E-portfolio as an academic writing assessment tool in higher education: Strengths and challenges

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ABSTRACT

This study investigated the use of an e-Portfolio for assessment at a Malaysian public university. Prior to the advent of the Internet, paper portfolios are ubiquitous forms of projects and assessments. However, they have limitations in terms of portability, shareability, and delayed two-way communication between instructors and students about progress. In lieu of paper portfolio, the e-Portfolio was introduced in an advanced English language course at a public university in Malaysia. The novelty of the e-Portfolio's implementation renders it necessary to seek the insights of those who are directly involved in its use. Therefore, this study aims to explore the perceptions of the instructors and students regarding their use of the e-Portfolio throughout the course. This is a qualitative study whereby the main data collection method involved interviews. The data were imported to NVivo 12, and thematic analysis was used as the primary method of data analysis. A total of three instructors and 18 students participated in this study. The findings reveal that the instructors and students perceived the contribution of the e-Portfolio in the aspects of writing stages, digital artefacts, accessibility, personalised writing experience, feedback and communication, and motivation. The results demonstrate that mutually perceived challenges by the instructors and students were poor Internet connectivity and difficulty adapting to the e-Portfolio. The study highlights the benefits and shortcomings of using the e-Portfolio as an assessment tool for academic writing. This will guide practitioners and researchers to better implement the e-Portfolio in higher education institutions.

Keywords: Academic writing; assessment; e-learning; e-portfolio; ESL

INTRODUCTION

The prevalent use of computer software and applications for teaching and learning across tertiary institutions has rendered technology an indispensable part of higher education. Assessing is an equally important element of higher education and should similarly benefit from the incorporation of technology. We need to "reimagine how we design and administer our assessments" lest they become progressively detached from the digital world (Bearman et al., 2020, p. 17). For language testing, this implies the need to trade conventional "pen and paper" examinations for more innovative means of measuring proficiency. In the subject of English, the Malaysian Ministry of Higher Education (MOHE) advocates the Malaysia English Assessment (MEA) which calls for learning and assessing to take place across a dynamic ecosystem rather than solely within the classroom (MOHE, 2017). MEA lays the groundwork for instructors to recognise that the measurement of English language proficiency should take place across various

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contexts (formal and informal) and through various resources (MOHE, 2017).

The e-Portfolio in this study is an enhanced version of the paper portfolio that was implemented in past semesters of an advanced English language course. The course aims to equip undergraduates at a public university in Malaysia with academic reading and writing skills. Although paper portfolios are commonly used in language classrooms, they pose certain limitations including delayed communication between instructors and students, being bulky, and restricted sharing of work with peers. In addition, audio and video resources could not be included in paper portfolios, and images and texts had to be printed. Considering the limitations of the paper portfolio for assessment, we deemed it was opportune to introduce the e-Portfolio. This echoes the sentiments of Jenson and Treuer (2014, p. 55) who described the e-Portfolio as "uniquely suited for 21st century learning, an age when learning takes place anywhere and anytime, both inside and outside formal education." Hence, this requires teachers to be updated on the latest teaching advancement in a competitive environment (Vorotnykova & Zakhar, 2021).

The implementation of anything novel is likely to be met with various responses. In addition to writing skills, students now have to possess the digital skills required for preparing the e-Portfolio. Struggling writers might encounter even more academic disadvantages due to technological demands (Relles & Tierney, 2013). This was evident in Boon's (2021) study among 226 Polytechnic students in Singapore. The students' perceived usefulness of the e-Portfolio indicated a lower mean score of 3.38 out of 5 in comparison to other factors namely perceived value of learning, organisation, evaluation, and collaboration, which all had mean scores above 4. Boon justified that the low mean score for students' perceived usefulness of the e-Portfolio could be due to the additional efforts that required them to learn and store their work in various cloud storage platforms. Muganda and Kabate's study (2016) at The Open University of Tanzania reported that ten student participants did not receive sufficient guides to fill in the online Student Progress Portfolio assessment. This resulted in their inaccurately completing the portfolio assessment. Since the e-Portfolio in our study was in an experimental phase, examining the experiences of those who are directly involved in its implementation can provide a better overview of what works and what requires improvement. Therefore, we sought the views of instructors and students who experienced using the e-Portfolio as an assessment tool for academic writing. The study is guided by the research question: What are the strengths and challenges of using e-Portfolio as an assessment tool for academic writing in higher education?

Literature Review

An e-Portfolio may incorporate word-processed documents, graphic organisers, online articles blogs (Stannard & Basiel, 2013) as well as multimedia (Gertner et al., 2021), which altogether proves and displays students' abilities and attainments (Cooper, 1999). Jenson and Treuer (2014) define the e-Portfolio as a tool for students to document and manage their learning to nurture deep and continuous learners. This is supported by Muin and Hafidah's (2021) study at a university in Indonesia which reported 88% of undergraduate students agreed that an e-Portfolio was effective for learning English, and 69% opined that e-Portfolio increased their English ability.

Some preliminary studies regarding e-Portfolios in the Malaysian context have been conducted thus far. At a general level, researchers have investigated undergraduate students' readiness to adopt e-Portfolio (Mohamad et al., 2015); surveyed the opinions of educators and students across tertiary institutions in Malaysia regarding the implementation of e-Portfolio (Abd-Wahab et al., 2016); and reviewed the rubric criteria for e-Portfolio by analysing the e-Portfolio of six American universities (Abd-Wahab et al., 2016). Researchers have also implemented e-Portfolios in Malaysian universities. Some examples include using e-Portfolio to improve pre-service teachers' professional development (Kabilan, 2016); to enhance soft skills (Khoo et al., 2019); and to enhance Information and Communication Technology and English language skills of TESL undergraduates (Thang et al., 2012). These studies demonstrated positive responses among educators and students to embrace e-Portfolio and a growing interest to apply e-Portfolio in Malaysian universities.

Studies have revealed the potential of using the e-Portfolio to develop language skills in higher education. Researchers in Thailand have employed a Weblog-based e-Portfolio to develop undergraduates' English writing skills (Kongsuebchart & Suppasetseree, 2018). The comparison of pre-test and post-test scores revealed improvement in post-test mean scores that point to writing improvement. Previously, researchers have also explored the use of e-Portfolio with a focus on English in the Malaysian higher education context. A study at Universiti Kebangsaan Malaysia used the e-Portfolio to enhance undergraduates' Information and Communication Technology and English language skills (Thang et al., 2012). After developing e-Portfolios as part of a 10-week project, the participants perceived themselves to have improved in terms of writing, technology, and problem-solving skills. The aforementioned studies provide insights of a positive nature regarding the use of e-Portfolio for English language, but the lack of assessment-aligned research indicates that there is

still much to explore in the Malaysian tertiary education context. While Thang et al. (2012) has revealed students' views regarding e-Portfolio use for learning, we feel that the inclusion of instructor as well as student perception, may lead to an even more all-rounded insight into the use of e-Portfolios for assessment in the language classroom. This study therefore explored the perceptions of university instructors and students regarding their use of e-Portfolio as an assessment tool for academic writing.

METHOD
Research Design
We employed a qualitative approach to explore the assessment experiences of the instructors and students who were involved in the implementation of the e-Portfolio. This allowed us to investigate events within their natural context since qualitative research is about "immersing oneself in a scene and trying to make sense of it" (Tracy, 2020, p. 3).

Research Setting
This study was conducted at a language centre that caters to undergraduates of the public university. UB00402 Academic Reading and Writing is one of the advanced English courses offered to students who attain Band three to Band six in their Malaysian University English Test.

Respondents
Selection of participants was done using purposeful sampling whereby information-rich cases were prioritised as they can lead to an in-depth understanding of the phenomenon being studied (Patton, 2002). The respondents therefore consisted of students and instructors who had used the e-Portfolio as part of UB00402's course assessment. Student enrolment in UB00402 was done voluntarily; in our case, the students majored in either International Relations or Teaching English as a Second Language. The students from two classes were categorised into three performance levels based on their e-Portfolio scores: excellent, average, and weak. This was done to ensure that students of varying levels of proficiency were fairly represented in our study. The assessment criteria comprised task fulfilment, essay structure, organisation, language, sources, and digital artefacts. In each of the three categories, three students volunteered for the interview which led to a total of 18 student respondents. All three instructors who participated in this study had taught the aforementioned course; two of the instructors worked full-time at the university and one of them was a part-time instructor.

Research Methods
Prior to this study, we had pilot tested the e-Portfolio on another set of students who were representative of the actual participants (Ngui et al., 2020). The completion of the pilot test enabled us to implement the revised e-Portfolio for the purpose of this study as shown in the e-Portfolio framework in Figure 1.

Figure 1
e-Portfolio framework (Source: Ngui et al., 2019)
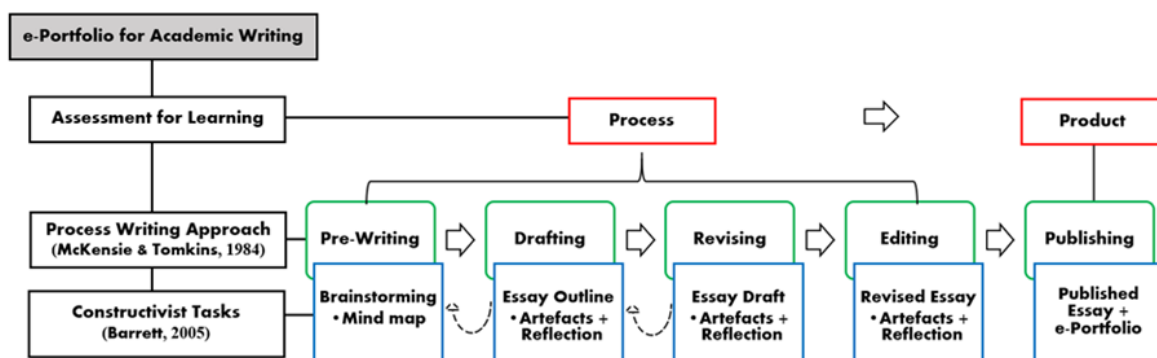
The e-Portfolio framework (Ngui et al., 2019) in this study is grounded on the following concepts and theories: assessment for learning (AFL), process writing approach, and the theory of constructivism. Figure 1 illustrates the merging of the concept and theory to form the e-Portfolio framework. The e-Portfolio is intended as an assessment tool and therefore assessment for learning serves as the foundation of its application. Assessment for learning is a learner-empowered and progress-focused concept (Stiggins, 2005). Instead of solely focusing on results, the assessment serves as an opportunity for students to perform better. As such, instructors and peers' feedback is a key component of the e-Portfolio so that learners are informed about their progress and accordingly use it to improve.

The process writing approach blends well into the framework due to its emphasis on writing as a process rather than a product. The mastery of writing in one's own native language can be demanding and hence even more challenging for second language learners (Brown, 2004). Partitioning writing into iterative phases such as prewriting, writing, and rewriting (Murray, 1972) presents writers with space and time to plan and revise their work. The e-Portfolio embraces the process-oriented approach and therefore the writing task is divided into five stages of composition namely prewriting, drafting, revising, editing, and publishing (McKensie & Tomkins, 1984). Throughout these stages, the instructor provides feedback to the students to improve their essay outline and essay draft. This assessment approach tends to be less stress-inducing when students are not expected to deliver a finished product in a single attempt.

The theory of constructivism that forms the basis of the e-Portfolio framework prescribes that knowledge is created through the learner's experiences (Seifert & Sutton, 2009). Learners relate new experiences to prior ones (Seifert & Sutton, 2009) when they are meaningful or relevant to the learners (Glasersfeld, 1995). Constructivism is applied when learners construct e-Portfolios through the meaningful selection of artefacts that they deem important (Barrett & Wilkerson, 2004). Using artefacts in e-Portfolio allows students to story-tell and reflect on their learning experiences (Barrett, 2005). Learning takes place when students can justify that their selection of artefacts is representative of their e-Portfolio objectives (Barrett, 2005). In essence, the framework in our study underlines a feedback-oriented assessment experience that presents writers with the opportunity to ponder and revise their work, and for them to construct e-Portfolios based on individual experiences.

Procedures

In this study, the e-Portfolio was developed and accessed using a combination of Google Docs and Google Sites. The students composed a problem-solution essay using Google Docs which they then incorporated into individual e-Portfolios that were created using Google Sites. The writing tasks required students to produce thesis statements, main ideas, and supporting sentences based on academic conventions. The students were briefed about the assessment in the third week of the semester, and they were given ten weeks to produce the essay tasks. Throughout the ten weeks, feedback and communication were performed in real-time using Google Docs.

Towards the end of the 14-week course, qualitative data were collected through semi-structured interviews involving 18 students and three instructors. Using the Interview Protocol Refinement framework (Castillo-Montoya, 2016), we developed a semi-structured interview by (1) aligning the interview questions with the research question (2) creating an inquiry-based dialogue (3) obtaining feedback from research team members on the interview protocol. Piloting the interview protocol is the fourth phase of the framework that may be excluded in circumstances involving time constraints (Castillo-Montoya, 2016). The participants were interviewed individually at an agreed time and the interviews were conducted in a private room at the university. Before the interview, the participants were briefed about the research and the purpose of the interview. The interview commenced after consent to participate in the research and consent for the interview to be audio-recorded were obtained. During the interview, the participants were prompted to elaborate and clarify when necessary. The closing of the interview involved asking the participants if they had further thoughts to contribute and thanking them for their time.

Data Analysis

Following the interview, the recording was transcribed, transferred into Microsoft Word files, and imported to NVivo 12. The data was then analysed using thematic analysis based on Braun and Clarke's (2006) guidelines. Thematic analysis is defined as "a method for identifying and analysing patterns in qualitative data" (Clarke & Braun, 2013, p. 120) and can be used to analyse narrative-based experiences (Vaismoradi et al., 2013). First, the data that were imported to NVivo 12 were scanned and re-read to observe interesting points and identify patterns of meaning. After familiarising with the data, initial codes were generated by organising and labelling data that were meaningful. After completing the initial coding, the focus then shifted to interpreting and organising the themes from the coded data. Following this, the themes are explained by producing a detailed description of how they relate to the research question in this study. Table 1 shows an example of the theme and sub-themes that emerged as a result of thematic analysis. All research members cross-checked the coded data and an external coder was enlisted to code a sample of the data. The intercoder reliability was determined by calculating the extent of agreement between the first coder and external coder and the level of intercoder reliability was 79% for student interview transcript and 80% for instructor interview transcript.

Table 1
Theme and sub-themes that emerged from thematic analysis

Theme	Sub-Theme	Description	Interview Excerpt
	Writing Stages	Writing task from one stage to the next.	"…from the brainstorming to the outline to the draft and then the inclusion of evidence in the form of citations..." – IS3
	Digital Artefacts	Digital learning evidences that include images, audio and video files, and online articles.	"…get to use graphics, to combine graphics with their writing." – IS2
	Easily Accessible	Accessibility at any time and place.	"…students can access their work anytime anywhere that they want to as long as they have a smart device and an Internet connection…" – IS1
Strengths	Personalised Writing Experience	Ability to customise and add personal elements to one's work.	"…students like to post personal material, opinions, feelings, diary of their activities up on the web for their friends to see… It allows them to personalise their writing experience..." – IS2
	Feedback and Communication	Ability to receive comments and communicate with peers and instructor.	"It's posted online so they can also easily like share their work with their friends or even with their lecturer to ask for like comments and feedback..." – IS1
	Student Motivation	Fun and engaging use of the e-Portfolio.	"Many of the students… are IT savvy already so it's like channelling into their ability and what they like to do..." – IS3

To present the findings, excerpts from the interviews are included. As such, it was necessary to code the participants. Instructors were labelled as 'IS', followed by a number that indicated one of the three instructors who were interviewed. Students from Class A were labelled as 'SA' with a number to indicate one of the nine students whereas students from Class B were identified as 'SB' with a number to indicate one of the remaining nine students. Ellipses in the excerpts indicate pauses during the speech.

FINDINGS
The findings from this study are organised based on the emerging themes from the coded data in NVivo 12 and to answer the research question "What are the strengths and challenges of using e-Portfolio as an assessment tool for academic writing in higher education?".

Strengths of Using the e-Portfolio
The strengths of using the e-Portfolio, as expressed by the instructors and students, are writing stages, digital artefacts, accessibility, personalised writing experience, feedback and communication, and student motivation.

Writing Stages
The e-Portfolio included five stages of writing namely pre-writing, drafting, revising, editing, and publishing. According to an instructor, the structured writing stages allowed the students to progress from planning to actual writing. In other words, writing progression was reflected from task to task:
> "It was good from the brainstorming to the outline to the draft and then the inclusion of evidence in the form of citations..." – IS3

The structure of the writing process within the assessment led the students to complete their tasks based on a stage-by-stage approach by planning and revising their writing instead of submitting their essays instantly. The following excerpts illustrate the students' perception:
> "Because there are stages how to do the essay from mind map to the draft, to the final essay, and then complete essay." – SB13

> "It makes us easy to complete our assignment like it is step by step." - SB14

Digital Artefacts
Digital artefacts such as video, audio, podcasts, online resources and news articles were also mentioned as one of the strengths of the e-Portfolio. An instructor noted that the use of images is not common in academic tasks but acknowledged that it made the writing process more appealing to the students. The instructor perceived this as an opportunity to motivate students in academic writing:
> "They also get to use graphics, to combine graphics with their writing, you may say the graphics are not normally part of an academic essay but I think anything that as I say gets the students interested in the topic and enables them to elucidate or explain the topic more clearly is valuable…." – IS2

The same instructor elaborated on the benefit of searching for digital artefacts on the Internet, especially since students appeared to derive pleasure from the process:
> "The digital artefacts I also think are a good idea because again it enables students to browse the net and to look for materials and they enjoy doing that, and I can sense the

excitement… enthusiasm when they talk about their digital artefacts." – IS2

According to several students, being able to include digital artefacts was an appealing feature of the e-Portfolio. It led them to better comprehend their topic and improve their proficiency since they had to comprehend the artefacts to select suitable ones for their e-Portfolios. The process of considering and selecting resources before deciding which artefact best represents their learning demonstrated reflection. Some of the interview excerpts are presented as follow:

"I like it when we can put artefact there… video, article." – SA6

"I think the artefact and the reflection section really does help us like we can understand more about our topic so that part is like we can express our opinion about our topic and what we can find through our research." -SB16

"I think yes, it did improve my… it helps me in my English actually because especially in e-Portfolio, I'm using the… there is an option that we can embed article, right? So, I think that is a good feature because I would have to search for articles and I have to read the articles to get to know the articles, and I have to make them as an artefact so I have to understand the thing and do a caption, so that really helps." – SB17

Easily Accessible

Student's accessibility to work on their e-Portfolio at any place and time was a strength of using the e-Portfolio for assessment. This flexibility was perceived as an added advantage for the students since it was not necessary to set up the assessment in the physical classroom. The following excerpts depict the view of two instructors:

"As a form of assessment, the best thing about the e-Portfolio is probably the accessibility. The fact that students can access their work anytime anywhere that they want to as long as they have a smart device and an Internet connection, which we all know most young people have." – IS1

"And also because it is to be done outside of class hours so that is another plus point so the fact that when I set the project so to speak for them I emphasized that it was to be done outside, that they can… they could like build it up, build it down or whatever as much as they like at their own time and I think they did buy into that." – IS3

The students similarly cited ease of access especially in terms of being able to use the e-Portfolio at any time and place

"Yeah, as I proceed with my work, I become to like it because you know you can use it anywhere, I mean… just on data and do your work at anywhere." – SA6

"Using the e-Portfolio is very easy to access and it's very convenient, can do the test at any given time, anywhere and anytime so it's very easy and very convenient to use." – SB12

Personalised Writing Experience

Students were required to compose a problem-solution essay of their choice and publish it in the e-Portfolio they constructed. One instructor stated that the writing experience was more personalised when students used the e-Portfolio due to its resemblance to a blog, and this contributed to a more individualised and enjoyable experience for young writers. This was especially viewed as a gain since students typically perceive academic writing as a dull undertaking:

"…the format of the e-portfolio resembles to some extent a blog. A lot of students like to post personal material, opinions, feelings, diary of their activities up on the web for their friends to see so it's a medium which I think is attractive immediately to the students yeah. It allows them to personalise their writing experience which I think can only be for the good." – IS2

Since the e-Portfolio resembled a blog, the students had a personalised writing experience namely the liberty to be creative with the content and design of their e-Portfolios. The students appreciated the opportunity to put a personal touch to their e-Portfolio. According to them:

"Because I think I am being more creative. Before this, I am just using Word and all that kind of thing but then after using e-Portfolio, my creativity blow up I think because the setting you know it's just like a making a blog but not really like a blog… it is blog but academically I think." – SA7

"Yes, I do actually enjoy using the e-Portfolio as part of my assignment because I used to have this blog back then and I really enjoy like writing through the website, creating our own website, designing, it very fun, I do enjoy it." – SB16

Feedback and Communication

The instructors expressed that using the e-Portfolio contributed to improved sharing and interaction with the instructor and among peers. The instructors commented on the ease of sharing comments as well

as students' tendency to respond to comments due to the digital nature of the e-Portfolio. The following excerpts illustrate the instructors' views:

> "It's posted online so they can also easily like share their work with their friends or even with their lecturer to ask for like comments and feedback and whatnot, so I think that's probably the biggest strength." – IS1

> "The communication process I think is better with the e-Portfolio because the comments are… it's easy to make… post comments and you know in the past I would have written comments on a draft in my own very spidery handwriting and you never know whether the students can read it or whether they do read it, but with this medium which encourages you to receive feedback on that comment, counter comments uh… I feel that the students are more likely to read what I have to say and act on it. They're more likely to respond to what I have to say with another comment or query so the communication process during the writing of the essay is improved so that is a plus." – IS2

Several students also noted that receiving feedback and communicating via the e-Portfolio was an advantage. They mentioned that the instructor was able to leave remarks on their work as well as reply to comments, thereby allowing them to subsequently make the necessary amendments. The students' statements reflect clarity and promptness when using the e-Portfolio to communicate about the writing tasks:

> "It actually improved me a lot, because when I… academic writing has a lot of section, the draft, brainstorming and everything when we put it, Miss W can comment on this side and I know where's my wrongs and I can improve my grammar, my citation and so on." – SB15

> "I do enjoy using the e-Portfolio and the most enjoyable features about the e-Portfolio when I ask miss if I can change my thesis statement and miss directly reply to me so basically, I got the information through my notifications on my phone so that means I can… I don't have to wait for your reply. Instantly, the notifications came out through email so which is easy for me to keep update whether I can do the correction or not." – SB18

Student Motivation
All three instructors pointed out that the e-Portfolio was an engaging medium for the students due to their preference for and familiarity with technology. On the whole, the instructors observed a positive drive in the use of e-Portfolio for academic writing:

> "They were able to edit on the go whenever they feel like it so I think in terms of like their academic writing it was probably more… they were probably more motivated to work on their essays as compared to like um… more traditional way of looking on their essays." – IS1

> "I think the strength of the e-portfolio are that the students are using a medium which they are not only familiar with but they are also very excited about." – IS2

> "Many of the students, not all of them, are IT savvy already so it's like channelling into their ability and what they like to do so that is one plus point." – IS3

Motivation to use the e-Portfolio was revealed as a strength, with students describing it as 'fun' due to its dynamic and digital format. It is evident that using technology in education can be especially engaging for the students due to the limitless possibilities in which fonts, graphics, and resources can be used. Some excerpts taken from the interview are:

> "Cause you know all of the fonts of the colours, you can even embed a video. It's like a new thing, so it's fun." – SA2

> "To be completely honest, although I am new to using e-Portfolio, it's actually quite fun using it. It's quite simple and straightforward in using it especially with the help of the guidelines being provided." – SB11

> "Using the e-Portfolio is fun for me because it has features like the themes and then it really makes it easier in doing my work." – SB17

Challenges of Using the e-Portfolio
Based on the instructors and students experience of using the e-Portfolio, the mutually perceived challenges are poor Internet connectivity and difficulty adapting to the e-Portfolio.

Poor Internet Connectivity
Poor Internet connectivity was perceived as one of the challenges of the e-Portfolio as connection issues had been observed in some areas within the university campus. The instructor noted that the university Wi-Fi was so unstable that the students had to resort to using their own Internet data:

> "The other bit was sometimes there wasn't much that we could do in class like if they were to ask me something, I couldn't really do it in class because we had problems of connectivity in class OK, it was very unstable um… and it was really frustrating because if the students had to use their data then it was… that activity was ate up a lot of their data so

they were quite reluctant to use their data." – IS3

Poor Internet connectivity was one of the most frequently cited challenges of using the e-Portfolio, with several students mentioning this during the interviews. The issue frequently occurred in the university campus as well as the hostel grounds and led to disruptions in their work. According to the students:

"Need use the Internet connection to do but then sometimes the room is like… the Internet is like not really fast so I have to wait until in the morning…1,2 a.m. to do my assignment." – SA3

"When there is no internet connection. I cannot save. I cannot save my work when there is no internet connection. That's the only problem. The biggest problem." SA7

"Challenges are like I said before it's gonna take some Internet connection and if we like somehow ran out of phone data and we don't have data and we have to use the Wi-Fi, the university's Wi-Fi that's kind of slow so it's one of the challenges." – SB12

Difficulty Adapting to e-Portfolio
All three instructors noted that it was challenging for students to become conversant with the e-Portfolio initially as they required more guidance and time to adapt and practice since the e-Portfolio was a new assessment tool for them. According to the instructors:

"I think one of the biggest challenges is probably just the technical aspects because um some of the students weren't sure how to go about creating the e-Portfolios and uploading their work and whatnot, yeah but um I don't think it was a very… I mean they had difficulties in the beginning but they were able to overcome the difficulties quite quickly." – IS1

"I thought they would very easily pick up the technical side of it and be able to utilise the e-Portfolio site but some of them seem to have great difficulty with that so it just teaches you a lesson that not all students are… they are familiar with Instagram or Facebook but when you show them a new tool that still has a learning curve and don't assume that they will be you know, completely up to speed and they may take time to assimilate so you have to work to the lowest common denominator you have to assume that they know nothing, yeah and work from there." - IS2

The process of familiarising with the e-Portfolio was described by the students as a challenge, notably at the beginning when they had trouble figuring out how to navigate the online tasks and Google applications as the e-Portfolio was a new tool for the students. Some of the excerpts taken from the interviews are:

"My first challenge is brainstorming when the first time I using that, I really didn't know how to do this and do that, so that's one thing." – SB15

"I think for the first time when I use the Google Classroom actually to find the Sites so when we clicked on the Sites we could not find which is our e-Portfolio, then we have to click on the new Sites and then we can see our e-Portfolio, so we thought that our e-Portfolio was deleted or something so maybe to find the Sites it was like quite difficult." – SB18

The findings revealed that using the e-Portfolio contributed to students' academic writing as it allowed them to revise their work, to include digital artefacts and to communicate with and receive feedback easily from their instructors. Nevertheless, unstable Internet connectivity within campus hampered students' access to their e-Portfolio. In addition, most students experienced a transitional period of having to familiarise with the mechanics of the e-Portfolio since they had no prior experience in using it. It should be noted that these technical challenges can be resolved by using Internet data and coaching from the instructor, respectively. They did not affect the students' writing ability of the e-Portfolio essay.

DISCUSSION
The Strengths of Using the e-Portfolio
The strengths that are documented in this study are aligned with our framework in Figure 1. In our framework, we advocate a feedback-oriented assessment as part of our emphasis on assessment for learning. The findings in this study revealed positive responses particularly in relation to instructor feedback, thereby confirming their significance and contribution to the students' academic writing. The significance of feedback was reported in a Malaysian study that explored motivation to use e-Portfolio among undergraduate students. The study identified feedback as one of eight factors that influenced the respondents' motivation to use the e-Portfolio (Rokhsareh et al., 2015). Previous studies involving second language learners similarly reported that explicit instructor feedback contributes to students' writing performance (Kayatri et al., 2016), and information-rich feedback from instructors enables students to revise their writing (Tee, 2014). A study that

investigated academic writing feedback used by second language learners in an Australian university revealed that specific and conversation-like instructor comments were perceived as useful feedback to the students whereas overly vague comments were regarded as unhelpful (Chang, 2014). Although Chang's (2014) study focused on second language learners who were studying abroad, the implication is likely to be applicable in the Malaysian context as the study suggested that writers who are deprived of useful instructor feedback may feel uncertain about one's ability as a writer, and possibly feel alienated from the academic discourse. The students' use of feedback to continuously revise their writing reflected the concept of feed-forward. Feed-forward encourages students to use feedback to improve their academic writing (Jones, 2011) provided that the feedback is continuous and interactive (Higgins et al., 2001). Feedback that is awarded conclusively without the opportunity to improve is often disregarded by students; hence the need for "feed-forward" (Jones, 2011). As such, the communication afforded via the e-Portfolio combined with the process-based writing provided the students with greater opportunities to obtain and use feed-forward.

Based on the e-Portfolio framework, we envision that the process writing approach would be beneficial to second language learners, and the participants in this study similarly noted the positive impact of transitioning from one writing stage to the next. The structured and process-focused writing tasks in the e-Portfolio diminished the pressure of having to produce a product promptly. To address the writing challenges of Japanese undergraduates who are STEM (Science, Technology, Engineering and Mathematics) majors, Fukunaga (2018) also proposed progressive writing stages that support and emphasise on the process to be incorporated in an e-Portfolio for academic writing. In another study, the incorporation of the process writing approach in a weblog-based e-Portfolio research has garnered positive responses from the respondents (Kongsuebchart & Suppasetseree, 2018). All 45 undergraduate students who participated in the study stated that they enjoyed the process writing approach that was embedded in the weblog-based e-Portfolio and attributed their preference to the well-planned writing steps and the feedback received from their instructors and course mates (Kongsuebchart & Suppasetseree, 2018).

The theory of constructivism in the e-Portfolio framework promotes the incorporation of artefacts that students can relate to. The participants in this study confirmed that the use of artefacts is an engaging aspect of the e-Portfolio and can even lead to a better understanding of the topic. In the interview, the students expressed how the process of selecting artefacts helped to improve their understanding of their work. These findings

conveyed the complex and continuous process of selecting and reflecting on one's choice(s) when creating the e-Portfolio. Norton-Meir (2003, p. 517) illustrated students' individualistic process of creating e-Portfolios by saying that, "…their manipulation of the technology – the way they incorporate graphics, the way the artefacts are linked together, even the colour scheme selected – is also a part of the reflection process". One study reported the development of reflective thinking and higher-order thinking skills among the participants (Rowley & Munday, 2014). The researchers found that e-Portfolio processes such as selecting evidences, reflecting on the experience, and assessing learning contributed to the respondents' sense of self (Rowley & Munday, 2014). Another study likewise observed the development of reflective and critical thinking as a result of the participants having to undergo the process of contemplating and reflecting on choices (Kabilan, 2016). Artefacts add a more engaging element to the e-Portfolio, more importantly, the purposeful selection of artefacts in the e-Portfolio leads to reflective thinking when learners evaluate the value and relevance of the artefacts.

Beyond the e-Portfolio framework, additional themes that emerged in the findings of this study include accessibility, personalised writing experience, and student motivation. The instructors and students mentioned that it was convenient for the students to access their e-Portfolios at any time and place provided that Internet connectivity was available. Similar findings are found in two other e-Portfolio studies whereby convenience in the aspects of communication and submission (Wanchid & Charoensuk, 2015) as well as ease of access and communication were reported (Kongsuebchart & Suppasetseree, 2018). In another study that examined the perceptions of preservice teachers towards e-Portfolio, ease of access was reported as one of the main benefits (Wetzel & Strudler, 2006). The respondents related accessibility to actions such as not having to carry hard copies, being able to access the e-Portfolio at various places, and having all items stored digitally in a single place (Wetzel & Strudler, 2006).

In this study, the instructors and the students talked about how students were able to include their personal experiences and feelings in the e-Portfolio. This made the tasks more relevant and appealing to the students as they were given the opportunity to express themselves. Barkaoui (2007) stated that one of the ways to motivate ESL learners in writing is to ensure that the students can relate to the content and genre of the tasks in a meaningful manner. A study conducted at a Malaysian university similarly emphasised learner autonomy as one of the motivational factors for using e-Portfolio (Rokhsareh et al., 2015). The researchers found that when the participants were presented with the

freedom to personalise their e-Portfolio content, this in turn motivated them to continue using the e-Portfolio (Rokhsareh et al., 2015).

The findings of this study revealed that all three instructors observed student enthusiasm especially with regard to the digital nature of the e-Portfolio. Motivation was similarly expressed by the students and they associated e-Portfolio use with digital elements such as colour themes and videos. This corresponds with a Singaporean study that explored the motivation of 413 student teachers towards e-Portfolio for Problem-Based Learning (Chye et al., 2013). The researchers concluded that the more the participants enjoyed and contributed to the process, the more positively they perceived the e-Portfolio (Chye et al., 2013). In another study, a comparison between two groups of undergraduates who used weblog-based e-Portfolio and paper-based portfolio revealed that those who used e-Portfolio felt prouder and more satisfied with their work due to its digital format (Wanchid & Charoensuk, 2015). As such, the digital format of the e-Portfolio is an appealing factor that enables students to have a more engaging assessment experience.

The Challenges of Using the e-Portfolio
The novelty and digital nature of the e-Portfolio led to some technical setbacks for the instructors and students. The instructors observed poor Internet connectivity on faculty grounds and the students revealed that the issue extended to the hostel area. This was a drawback for the students as they generally relied on the Internet provided by the university. Unfortunately, Internet connectivity was also cited as an issue in two other Malaysian higher learning institutions. At an unnamed Malaysian public university, student frustration was reported when attempts to use the e-Portfolio were impeded by poor Internet connectivity (Rokhsareh et al., 2015). This was also acknowledged as the main challenge of e-Portfolio use among students at Universiti Kebangsaan Malaysia (Thang et al., 2012). Despite our apparent focus on e-learning approaches, relevant facilities have yet to be provided in full across many higher learning institutions.

The process of familiarising with the e-Portfolio was a challenge observed by the instructors and students in the initial phase of using the e-Portfolio. Since the e-Portfolio was a novel assessment method for a majority of the students, becoming conversant with the interface and functions was an anticipated affair particularly at the beginning of the course. In Thang et al.'s (2012) study, five out of six respondents expressed a lack of knowledge in using the designated online tool (choice of Yahoo Geocities or Google Sites) to create the e-Portfolio since it was a new experience. The participants in Rokhsareh et al.'s (2015) research commented that the e-Portfolio was not very user-friendly and it took time to familiarise with the functions. Similarly, respondents in Wanchid and Charoensuk's (2015) study reported issues with adapting to the e-Portfolio platform although a coaching session was already conducted in advance. Nevertheless, the use of e-Portfolio can be a relatively easy experience for some students once initial instructions are provided (Muin & Hafidah, 2021). A probable solution to improve adaptability to the e-Portfolio may be to allocate more opportunities for hands-on sessions, but the 14-week university schedule in our course renders this an intricate task that requires more planning.

CONCLUSION
This study has revealed the strengths and challenges of using the e-Portfolio based on the experiences of the instructors and students. The insights showed that the contributions of the e-Portfolio as an assessment tool for academic writing include writing stages, digital artefacts, accessibility, personalised writing experience, feedback and communication, and student motivation. The implementation also had challenges in aspects of Internet connectivity and difficulty adapting to the e-Portfolio. Since our aim is to introduce an assessment experience that is engaging and flexible for second language learners, the strengths of implementing the e-Portfolio far outweigh the challenges. Furthermore, we are confident that the challenges can be overcome when instructors and students become conversant with the tool.

The findings affirm that an assessment-aligned e-Portfolio can provide an improved assessment experience for university instructors and students. It should be noted that this study has limitations since it involved a specific sample of instructors and students at a Malaysian university and the results cannot be generalised. To survey the perceptions of a larger sample, a quantitative study may be conducted. In addition, the study is based on an advanced English language course that only spans for 14-weeks each semester. Future studies may opt to explore the use of e-Portfolio for more semesters, in other skills, or involving different courses. This study has implications for instructors to craft enhanced assessment experience that corresponds with the higher education landscape. The Malaysian Qualifications Agency states that assessment "drives student learning" (2008, p. 18) and calls for Higher Education Providers (HEP) to "develop their own curriculum design and delivery processes and assessment which best fit the needs and requirements of the HEP and its students" (2012, p. 1). Assessment should therefore position students as active participants who discover learning and should be developed to be adaptable and relevant. As such, we recommend the e-Portfolio as an alternative assessment tool that instructors can apply in the modern-day English language classroom.

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