

INTERNATIONAL JOURNAL OF
EDUCATION, PSYCHOLOGY
AND COUNSELLING
(IJEPC)

<https://gaexcellence.com/ijepe>



FORMULATING A CONCEPTUAL UNDERSTANDING OF DIGITAL E-PORTFOLIO MASTERY AMONG FORM FOUR STUDENTS IN MALAYSIA

Norul Azlina Mohamed^{1*}, Che Aleha Ladin², Azni Yati Kamaruddin³

¹Department of Educational Sciences and Humanities, Faculty of Education, University of Malaya, Malaysia

 nailofar236@gmail.com

 <https://orcid.org/0009-0000-6860-3463>

²Department of Educational Sciences and Humanities, Faculty of Education, University of Malaya, Malaysia

 chealeha@um.edu.my

 <https://orcid.org/0000-0001-7425-8053>

³Department of Language and Literacy Education, Faculty of Education, University of Malaya, Malaysia

 azniyati@um.edu.my

 <https://orcid.org/0000-0002-4024-3782>

* Corresponding Author

Article Info:

Article history:

Received date: 15.07.2026

Revised date: 30.07.2026

Accepted date: 20.08.2026

Published date: 07.09.2026

To cite this document:

Mohamed, N. A., Ladin, C. A., & Kamaruddin, A. Y. (2026). Formulating A Conceptual Understanding of Digital E-Portfolio Mastery Among Form Four Students in Malaysia. *International Journal of Education, Psychology and Counselling*, 11(64), 392-406.

Abstract:

This study aims to develop a conceptual understanding of digital e-portfolio mastery among Form Four students in Malaysia. Using a qualitative approach through a Basic Qualitative Inquiry study design, five participants were involved, consisting of three students and two Visual Arts Education teachers. Data were collected through semi-structured interviews and manually analyzed using coding and thematic analysis methods. The study findings showed that mastery of e-portfolios among students is still low and limited to a basic understanding as a place to store assignments. Four main themes were identified: (i) ambiguity of the e-portfolio concept, (ii) constraints in writing reflections, (iii) weaknesses in digital design creativity, and (iv) lack of support and guidance structures from teachers. Students were seen to fail to build authentic reflective and visual narratives, while teachers did not play an active role in providing structured guidance or meaningful evaluation of students' portfolios. This study suggests that the implementation of e-portfolios in arts education be strengthened with a conceptual framework that includes conceptual understanding, pedagogical support, and creative reflection skills. This study also contributes to a new understanding of the challenges and potential of implementing digital e-portfolios at the secondary school level. The implications of the study indicate the need for teacher training, the development of systematic rubrics, and the formal integration of digital literacy into the Visual Arts Education curriculum. It is hoped that these findings can serve as a basis for further research and the development

of e-portfolio-based pedagogical models in the context of 21st century education.

DOI: 10.35631/IJEPC.1164019

Keyword:

Digital E-portfolio, Student Mastery, Student Reflection, Visual Arts Teaching, Visual Creativity



© The authors (2026). This is an Open Access article distributed under the terms of the Creative Commons Attribution (CC BY NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact ijepec@gaexcellence.com.

Introduction

The transformation of education in the digital era has brought about significant changes in the ways teachers teach and students learn. One pedagogical approach that has gained increasing attention is the use of digital e-portfolios, which provide students with opportunities to document their learning development, organize evidence of learning, and engage in reflection over time (Abrami & Barrett, 2005; Barrett, 2007). In Malaysia, although various educational technology initiatives have been introduced, the implementation and understanding of e-portfolios among secondary school students, particularly Form Four students, remain areas that require further investigation (Mohd Yusof et al., 2022).

E-portfolios not only act as a collection of student work, but also reflect students' intellectual growth, creativity and self-reflection throughout the learning period (Hallam & Creagh, 2010; Aitken & Olofson, 2020). Its use can support students' self-directed learning, reflective thinking, and the development of their professional identity in the long term (Reese & Levy, 2009). However, the implementation of e-portfolios in secondary education in Malaysia still faces various constraints. A study by Sumardi et al. (2021) found that many students do not really understand the true purpose of e-portfolios and only use them as a place to store documents or work results, without the proper elements of reflection and learning narrative.

The main problem identified is the conceptual ambiguity of what is meant by mastery of digital e-portfolios among students and teachers. In many cases, students do not know exactly the criteria that determine success in producing e-portfolios (Ahmad et al., 2022). Without a clear understanding of their pedagogical purpose, students may use e-portfolios primarily as a means to complete and store learning assignments rather than as a tool for meaningful reflection, student engagement, and documentation of learning progress (Barrett, 2007; Buyarski et al., 2015; Parkes et al., 2013).

This confusion stems from the lack of clear guidance and systematic training among teachers to guide students in the process (Nguyen & Ikeda, 2015).

In addition, the lack of understanding of the cognitive and creative processes involved when students build e-portfolios also contributes to poor implementation. This process should involve higher-level thinking such as concept mapping, selection of learning evidence, critical reflection and integration of various digital media (Yancey, 2009; Parkes et al., 2013). However, studies have shown that many students are not trained to think reflectively or creatively when managing and building e-portfolios (Buyarski et al., 2015; Batson, 2011). As a result, the production of e-portfolios is more superficial and does not reflect real learning growth.

Based on these issues, this study was conducted to contribute to the formation of a clearer conceptual understanding of digital e-portfolio mastery among Form Four students in Malaysia. Through a qualitative approach, this study will explore students' thinking, their experiences, as well as factors that contribute to ambiguity or success in e-portfolio production.

In line with these needs, the objectives of this study are as follows:

- 1) To identify factors that influence the ambiguity of conceptual understanding towards digital e-portfolio mastery among Form Four students in Malaysia; and
- 2) To analyze the cognitive and creative processes that Form Four students go through when creating digital e-portfolios.

This study brings various interests and contributions in four main areas: government policy, the education community, the industry sector and knowledge development.

From the government's perspective, the results of this study can be used as a basis for formulating policies or guidelines for the implementation of digital e-portfolios more comprehensively and systematically in secondary schools. It can help the Ministry of Education Malaysia assess the extent to which students are prepared in terms of digital skills and self-reflection that are important in new millennium education (Zawawi et al., 2020).

For the education community, especially teachers and school administrators, this study provides a clearer picture of the real needs and constraints of students in using e-portfolios. This is important for planning more effective teaching and support interventions, including teacher training, preparation of assessment rubrics, and development of guidance materials (Hall & Ziegler, 2016; Lorenzo & Ittelson, 2005).

In the industry context, e-portfolios are becoming an increasingly important tool in assessing students' abilities holistically, including soft skills, creativity and documentation of achievements. This study provides guidance to the private sector on how the education system can provide human capital that is not only technologically literate, but also capable of presenting innovative ideas.

Literature Review

In the rapidly growing digital era, e-portfolios have emerged as important pedagogical tools that not only document student learning outcomes, but also support self-reflection, creativity,

and self-mastery of knowledge. In the Malaysian context, this approach is increasingly being introduced in the school system, but its implementation among Form Four students is still not comprehensive and poorly understood (Norhayati et al., 2022). This study aims to formulate a conceptual understanding of digital e-portfolio mastery, especially in terms of conceptual ambiguity factors and students' cognitive and creative processes in its construction.

Main Themes and Topics

Concept and Importance of Digital E-Portfolios in Education

A digital e-portfolio is more than a repository of students' work; it is a purposeful collection of digital evidence that can document learning development and support reflection on the learning process. The educational value of e-portfolios therefore lies not only in the collection of learning artefacts, but also in their potential to support reflection, learner engagement, and the documentation of learning over time (Abrami & Barrett, 2005; Barrett, 2007). A study by Batane et al. (2021) asserts that e-portfolios support experiential learning, enabling students to manage their learning evidence in a structured and critical manner.

The use of e-portfolios in education is now seen as contributing to the formation of 21st century students with self-reflection, self-management, and digital expression skills (Ibrahim & Zawawi, 2023). This is in line with the pedagogical shift towards constructivist learning that emphasizes the active role of students in constructing meaning and knowledge through experience.

Mastery and Ambiguity of the Digital E-Portfolio Concept

Although the importance of e-portfolios has been highlighted in various studies, students' understanding and mastery of their educational purpose remain important areas for investigation. In the context of this study, digital e-portfolio mastery is understood as extending beyond the technical ability to use digital platforms to include students' understanding of the purpose of the portfolio and their engagement in reflective, cognitive, and creative learning processes.

Furthermore, a study by Ayuni et al. (2023) found that this lack of understanding is influenced by several factors, including teachers' time constraints, lack of specific training, and the absence of uniform guidelines in the implementation of e-portfolios. Teachers are more focused on teaching curriculum content and often do not have the time or resources to guide students in building portfolios reflectively.

Cognitive and Creative Processes in E-Portfolio Production

An important aspect of e-portfolio development is the cognitive and reflective process that occurs throughout its construction. E-portfolio activities can encourage students to engage in reflective thinking and metacognition by examining their learning experiences, evaluating their learning processes, and connecting prior knowledge with new learning contexts. Thomas et al. (2023) found that students who engaged in e-portfolio activities demonstrated sustained reflective thinking, with improvements particularly evident in higher levels of reflection. Such reflective engagement may support students in developing greater awareness of their learning processes and transferring knowledge across different learning contexts (Thomas et al., 2023).

However, most secondary school students still do not have sufficient training or exposure to implement this process effectively. A study by Nasution et al. (2023) showed that students tend to fill out their e-portfolios mechanically and do not reflect the actual reflection process. This indicates the need for a comprehensive pedagogical intervention to foster these cognitive and creative skills from the early stages of schooling.

Factors Affecting Conceptual Ambiguity and Poor Implementation

In the Malaysian Visual Arts Education context, technological and pedagogical challenges may influence the implementation of digitally mediated learning. Mahsan et al. (2022) identified issues related to Internet access, teachers' ICT skills, and difficulties in exploring digital art applications, particularly within rural school contexts. These findings indicate that technological competence and infrastructure are important contextual considerations in supporting digital learning practices in Visual Arts Education.

Within the context of digital e-portfolios, these technological and pedagogical conditions provide an important basis for examining students' mastery beyond their ability to operate digital applications. Digital e-portfolio mastery may also involve students' understanding of the purpose of the portfolio, their engagement in reflection, the organization of learning evidence, and their ability to communicate learning experiences meaningfully.

Students' perceptions and understanding of the pedagogical purpose of e-portfolios are also important considerations. When e-portfolios are approached primarily as repositories for completed work, their potential to support reflection, integration of learning, and meaning making may not be fully realized (Abrami & Barrett, 2005; Buyarski et al., 2015).

Theoretical Framework and Related Models

To support the understanding of e-portfolio mastery, several theoretical models can be used. Among them are:

- TPACK model which emphasizes the balance between pedagogical knowledge, content and technology (Puspita et al., 2023).
- SAMR model (Substitution, Augmentation, Modification, Redefinition) which examines the level of use of technology in teaching and learning.
- Kolb's Reflection Theory which emphasizes learning through experience and the cycle of reflection.

Together, these perspectives provide a theoretical basis for understanding digital e-portfolio mastery as a process that involves not only the use of technology but also pedagogical engagement, reflection, and learning through experience.

Research Gaps

Several gaps can be identified in the existing literature on digital e-portfolios. First, despite the growing use of e-portfolios in educational contexts, further research is needed to understand how digital e-portfolios are experienced and developed by secondary school students, particularly within the Malaysian context. Second, although previous studies have demonstrated the potential of e-portfolios to promote reflective thinking, metacognition, and

the transfer of learning, there remains a need for a more comprehensive understanding of how students cognitively and creatively engage in the process of constructing digital e-portfolios (Thomas et al., 2023). Third, there remains a need for qualitative inquiry that foregrounds students' own experiences and perspectives in understanding how digital e-portfolio

Taken together, these gaps indicate that digital e-portfolio mastery should be examined beyond students' technical ability to use digital platforms. Greater attention is needed to how students understand the purpose of e-portfolios and how they engage in cognitive, reflective, and creative processes during their development. Therefore, this study focuses on the experiences of Form Four students in Malaysia to formulate a deeper and contextually grounded understanding of digital e-portfolio mastery.

Methodology

The choice of Basic Qualitative Inquiry is very significant because this design allows researchers to identify factors of conceptual ambiguity and analyze cognitive and creative processes comprehensively based on information collected through interview methods. This design is very suitable for the study objectives because it is based on an effort to understand how participants construct meaning from their own experiences (Merriam & Tisdell, 2015). In this context, researchers can explore the internal processes of students as they produce digital e-portfolios and identify elements that contribute to the mastery or ambiguity of concepts experienced.

Data Collection Methods

The main data collection methods used were semi-structured interviews and informal observations. Interviews were conducted with five participants, consisting of three Form Four students and two Visual Arts Education teachers. Semi-structured interviews allowed for flexibility in exploring topics while ensuring consistency in basic questions (Silverman, 2017). In addition, observation methods were used to support interviews through direct observation of students as they built digital e-portfolios.

The rationale for choosing this method was because it enabled data triangulation, increased the reliability of findings, and provided a more comprehensive and contextual picture of participants' experiences (Patton, 1980; Bazeley, 2013).

Sample Collection

The sampling strategy used in this study was purposive sampling. This technique was employed to select participants who had direct experience in producing digital e-portfolios and teaching Visual Arts Education. Five participants were selected based on the inclusion criteria and the specific needs of the study. The relatively small sample size was considered appropriate for a qualitative inquiry, as the emphasis was placed on obtaining rich and in-depth insights into participants' experiences rather than achieving statistical generalization (Merriam & Tisdell, 2015).

Data Analysis Methods

Data from the interviews were analyzed using a manual thematic analysis approach. This process involved a coding process carried out using Microsoft Word, where the transcript data was analyzed to identify major themes based on the participants' responses. This approach was recommended by Bazeley (2013), who emphasized that manual coding allowed the researcher to get closer to the data and sharpen sensitivity to the implicit meanings in the interviews.

The interview data were analyzed manually using a thematic analysis approach. The transcripts were systematically reviewed and coded to identify recurring patterns, which were subsequently organized into categories and themes aligned with the research objectives. This iterative process enabled the researcher to identify patterns related to factors contributing to conceptual ambiguity and students' cognitive and creative processes.

Ethical Considerations

This study complied with all appropriate ethical considerations. Written consent was obtained from all participants and parents (for minors), and the identities of all participants were kept confidential to protect their confidentiality and privacy. Participation in this study was voluntary, and participants were allowed to withdraw at any time without any negative implications (Silverman, 2017).

Validity and Reliability of Data

To ensure the validity and reliability of the data, the researchers used method triangulation (interviews and observations), built a reflective journal, and validated participants by obtaining confirmation from the participants of the meanings formulated by the researcher. This strategy is important to increase credibility and transparency in qualitative research (Bazeley, 2013).

Limitation

This study involved only five participants and was conducted at a single school location, which limits the applicability of the results to a wider population. In addition, qualitative interview methods do not allow for broad generalizations, but provide in-depth insights into the issues being studied (Patton, 1980).

Research Implications

This study has important implications for future research on digital e-portfolio mastery in secondary education. The findings highlight the importance of examining students' conceptual understanding, reflective processes, creative engagement, and digital competencies as interconnected dimensions of digital e-portfolio mastery. Future research could further investigate how pedagogical support and teacher guidance influence students' ability to develop meaningful and reflective digital e-portfolios.

The findings also highlight the need for future research to examine the development of systematic and rubric-based assessment approaches for digital e-portfolios in Visual Arts Education. Such research could investigate how assessment criteria support students'

conceptual understanding, reflective processes, and creative development throughout e-portfolio production.

In addition, future mixed-methods studies involving larger and more diverse samples could be conducted to further examine and validate the conceptual dimensions and themes identified in this study. This would provide a broader understanding of digital e-portfolio mastery across different student populations and educational contexts.

Practical Implications

In practical terms, teachers can use the results of this study to develop more structured and reflective e-portfolio teaching modules. School administrators can provide specific training to increase teacher support for the production of more authentic digital portfolios (Miles et al., 2014).

Findings

This study aims to understand the concept of digital e-portfolio mastery among Form Four students. Findings were obtained through analysis of semi-structured interviews with five participants, comprising three students and two Visual Arts Education teachers. The analysis resulted in four main themes, which were identified through manual thematic analysis. These findings were supported by participant verbatim and organized according to the identified coding.

Main Results and Observation

Interview analysis revealed that there was conceptual ambiguity among students, lack of reflective skills, limitations in design creativity, and lack of pedagogical support from teachers. Many students perceived e-portfolios as a place to “store work”, not a reflective learning tool. In addition, the creative process during e-portfolio building was not fully utilized, either due to skill constraints, motivation, or lack of guidance.

Thematic Diagram: Structure of Findings

The following is a text shape diagram showing the relationship between themes and codes:

Theme 1: Conceptual Ambiguity

- Not sure of the actual function of e-portfolio
- Understand as a file storage
- Do it because of the teacher's instructions

Theme 2: Constraints in Reflection and Expression

- Difficulty writing narrative
- No guidance for writing reflection
- Posting pictures without meaning

Theme 3: Creativity and Design Constraints

- Lack of digital skills
- Unattractive e-portfolio layout

└— Unfiltered content selection

Theme 4: Lack of Teacher Support and Structure

└— No rubrics or examples
└— Teacher does not review in depth
└— Students feel 'lost' and unguided

Table 1: Main Theme

Main Theme	Main Code / Coding	Verbatim / Participant Dialogue
1. Conceptual Ambiguity	- Don't understand the real purpose - Just save the file - Just follow the teacher's instructions.	"I just put all my work... like a regular folder" – P1 "I just followed the teacher's instructions to put everything away..." – P2
2. Reflection Constraints	- Difficulty composing sentences - Don't know where to start reflecting - Put everything without a story	"I want to tell you about the job... I don't know how to start" - P1 "I put all the pictures... I just copied the text from the book" - P2
3. Creativity Constraints	- Lack of design skills - Don't know how to combine ideas - Too general or vague arrangement	"I don't really want to design a lawa layout" - P5 "I just followed the WhatsApp arrangement my teacher gave me" – P1
4. Lack of Teacher Support	- No examples/rubrics - Teacher doesn't check in depth - Feeling lost	"Teacher doesn't really guide... I just do it myself" – P4 "If there were examples or rubrics, it would be a little easier" – P4

Source: Authors' analysis based on participants' interview data

Description of Theme 1: Ambiguity of the E-Portfolio Concept

Most students do not fully understand the meaning and function of an e-portfolio. They equate an e-portfolio with a digital store or a place to store assignments. As stated by P1:

"Mmm... for me, teacher, the e-portfolio is like a place where we keep schoolwork. Like a folder."

This attitude shows that students are only oriented towards the end result, without relating to the process of reflection or documentation of learning which should be the essence of an e-portfolio. P2 stated:

"I'll just follow... But I don't really know what his real purpose is..."

This theme shows a significant gap in understanding and also explains one of the main reasons for the weakness of e-portfolio mastery.

Description of Theme 2: Constraints in Reflective Writing

Another important finding was the students' inability to write meaningful reflections. P1 admitted:

"I'm trying to think of what to write about... it's hard. Pictures are easy, but I want to talk about the work... I don't know how to start."

This shows that although students may be able to select visual materials, they lack the skills to structure learning narratives. In fact, many take shortcuts as voiced by P2:

"I copied the text from a book... it's hard to compose my own sentences."

Lack of training and guidance in writing reflections causes students to fail to use e-portfolios as a tool to strengthen metacognition or deep learning.

Description of Theme 3: Constraints on Creativity and Design

Visual creativity is also affected because students are not trained in creating an interesting or meaningful e-portfolio structure. P5 stated:

"I don't know how to design a layout. I feel like my e-portfolio is just empty."

P3, who is more visually skilled, expressed enthusiasm for choosing pictures, but still acknowledged limitations in writing:

"I enjoy choosing colors... but writing makes me dizzy."

This finding shows that although some students tend towards creative expression, technical and support constraints mean that their potential is not fully realized.

Description of Theme 4: Lack of Teacher Support and Guidance Structure

Guidance issues were also a major challenge. Students stated that they did not receive enough guidance, examples or detailed feedback from teachers. P4 complained:

"The teacher doesn't really guide me... I just do it myself. If there's an example or a rubric, it's a little easier."

This is supported by findings from P5, a teacher:

"Sometimes I don't even go through all the portfolios one by one... because there are so many to manage."

The findings indicate that limited guidance, examples, and feedback may have contributed to students' difficulties in developing their e-portfolios meaningfully. The participants' responses

suggest that structured pedagogical support is important in helping students understand expectations and engage more confidently in the e-portfolio development process.

Comparison Between Proactive and Passive Students

The analysis also showed a significant difference between more proactive students (such as P3 and P4) and passive students (P1, P2). P3 showed intrinsic motivation to use e-portfolios as a medium of expression:

"I just chose a nice picture... the text follows the feeling, like an experience story."

Whereas P2 is more likely to use a "follow instructions" approach without deep understanding. This contrast is important to understand in the context of providing training and resources that vary based on the level of digital literacy and motivation of the students.

Implications for Study Objectives

The results of this study support the research objectives:

- (1) Objective 1: Identify factors of conceptual ambiguity - findings show that students do not fully understand the function of e-portfolios, equating them with a place to store files, as well as a lack of teacher guidance.
- (2) Objective 2: Analyze cognitive and creative processes – students face difficulties in writing reflections, lack confidence in visual layout, and need more systematic guidance to express themselves in e-portfolios

Conclusion

This study concluded that the mastery of digital e-portfolios among Form Four students is still superficial and has not reached a meaningful level in terms of reflection and self-expression. Most students do not understand the true concept of e-portfolios as a narrative-based learning tool but rather consider them only as a platform to store work (Abdullah et al., 2023). The ambiguity of this concept is often associated with the absence of an assessment structure, lack of teacher support, and weaknesses in students' reflective skills (Nasir et al., 2023). This study also found that students' cognitive processes when building e-portfolios do not develop optimally because they are not given sufficient guidance in building meaningful narratives or reflections (Yusof et al., 2022).

In addition, the findings also show that students' creativity in designing digital content is still low, influenced by technical ignorance and lack of visual digital literacy (Ismail et al., 2021). The absence of assessment rubrics and concrete examples causes students to lose direction in determining what needs to be produced (Rahman & Jalil, 2022). Therefore, this study contributes to the field of digital Visual Arts Education by proposing a conceptual framework that integrates student understanding, reflection and creativity as the basis for mastering a more authentic and meaningful e-portfolio (Zulkifli & Hassan, 2023).

Conceptual Framework

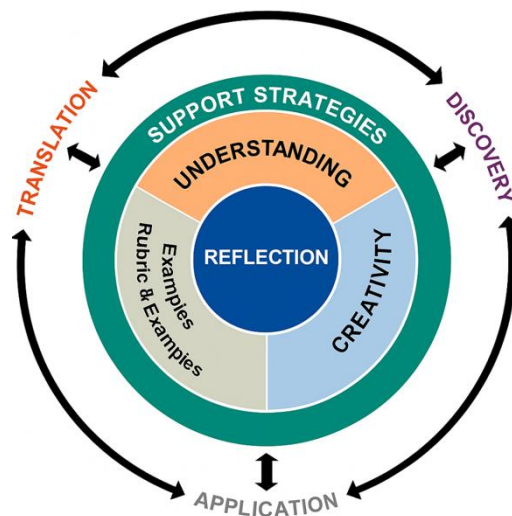


Figure 1: Conceptual Framework of Digital E-Portfolio Mastery

Source: Developed by the researcher based on Vygotsky (1978), Kolb (1984) and Mishra Koehler (2006)

The Digital E-Portfolio Mastery Conceptual Framework Model is designed to illustrate the key components that contribute to the meaningful production and mastery of e-portfolios among Form Four students. At the heart of the model is the main focus of the study: “Digital E-Portfolio Mastery”. This illustrates the main goal of students – to build e-portfolios not only as assignments, but as reflective, creative and structured learning tools.

The model is surrounded by three main components that form the basis of mastery: Conceptual Understanding, Cognitive & Reflective Processes, and Creative Design Skills. All three elements are influenced by external factors, namely Teacher Support, Digital Literacy, and Assessment Structure. These elements interact with each other, indicating that mastery does not occur in isolation but through systematic pedagogical support.

This model is inspired by research findings, which show that conceptual ambiguity, weaknesses in reflection, and poor e-portfolio design stem from a lack of guidance and digital literacy. With this framework in place, teachers and policymakers can design comprehensive interventions to improve students' skills in building more effective digital e-portfolios, based on 21st century learning.

-
- Acknowledgements:** The authors would like to express their sincere gratitude to University Malaya for providing the necessary resources and support throughout the course of this research. Special appreciation is extended to colleagues and peers who contributed valuable insights and constructive feedback, which greatly enhanced the quality of this paper.
- Funding Statement:** No Funding
- Conflict of Interest Statement:** The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Education, Psychology and Counselling (IJEPC).
- Ethics Statement:** This study was conducted in accordance with ethical research standards. All procedures involving human participants were reviewed and approved by the Jabatan Pendidikan Negeri Terengganu, approval number JPNT.SPS.500-8/3/2 Jld.11(74) Informed consent was obtained from all participants prior to data collection. Participation was voluntary, and respondents were assured of confidentiality and anonymity. The data collected were used solely for academic purposes.
- Author Contribution Statement:** All authors contributed significantly to the development of this manuscript. Norul Azlina Mohamed was responsible for the conceptualization, methodology, and overall supervision of the study. Dr Che Aleha Ladin handled data collection, analysis, and interpretation of results. Dr Azni Yati Kamaruddin contributed to the literature review, drafting, and critical revision of the manuscript. All authors read and approved the final version of the manuscript prior to submission.
-

References

- Abdullah, M. A., Jamaluddin, S., & Kamarulzaman, W. (2023). Digital Portfolios and Learning Ownership: A Qualitative Perspective. *International Journal of Instruction*, 16(1), 77–92.
- Abrami, P. C., & Barrett, H. (2005). Directions for research and development on electronic portfolios. *Canadian Journal of Learning and Technology*, 31(3), 1–15.
- Ahmad, S., Nor, N. F. M., & Aziz, R. A. (2022). Exploring the effectiveness of digital portfolios in secondary education. *Journal of Digital Learning and Education*, 4(1), 45–53.
- Aitken, T., & Olofson, M. W. (2020). Building deeper learning with ePortfolios: A heuristic for higher education. *International Journal of ePortfolio*, 10(2), 135–147.
- Ayuni, D. N., Handayani, I., & Prasetyo, R. D. (2023). Electronic Portofolio Sebagai Instrumen Penilaian Pembelajaran Siswa di Era Digital. *Jurnal Inovasi Pendidikan*.
- Barrett, H. C. (2007). Researching electronic portfolios and learner engagement: The REFLECT initiative. *Journal of Adolescent & Adult Literacy*, 50(6), 436–449.
- Batane, T., Ndama, M., & Morapedi, S. (2021). Assessment of E-Portfolio in Higher Education. *Journal of Contemporary Educational Research*, 5(6), 18–27.
- Batson, T. (2011). The ePortfolio and liberal education. *Peer Review*, 13(4), 4–7.
- Bazeley, P. (2013). *Qualitative data analysis: Practical strategies*. SAGE Publications.
- Buyarski, C. A., Aaron, R. W., Hansen, M. J., Hollingsworth, C. D., Johnson, C. A., Kahn, S., ... & Powell, A. A. (2015). Purpose and pedagogy: A conceptual model for ePortfolio. *International Journal of ePortfolio*, 5(1), 1–10.
- Hall, T., & Ziegler, M. (2016). The use of ePortfolios in teacher education: The case of a professional development program. *Journal of Applied Instructional Design*, 5(1), 24–35.
- Hallam, G., & Creagh, T. (2010). ePortfolio use by university students in Australia: A review of the Australian ePortfolio Project. *Australasian Journal of Educational Technology*, 26(1), 1–14.
- Ibrahim, S. H., & Zawawi, N. A. (2023). Educational E-Portfolio Overview: Aspiring for the Future by Building on the Present. *Asian Journal of Education and Social Studies*, 41(1), 1–12.
- Ismail, R., Mohd Nor, M. Z., & Saad, N. S. (2021). Visual Literacy and Student Digital Portfolio Construction in Art Education. *Journal of Technical Education and Training*, 13(4), 112–121.
- Lorenzo, G., & Ittelson, J. (2005). An overview of e-portfolios. *EDUCAUSE Learning Initiative Paper 1: 2005*.
- Mahsan, I. P., Mokhtar, E. S., & Mat Alim, M. (2022). Isu pelaksanaan dan inovasi e-pembelajaran Pendidikan Seni Visual sekolah luar bandar di fasa pandemik COVID-19. *Journal of Engineering, Technology & Applied Science*, 4(3), 131–139.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.
- Mohd Yusof, M. R., Rahim, N. A., & Tan, K. E. (2022). Analisis pelaksanaan e-portfolio dalam kalangan pelajar sekolah menengah: Kajian kes di Malaysia. *Jurnal Pendidikan Malaysia*, 47(2), 75–88.
- Nasir, N. M., Halim, A., & Othman, Z. (2023). E-Portfolio Implementation Challenges in Secondary Education. *Malaysian Journal of Learning and Instruction*, 20(2), 35–56.

- Nasution, M. R., Fitriani, E., & Lubis, A. (2023). Exploring Perspectives and Uses of E-Portfolio in Vocational Education. *Journal of Vocational Education and Training*, 9(1), 55–67.
- Nguyen, C. F., & Ikeda, M. (2015). Developing digital portfolio literacy among pre-service teachers. *International Journal of Education and Development using ICT*, 11(2), 1–14.
- Norhayati, A., Zulkifli, N. A., & Zamri, N. M. (2022). Kepentingan E-Modul dalam Pengajaran dan Pembelajaran Pendidikan Seni Visual. *Jurnal Pendidikan Malaysia*, 47(3), 23–35.
- Parkes, K. A., Dredger, K., & Hicks, D. (2013). ePortfolio as a measure of reflective practice. *International Journal of ePortfolio*, 3(2), 99–115.
- Patton, M. Q. (1980). *Qualitative evaluation methods*. SAGE Publications.
- Puspita, D. A., Fauzi, A., & Ningsih, A. S. (2023). Konsep dan Implementasi TPACK pada Pembelajaran di Sekolah Dasar. *Jurnal Teknologi Pendidikan*, 25(1), 70–82.
- Rahman, N. A., & Jalil, F. F. (2022). Assessment Rubrics in Enhancing Student Performance in Digital Art Portfolios. *Asian Journal of University Education*, 18(3), 101–115.
- Reese, M., & Levy, R. (2009). Assessing the future: E-portfolio trends, uses, and options in higher education. *Educause Center for Applied Research Research Bulletin*, 4, 1–12.
- Silverman, D. (2017). *Doing qualitative research* (5th ed.). SAGE Publications.
- Sumardi, L., Muhtarom, T., & Widodo, M. R. (2021). Electronic portfolio as an alternative assessment in EFL writing: A case study. *Asian EFL Journal*, 28(2.3), 65–85.
- Thomas, R., Appelhans, S., Kozick, R., Matlack, C., Asare, P., Thompson, M., Thomas, S. J., Nickel, R., & Cheville, A. (2023). Addressing the barriers of knowledge transfer: Using ePortfolios to enhance student reflection in technical courses. In *2023 IEEE Frontiers in Education Conference (FIE)*. IEEE.
- Yancey, K. B. (2009). Reflection in the writing classroom and beyond. In D. Cambridge (Ed.), *Electronic portfolios 2.0* (pp. 5–19). Stylus Publishing.
- Yusof, N. A., Hassan, R., & Mazlan, N. (2022). Cognitive Processes in Portfolio-Based Learning: A Study among Malaysian Students. *International Online Journal of Education and Teaching (IOJET)*, 9(1), 145–162.
- Zawawi, N. A., Ismail, M. I., & Hassan, H. (2020). Kesiapsiagaan pelajar sekolah menengah terhadap pembelajaran digital dalam kurikulum masa hadapan. *Jurnal Kurikulum & Pengajaran Asia Pasifik*, 8(3), 45–58.
- Zhao, G., He, H., Di, B., Xia, Q., & Fu, Z. (2021). A blockchain-based system for student e-portfolio assessment using smart contract. In *Proceedings of the 2020 4th International Conference on Computer Science and Artificial Intelligence (CSAI 2020)*. Association for Computing Machinery.
- Zulkifli, S. N., & Hassan, A. (2023). Developing Conceptual Frameworks for Digital Competency in Visual Arts. *Universal Journal of Educational Research*, 11(2), 236–245.