

Revitalising Traditional Weaving Craft through Digital Learning: A Need Analysis of Youth Engagement and Culturally Responsive Pedagogy

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ABSTRACT

Traditional weaving, once a vital form of cultural expression, is experiencing declining interest among younger generations. This study, *“Examining Youth Engagement with Traditional Weaving Craft Through Web-Based Interactive Learning Modules”* addresses this issue through the integration of contemporary educational technologies and principles of culturally responsive pedagogy. Grounded in the work of Gloria Ladson-Billings (2021) and Geneva Gay (2018), the study emphasizes the importance of connecting learners’ cultural backgrounds with instructional practices to enhance engagement and relevance. The research examines youths’ perceptions of weaving, the development of interactive learning activities based on traditional patterns and motifs from diverse tribal cultures. A mixed-method approach was employed, combining surveys and semi-structured interviews to assess participants’ interest and knowledge levels. An interactive, web-based module educational tool will design by incorporating multimedia elements such as videos, slideshows, and exercises to present the cultural significance and design complexity of traditional weaving. The integration of culturally responsive content alongside digital media enhances students’ understanding, cultural awareness, and appreciation of traditional crafts. The study concludes that technology-enhanced, culturally responsive learning modules can play a significant role in revitalising traditional weaving by making it more meaningful and accessible to younger audiences. It recommends expanding culturally grounded content and conducting longitudinal research to examine long-term impacts on educational outcomes and cultural sustainability.

Keywords: Traditional Weaving Craft, Cultural Awareness, Culturally Responsive Pedagogy, Young Generation, Visual Art Education

INTRODUCTION

Art is a form of creative expression that reflects human aesthetic and functional needs, shaped by cultural, religious, spatial, and temporal contexts. The study of visual art plays a crucial role in developing learners’ abilities to interpret, analyse, and apply design principles, while also fostering self-expression and visual communication in contemporary media environments (Freedman, 2023; Efland, 2022). As visual culture continues to evolve, art education becomes increasingly significant in equipping learners with the skills to engage meaningfully with both traditional and modern forms of expression. Despite its cultural significance, traditional craft practices such as weaving are experiencing a decline in relevance among younger generations. Once a vital form of cultural expression, weaving now faces diminishing interest due to factors such as globalisation, technological advancement, and shifting socio-economic priorities. These changes have contributed to a growing

disconnect between youth and traditional heritage practices, placing weaving at risk of cultural erosion if adaptive and innovative preservation strategies are not implemented (UNESCO, 2023; Adamson, 2021).

In response to this challenge, the study titled *“Examining Youth Engagement with Traditional Weaving Craft Through Interactive Learning Modules”* seeks to bridge the gap between cultural heritage and contemporary learning environments through the integration of digital technology and culturally responsive pedagogy (CRP). Grounded in CRP principles, the study emphasizes the importance of connecting learners’ cultural identities, lived experiences, and community knowledge to instructional content, thereby enhancing engagement, meaning-making, and cultural continuity. This approach ensures that traditional weaving is not only preserved as cultural heritage but also made relevant and accessible within modern educational contexts.

Background of The Study

Art craft refers to a wide range of handcrafted products that integrate aesthetic value with functional purpose, representing a timeless expression of human creativity, skill, and cultural identity. As emphasized by John Ruskin, artistic creation embodies the integration of the hand, head, and heart, highlighting both technical mastery and emotional engagement. Unlike mass-produced goods, handcrafted works carry distinctive cultural meanings shaped by material use and artisanal practices (Adamson, 2021; Dormer, 2020). This study focuses specifically on weaving as a significant form of traditional craft. In many traditional societies, weaving has been closely associated with women’s roles, often practiced for domestic purposes, cultural continuity, and supplementary income rather than as a primary economic activity. Gendered divisions of labour are evident, with women predominantly responsible for weaving processes, while men assist in preparatory tasks. Although traditionally small-scale, the weaving sector has increasingly been supported by formal institutions such as the Malaysian Handicraft Development Corporation and community-based organisations, contributing to its economic and cultural sustainability (UNESCO, 2023; Noor & Hashim, 2022).

This study highlights the weaving traditions of the Murut tribe in Borneo, whose intricate motifs and patterns reflect their cultural beliefs, identity, and way of life. However, like many indigenous crafts, Murut weaving faces challenges due to modernisation and declining youth engagement. In response, the development of interactive learning materials centred on Murut weaving is proposed as a strategy for cultural preservation and education. Grounded in Culturally Responsive Pedagogy (CRP), as articulated by Geneva Gay (2018) and Gloria Ladson-Billings (2021), this study emphasizes the importance of integrating learners’ cultural identities, community knowledge, and lived experiences into the learning process. CRP ensures that instruction is meaningful, inclusive, and contextually relevant by linking curriculum content to students’ cultural backgrounds. In this study, Murut weaving knowledge, symbols, and narratives are embedded into digital learning materials to enhance cultural connection, engagement, and identity affirmation among learners. Digital technologies further provide accessible and scalable means to document, disseminate, and revitalise intangible cultural heritage, while fostering broader public awareness and community empowerment (Rahman et al., 2024).

Problem Statement

The craft of weaving, a vital thread connecting cultural identity across generations, is increasingly at risk of decline amid rapid socio-economic transformation. Globalisation, the rise of mass-produced alternatives, and shifting youth interests have significantly reduced engagement with traditional weaving practices. This raises a critical concern regarding the sustainability of weaving as an element of intangible cultural heritage and its relevance among younger generations (UNESCO, 2023; Smith, 2022). Addressing this issue requires a comprehensive understanding of the multidimensional challenges faced by weaving communities, including limited market adaptability, economic sustainability, and weakening intergenerational transmission of cultural knowledge. From a Culturally Responsive Pedagogy (CRP) perspective, this disconnect reflects a broader misalignment between formal education systems and learners’ cultural identities. CRP emphasizes the integration of learners’ cultural backgrounds, lived experiences, and community knowledge into instructional practices to enhance engagement and meaning-making (Gay, 2018; Ladson-Billings, 2021).

In the Malaysian context, Jia and Nasri (2019) highlight that teacher competence in implementing culturally responsive pedagogy remains essential in bridging cultural knowledge and classroom practice, particularly in

arts and heritage-related subjects. Furthermore, Nasri, Nasri, and Abd Talib (2021) emphasise the importance of culturally responsive digital and blended learning environments in strengthening cultural relevance and learner engagement in higher education settings. Complementing these perspectives, Siti Zuraida Maaruf's studies demonstrate how culturally responsive approaches in art education particularly through traditional crafts such as batik and weaving can enhance students' cultural awareness, creativity, and appreciation of heritage-based learning (Maaruf, 2019; Maaruf et al., 2025). Therefore, this study seeks to investigate the underlying factors contributing to the decline of weaving practices by engaging with artisans, educators, and cultural stakeholders. It aims to assess the extent of this decline while proposing culturally responsive and technology-enhanced strategies that reconnect younger generations with traditional craft knowledge, ensuring both cultural sustainability and educational relevance (Rahman et al., 2024).

Research Objective

The study focuses on three primary objectives:

1. To examine youths' perceptions of traditional weaving knowledge and their need for an interactive web-based learning module, incorporating elements of culturally responsive pedagogy.

METHODOLOGY

This study adopts a Design and Development Research (DDR) approach with a quantitative research design to examine youths' perceptions of traditional weaving knowledge and their need for an interactive learning module, incorporating elements of culturally responsive pedagogy in weaving craft education. DDR is appropriate for studies that aim to systematically identify needs and inform the development of an educational product, particularly in technology-enhanced learning contexts (Richey & Klein, 2007). The study begins with a needs analysis phase, focusing on identifying learners' knowledge levels, attitudes, and requirements for an interactive weaving module. A quantitative descriptive approach is employed to enable the statistical measurement of participants' perceptions, experiences, and engagement levels (John W. Creswell & J. David Creswell, 2017).

Purposive sampling is used to select participants who can provide rich and relevant data aligned with the objectives of the study (Etikan et al., 2016). Data collection is conducted using a structured questionnaire distributed via Google Forms. The instrument utilises a Likert scale to measure students' knowledge of traditional weaving, their attitudes towards the craft, and their perceived need for an interactive, culturally responsive learning module. Ethical considerations are strictly observed throughout the research process, including informed consent, confidentiality, and approval from Universiti Teknologi MARA (UiTM) and the participating school. These procedures ensure the validity, reliability, and integrity of the study. Overall, this methodological approach strengthens the needs analysis phase of the DDR framework and provides a solid empirical foundation for the subsequent design and development of an interactive, culturally responsive weaving module for educational use.

Findings

a. Demographic information

Gender	Total Respondents
Boy	25 (40%)
Girl	40 (60%)
Total	62

From the survey that researchers gather, the survey results indicate that most respondents are female, comprising 60%, followed by males 40%.

b. General Perception of Weaving Craft

This section presents the findings from the second part of the distributed questionnaire, which consists of ten items designed to assess respondents' overall perceptions of traditional weaving craft.

1. The important to preserve traditional crafts like weaving

How important do you think it is to preserve traditional crafts like weaving? Pada pendapat anda, sejauh manakah pentingnya mengekalkan kraf tradisional seperti anyaman?
65 responses

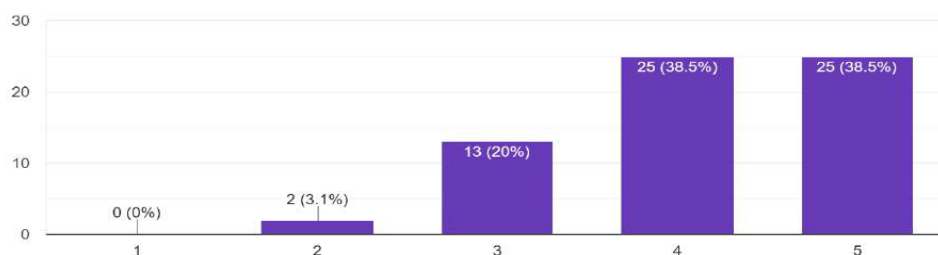


Figure 1: The important to preserve traditional crafts like weaving

Based on Figure 1, the findings illustrate respondents' views on the importance of preserving traditional crafts such as weaving. No respondents selected Option 1, indicating that none of the participants perceived weaving as not important at all. A total of 2 respondents (3.1%) chose Option 2, reflecting a minimal level of importance. Meanwhile, 13 respondents (20%) selected Option 3, indicating a moderate perception of importance. Most respondents, 25 participants (38.5%), chose Options 4 and 5, indicating that they perceive traditional crafts such as weaving as important and highly important. Overall, the results demonstrate a strong positive perception among respondents regarding the importance of preserving traditional weaving craft.

2. The students' level of familiarity with the cultural significance of weaving within the community.

How familiar are you with the cultural significance of weaving in your community? Sejahter manakah anda mengenali kepentingan budaya anyaman dalam komuniti anda?
65 responses

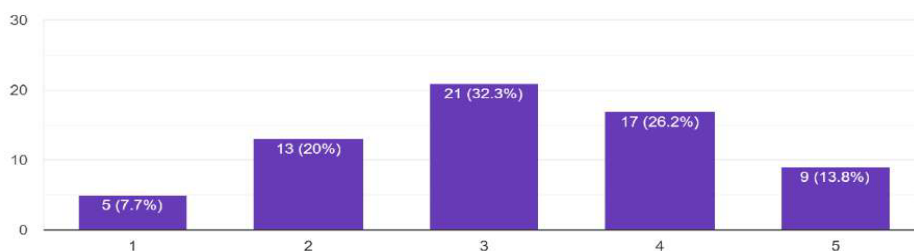


Figure 2: The students' level of familiarity with the cultural significance of weaving within the community

Based on Figure 2, the findings present respondents' level of familiarity with the cultural significance of weaving within the community. A total of 5 respondents (7.7%) selected Option 1, indicating that they are not familiar at all with the cultural significance of weaving. Meanwhile, 13 respondents (20%) chose Option 2, reflecting a low level of familiarity. The largest group, comprising 21 respondents (32.3%), selected Option 3, indicating a moderate level of familiarity. In addition, 17 respondents (26.2%) chose Option 4, showing that they are familiar with the cultural significance of weaving. Finally, 9 respondents (13.8%) selected Option 5, indicating that they are highly familiar with its cultural significance. Overall, the results suggest that while a substantial proportion

of respondents demonstrate moderate to high familiarity, there remains a notable segment with limited awareness of the cultural significance of weaving in the community.

3. Belief in Weaving as a Form of Artistic Expression

Do you believe that weaving can be a form of artistic expression? Adakah anda percaya bahawa anyaman boleh menjadi satu bentuk ekspresi artistik?

65 responses

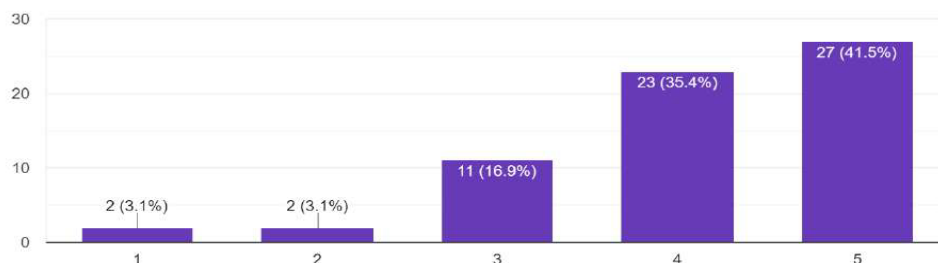


Figure 3: Students Belief in Weaving as a Form of Artistic Expression

Figure 3 presents respondents' perceptions regarding whether weaving is considered a form of artistic expression. The findings illustrate varying levels of agreement among participants on the artistic value of weaving, reflecting their understanding of its aesthetic and cultural significance. Based on Figure 3, the findings present respondents' beliefs regarding whether weaving can be considered a form of artistic expression. A total of 2 respondents (3.1%) selected Option 1, indicating strong disagreement that weaving represents artistic expression. Similarly, another 2 respondents (3.1%) chose Option 2, reflecting a general disagreement with this view. Meanwhile, 11 respondents (16.9%) selected Option 3, indicating a moderate belief that weaving can be considered an artistic expression. In addition, 23 respondents (35.4%) chose Option 4, showing agreement that weaving is a form of artistic expression. Finally, the largest group, 27 respondents (41.5%), selected Option 5, strongly affirming that weaving can be regarded as an artistic expression. Overall, the results indicate a strong positive perception among respondents regarding the artistic value of weaving craft.

4. The importance of learning about weaving craft patterns from different

Would you find it valuable to learn about weaving craft patterns from a different tribe? Adakah anda rasa berkeperluan untuk belajar tentang menganyam corak kraf daripada suku kaum yang berbeza?

65 responses

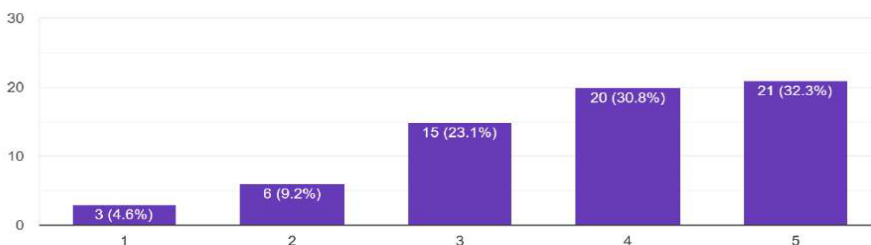


Figure 4: Respondents' views on the importance of learning about weaving craft patterns from different tribes.

According to Figure 4, the findings present respondents' views on the importance of learning about weaving craft patterns from different tribes. A total of 3 respondents (4.6%) selected Option 1, indicating strong disagreement with the importance of learning about weaving patterns from different tribes. Meanwhile, 6 respondents (9.2%) chose Option 2, reflecting a general disagreement with the statement. In addition, 15 respondents (23.1%) selected Option 3, indicating a moderate perception of the importance of learning about weaving craft patterns from different tribes. Furthermore, 20 respondents (30.8%) chose Option 4, agreeing that

learning about weaving patterns from different tribes is important. Lastly, 21 respondents (32.3%) selected Option 5, strongly agreeing that it is highly important to learn about weaving craft patterns from different tribes. Overall, the results indicate a strong positive perception among respondents regarding the importance of learning diverse tribal weaving patterns.

5. Comfort Level in Using Online Resources for Learning

How comfortable are you using online resources for learning? Se jauh manakah anda selesa menggunakan sumber dalam talian untuk pembelajaran?
65 responses

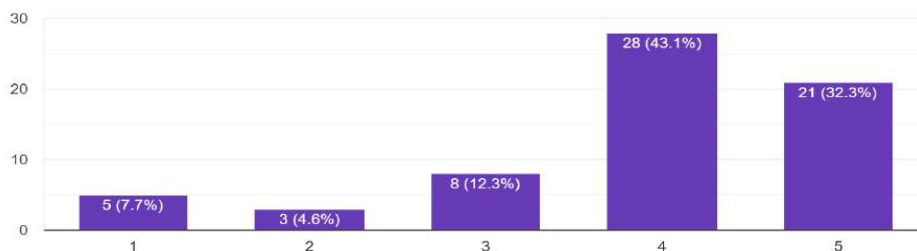


Figure 5: Students level of comfort in using online resources for learning

Based on Figure 5, the findings present respondents' level of comfort in using online resources for learning. A total of 5 respondents (7.7%) selected Option 1, indicating that they strongly disagree that they are comfortable using online learning resources. Meanwhile, 3 respondents (4.6%) chose Option 2, reflecting a general disagreement with the statement. In addition, 8 respondents (12.3%) selected Option 3, indicating a moderate level of comfort in using online resources for learning. Most respondents, 28 participants (43.1%), chose Option 4, agreeing that they are comfortable using online learning resources. Finally, 21 respondents (32.3%) selected Option 5, strongly agreeing that they feel very comfortable using online resources for learning. Overall, the results indicate a high level of comfort among respondents in engaging with online learning platforms and digital learning resources.

6. Respondents' levels of self-engagement with a web-based platform for learning traditional weaving craft

How likely are you to engage with a web-based platform for learning about weaving craft? Se jauh manakah anda akan melibatkan diri dengan platfor...asaskan web untuk belajar tentang kraf anyaman?
65 responses

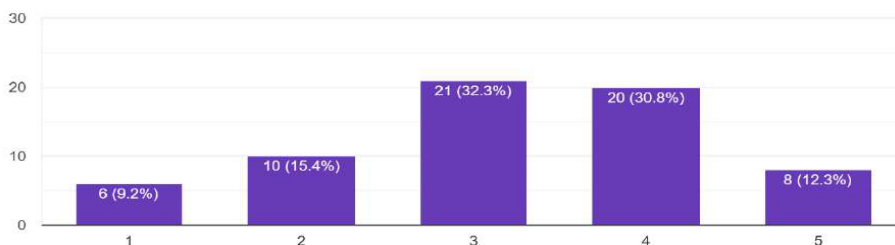


Figure 6: Respondents' levels of self-engagement with a web-based platform for learning traditional weaving craft

Based on Figure 6, the findings present respondents' levels of self-engagement with a web-based platform for learning traditional weaving craft. A total of 6 respondents (9.2%) selected Option 1, indicating that they strongly disagree with engaging in a web-based platform for learning weaving craft. Meanwhile, 10 respondents (15.4%) chose Option 2, reflecting a general disagreement with self-engagement in the platform. In addition, 21 respondents (32.3%) selected Option 3, indicating a moderate level of self-engagement with web-based learning

for weaving craft. Furthermore, 20 respondents (30.8%) chose Option 4, indicating agreement that they are engaged and interested in using a web-based platform to learn weaving craft. Lastly, 8 respondents (12.3%) selected Option 5, strongly agreeing that they are highly engaged and interested in learning weaving craft through an online platform. Overall, the results suggest a generally positive level of self-engagement among respondents toward web-based learning for traditional weaving education.

7. Respondents' beliefs regarding whether a web-based platform can provide an interactive and engaging learning experience for traditional weaving craft.

Do you believe that a web-based platform can provide an interactive and engaging learning experience for weaving craft? Adakah anda percaya... yang interaktif dan menarik untuk kraf anyaman?
65 responses

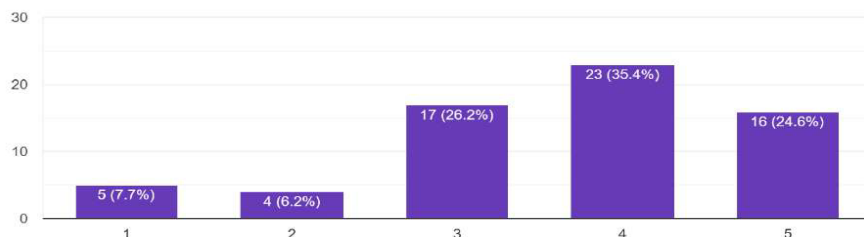


Figure 7: Respondents' beliefs regarding whether a web-based platform can provide an interactive and engaging learning experience for traditional weaving craft.

Based on Figure 7, the findings present respondents' beliefs regarding whether a web-based platform can provide an interactive and engaging learning experience for traditional weaving craft. A total of 5 respondents (7.7%) selected Option 1, indicating strong disagreement with the statement. Meanwhile, 4 respondents (6.2%) chose Option 2, reflecting a general disagreement. In addition, 17 respondents (26.2%) selected Option 3, indicating a moderate belief that a web-based platform can provide an interactive and engaging learning experience. Furthermore, 23 respondents (35.4%) chose Option 4, indicating agreement that such platforms can enhance interactivity and engagement in learning weaving craft. Lastly, 18 respondents (24.6%) selected Option 5, strongly agreeing that web-based platforms are effective in providing interactive and engaging learning experiences for weaving education. Overall, the results suggest a positive perception among respondents toward the potential of web-based platforms in enhancing engagement and interactivity in learning traditional weaving craft.

8. Respondents' views on whether the web-based learning platform for teaching weaving craft is user-friendly.

How user-friendly do you find the web-based learning platform for teaching weaving craft? Sejahter manakah anda mendapati platform pembelajaran b... untuk mengajar kraf anyaman mesra pengguna?
65 responses

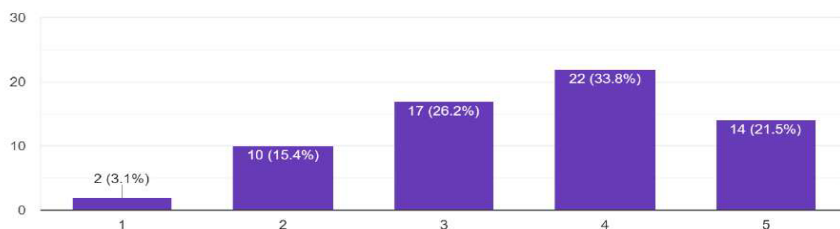


Figure 8: Respondents' views on whether the web-based learning platform for teaching weaving craft is user-friendly.

Based on Figure 8, the findings present respondents' views on whether the web-based learning platform for teaching weaving craft is user-friendly. A total of 2 respondents (3.1%) selected Option 1, indicating strong disagreement that the platform is user-friendly. Meanwhile, 10 respondents (15.4%) chose Option 2, reflecting a general disagreement with the statement. In addition, 17 respondents (26.2%) selected Option 3, indicating a moderate perception of the platform's user-friendliness. Furthermore, 22 respondents (33.8%) chose Option 4, agreeing that the web-based learning platform is user-friendly for teaching weaving craft. Lastly, 14 respondents (21.5%) selected Option 5, strongly agreeing that the platform is user-friendly. Overall, the results indicate that most respondents perceive the web-based learning platform as user-friendly and suitable for supporting weaving craft education.

9. Respondents' views on whether web-based learning platforms meet the diverse learning needs of students.

How well does the web-based platform cater to the diverse learning needs of students in your opinion? Sejauh manakah platform berasaskan web...aran pelajar yang pelbagai pada pendapat anda?
65 responses

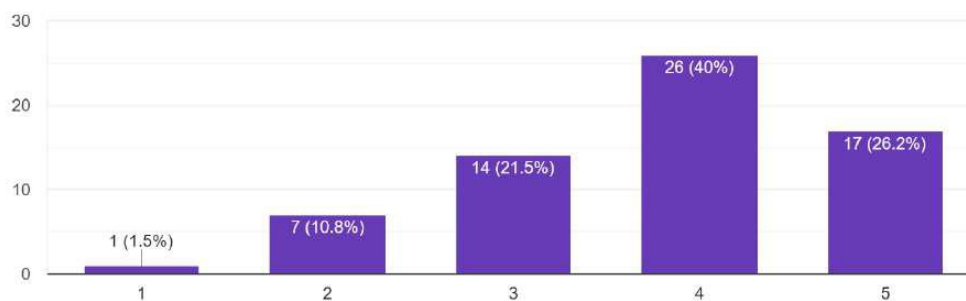


Figure 9: Respondents' views on whether web-based learning platforms meet the diverse learning needs of students.

Based on Figure 9, the findings present respondents' views on whether web-based learning platforms meet the diverse learning needs of students. A total of 1 respondent (1.5%) selected Option 1, indicating strong disagreement that web-based platforms address diverse learning needs. Meanwhile, 7 respondents (10.8%) chose Option 2, reflecting a general disagreement with the statement. In addition, 14 respondents (21.5%) selected Option 3, indicating a moderate perception that web-based learning platforms meet students' diverse learning needs. Furthermore, 26 respondents (40%) chose Option 4, agreeing that such platforms are effective in addressing diverse learning requirements. Lastly, 17 respondents (26.2%) selected Option 5, strongly agreeing that web-based learning platforms cater well to the varied learning needs of students. Overall, the results indicate a positive perception among respondents regarding the effectiveness of web-based learning platforms in supporting diverse learning needs.

DISCUSSION

The need analysis for this study is grounded in examining youths' perspectives on traditional weaving craft, the usability of web-based learning platforms, and the effectiveness of supplementary learning materials such as pocket notes and exercise books. Understanding learners' interest, knowledge, and engagement with traditional crafts is essential, particularly as prior studies indicate a decline in exposure due to the dominance of digital entertainment and reduced emphasis on cultural heritage in education (Tan & Nasir, 2018; UNESCO, 2023). To address the first objective, this study explores youths' perceptions of weaving craft, focusing on their levels of interest, knowledge, and engagement. Contemporary literature highlights that limited exposure to traditional crafts among younger generations is often linked to curriculum constraints and shifting educational priorities. Therefore, surveys and focus group discussions are employed to capture learners' attitudes, perceived relevance,

and barriers to engagement, enabling educators to design more culturally meaningful learning experiences (Rahim & Ismail, 2020; Gay, 2018).

In addition, the study evaluates the usability of web-based learning platforms among teachers and students, alongside the effectiveness of supplementary materials such as pocket notes and exercise books. Usability evaluation is essential to ensure that learning tools are user-friendly, accessible, and pedagogically effective. Research in educational technology shows that well-designed digital learning environments can support differentiated learning and improve engagement across diverse learners (Smith et al., 2020; Kumar & Sharma, 2022). Furthermore, integrating digital platforms with structured learning aids enhances knowledge retention and reinforces skill development in craft-based education (Lee & Kang, 2023). Overall, this need analysis ensures that the development of a culturally responsive, technology-enhanced weaving learning module is grounded in learners' actual needs, usability considerations, and cultural relevance.

CONCLUSION

In conclusion, the need analysis highlights a clear requirement for an integrated, culturally responsive, and technology-enhanced approach to support the teaching and learning of traditional weaving craft. The findings indicate that youths' exposure, interest, and knowledge of weaving are influenced by limited engagement with cultural heritage in current educational settings and the dominance of digital-based entertainment. At the same time, there is a strong indication that learners are receptive to web-based learning platforms, provided that these systems are user-friendly, interactive, and relevant to their learning needs. Furthermore, the analysis reveals that supplementary learning materials such as pocket notes and exercise books can serve as valuable reinforcement tools when integrated effectively with digital learning platforms. The combination of these resources supports diverse learning styles and strengthens knowledge retention in craft-based education. Overall, this need analysis justifies the development of an interactive weaving learning module that is grounded in culturally responsive pedagogy. Such a module has the potential to bridge the gap between traditional cultural knowledge and modern learning environments, while enhancing youths' awareness, engagement, and appreciation of weaving as an important cultural heritage.

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