	38	37

36	37	36
34	36	34
33	35	33
32	34	32
31	33	31
28	32	28
27	28	27
26.8	27	27
26.7	26.5	26.5
26.6	26.3	26.3
26.5	26.2	26.2
26.4	25	24
26.3	24	22
26.2	22	21
24	21	20
22	20	19
21	19	18
20	18	15.5
19	15.5	15.4
18	15.4	15.1
15.5	15.1	13
15.4	13	12
15.3	12	11
15.2	11	10
15.1	10	9
13	9	7
12	7	5
11	5	1
10	1	
9		
8		
7		
5		
1		

Appendix D

Table 9

Tests of the subjects' effect

Dependent Variable	df	F	Sig.	Partial Eta Squared	Dependent Variable	df	F	Sig.	Partial Eta Squared
q1	1	.046	.832	.001	q23	1	.430	.515	.008
q2	1	.336	.565	.006	q24	1	.257	.614	.005
q3	1	.001	.972	.000	**q25	1	5.317	.025	.088
q4	1	1.033	.314	.018	q26.1	1	.379	.541	.007
q5	1	1.047	.311	.019	q26.2	1	.010	.919	.000
q6	1	3.128	.082	.054	q26.3	1	2.056	.157	.036
q7	1	.505	.480	.009	q26.4	1	1.752	.191	.031
q8	1	3.397	.071	.058	q26.5	1	1.032	.314	.018
q9	1	2.125	.151	.037	**q26.6	1	8.900	.004	.139
q10	1	.213	.647	.004	q26.7	1	2.847	.097	.049
q11	1	1.258	.267	.022	**q26.8	1	6.284	.097	.049
q12	1	.224	.638	.004	q27	1	.884	.351	.016
q13	1	.540	.465	.010	q28	1	.753	.389	.013
q14	1	3.733	.059	.064	q29	1	1.217	.275	.022
q15.1	1	4.772	.033	.080	q30	1	2.175	.146	.038
q15.2	1	7.732	.007	.123	q31	1	5.993	.018	.098
q15.3	1	8.450	.005	.133	q32	1	4.716	.034	.079
q15.4	1	6.110	.017	.100	q33	1	.133	.719	0002
q15.5	1	.018	.893	.000	q34	1	.003	.955	.000
q16	1	.000	1.000	.000	q35	1	5.967	.018	.098
q17	1	.046	.832	.001	**q36	1	4.918	.031	.082
q18	1	.219	.641	.004	**q37	1	7.270	.009	.117
q19	1	.154	.697	.003	q38	1	3.691	.060	.063
q20	1	.545	.464	.010	**q39	1	6.240	.016	.102
q21	1	.075	.786	.001	q40	1	3.585	.064	.061
q22	1	.979	.327	.017	q41	1	.108	.743	.002
q23	1	.430	.515	.008					

Table 10

Descriptive statistics

	Group	Mean	Std. Deviation	N
q15.1	Individual	4.0357	.88117	28
	Group	3.4828	1.02193	29
q15.2	Individual	3.7857	.78680	28
	Group	3.2414	.68947	29
q15.3	Individual	4.0357	1.17006	28
	Group	3.1724	1.07135	29
q15.4	Individual	4.3929	.87514	28
	Group	3.8621	.74278	29

q26.6	Individual	4.1071	.87514	28
	Group	3.2414	1.27210	29
q26.8	Individual	4.0357	.99934	28
	Group	3.3448	1.07822	29
q31	Individual	3.5714	1.06904	28
	Group	2.8966	1.01224	29
q35	Individual	3.1429	1.07890	28
	Group	3.8276	1.03748	29
q36	Individual	4.0714	.81325	28
	Group	3.5517	.94816	29
q37	Individual	4.0714	.60422	28
	Group	3.5172	.91107	29
q39	Individual	2.7143	1.21281	28
	Group	3.5172	1.21363	29