INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 13, Issue 4, (2024) E-ISSN: 2226-6348

Handicraft Heroes: Transferring the Knowledge Torch in Malaysian Crafts, Boh!

Razifah Othman

Department of Information System, Faculty of Management, Universiti Teknologi Malaysia, Malaysia & Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Negeri Sembilan Branch, Rembau Campus, Malaysia

Email: razifah@graduate.utm.my & razif879@uitm.edu.my

Othman Ibrahim

Department of Information System, Faculty of Management, Universiti Teknologi Malaysia, Malaysia

Email: othmanibrahim@utm.my

Siti Nuur-Ila Mat Kamal

Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Johor Branch, Segamat Campus, Malaysia

Email: sitin509@uitm.edu.my

Haziah Saári

Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA (UiTM) Negeri Sembilan Branch, Rembau Campus, Malaysia.

Email: haziah095@uitm.edu.my

To Link this Article: http://dx.doi.org/10.6007/IJARPED/v13-i4/23829 DOI:10.6007/IJARPED/v13-i4/23829

Published Online: 21 November 2024

Abstract

This study aims to examine how well traditional Malaysian handicrafts are preserved through knowledge transfer, focusing on five crafts. The study looks at both knowledge to identify strengths, challenges and potential improvements in current training methods. A mixed methods approach was used to gather both quantitative and qualitative data. Various key indicators were used for evaluation, including the Knowledge Retention Rate (KRR) Learning Efficiency (LE) Knowledge Depth Index (KDI), Innovation Index (II) and Sustainability Index (SI). Descriptive statistics were used to analyse the quantitative assessment data to measure these metrics. Qualitative data was collected through interviews and observations to gain insights into the challenges faced by apprentices and master craftsmen. By combining both types of data analysis, a comprehensive understanding of how knowledge is passed down was achieved. The results showed that apprentices had a KRR of 80%, indicating that most of them effectively retained the skills and knowledge they were taught. The LE was found to be

105.26%, suggesting that apprentices acquired competence faster than expected. Overall, the findings highlighted a need for increased innovation in handicrafts. To uphold the varied legacy of Malaysia, addressing the obstacles identified and implementing tailored solutions are crucial in handicrafts. These discoveries provide insights for policymakers, educators and cultural organisations involved in safeguarding and championing traditional crafts. (215 words)
Keywords: Knowledge Transfer, Tacit Knowledge, Explicit Knowledge, Malaysian Handicrafts, Cultural Heritage

Introduction

Crafts such as ceramics, earthenware, textiles and metals are symbols of Malaysia's cultural heritage. Skilled craftsmen have worked diligently to preserve and pass down these traditions through generations, safeguarding knowledge. The sustainability of these crafts depends on the transmission of information from artisans to young apprentices. The term "Handicraft Heroes" aptly captures the dedication and expertise of these craftsmen, while the concept of "passing on the knowledge torch" underscores the process of teaching intricate skills and cultural values. To engage audiences, incorporating terms like "Boh!" or Boss, in discussions can emphasise the importance and immediacy of sharing this knowledge while adding a unique local touch.

The research involved 20 apprentice artisans from craft institutes who specialised in the crafts mentioned during their third years of training. These apprentices play a role in maintaining and advancing their crafts. The main goal of this study is to evaluate the effectiveness of knowledge transfer methods in the handicraft industry. The research seeks to assess the strengths and weaknesses of existing training and educational programs by analysing factors like Knowledge Retention Rate (KRR), Learning Efficiency (LE), Knowledge Depth Index (KDI), Innovation Index (II), and Sustainability Index (SI). Developing strategies to preserve and enhance Malaysia's crafts depends on understanding these aspects and ensuring the conservation of the country's heritage for generations. This study enlightens on how knowledge is passed down in handicrafts and provides recommendations for enhancing these processes to foster a sustainable and innovative craft industry.

Method

The qualitative data was collected using a combination of methods. Craftsmen supervised a training initiative that involved twenty apprentices, four from each talent category. The evaluation of knowledge was conducted through sensory intuition exercises and talent evaluations. Analytical tasks, process documentation review, and written assessments were implemented to evaluate explicit knowledge. The criteria for evaluation were evaluated using a variety of instruments.

Table 1
Types of Assessment Instrument, Knowledge and Method

Instrument	**Description**	**Types of Knowledge**	**Method**
Practical Skills Assessment	Apprentices are evaluated on their ability to perform specific tasks related to their craft, such as batik dyeing, Songket weaving, and wood carving.	Tacit	Quantitative
Sensory and Intuitive Skills Assessment	Tasks designed to assess apprentices' sensory skills and intuitive decision-making.	Tacit	Quantitative
Theoretical Knowledge Assessment	Written exams, including multiple-choice and short-answer questions, are used to evaluate explicit knowledge.	Explicit	Quantitative
Process Documentation and Analysis	Apprentices are required to document processes and analyse techniques, providing insights into their understanding and ability to communicate knowledge.	Explicit	Quantitative
Interviews and Observations	Qualitative data was collected through interviews with apprentices and master craftsmen, along with observations of the training process.	Tacit and Explicit	Qualitative

Results

Quantitative Analysis

Significant factors explain why quantitative analysis is employed in this situation. Initially, it facilitates the evaluation of the effectiveness of training techniques and the progress of apprentices. The assessment process is standardised across a variety of craft disciplines and training contexts through quantitative analysis, which contrasts with information that provides narrative insights into personal experiences and perspectives to identify trends and patterns. The metrics enumerated above can be used to identify the strengths and weaknesses of the training programs by quantifying factors such as skill retention, learning effectiveness, and creativity. This chart comprises metrics that pertain to apprentices' active engagement in their respective disciplines, knowledge levels, innovative designs, and time spent on learning.

Table 2
Apprentice Performance and Knowledge Transfer Data

Apprentice ID	Craft Type	Successful (1/0)	Actual Learning Time (Years)	Tacit Knowledge Score (100)	Explicit Knowledge Score (100)	New Designs Introduced	Active Practitioner (1/0)
A1	Various craft	1	4.0	80	90	2	1
A2	Various craft	1	5.0	85	88	3	1
A3	Various craft	0	6.0	70	75	1	0
A4	Various craft	1	4.5	90	92	4	1
A5	Ceramic and earthenware	1	4.0	75	80	2	1
A6	Ceramic and earthenware	1	5.0	85	89	3	1
A7	Ceramic and earthenware	1	4.0	88	87	2	1
A8	Ceramic and earthenware	1	4.5	90	91	4	1
A9	Forest-based	0	6.0	65	70	1	0
A10	Forest-based	1	5.0	78	82	3	1
A11	Forest-based	1	4.0	85	86	2	1
A12	Forest-based	1	4.5	92	93	4	1
A13	Textile-based	1	4.0	84	85	2	1
A14	Textile-based	0	6.0	70	72	1	0
A15	Textile-based	1	5.0	88	89	3	1
A16	Textile-based	1	4.0	86	87	2	1
A17	Metal-based	1	4.5	91	92	4	1
A18	Metal-based	1	4.0	83	84	2	1
A19	Metal-based	0	6.0	75	77	1	0
A20	Metal-based	1	5.0	87	88	3	1

Knowledge Retention Rate (KRR)

The concept of Knowledge Retention Rate (KRR) was developed by Bloom, B. S. in 1956. KRR evaluates the extent to which apprentices retain the knowledge imparted by craftsmen. This metric is significant because it indicates the efficacy of the training program and the likelihood that apprentices will be able to apply their newfound knowledge.

$$\text{KRR} = \left(\frac{\text{Number of successful apprentices}}{\text{Total number of apprentices}} \right) \times 100$$

There are 16 successful apprentices out of 20.

$$\text{KRR} = \left(\frac{16}{20} \right) \times 100 = 80\%$$

Analysis: The knowledge transmission process is quite efficient, as the majority of apprentices are able to retain the skills and knowledge they acquire, as indicated by KRR. Nevertheless, there is potential for development in order to guarantee retention.

Learning Efficiency (LE)

Learning Efficiency (LE) is a concept derived from the work of Gagné R. M. (1985). It evaluates how quickly apprentices acquire proficiency, in their trade in relation, to the learning. This metric is important as it offers an understanding of the efficiency of knowledge transfer and highlights opportunities for improving and refining the learning journey.

$$\text{LE} = \left(\frac{\text{Standard learning time}}{\text{Actual learning time}} \right) \times 100$$

Assuming the standard learning time is 5 years, we calculate the average actual learning time:

$$\text{Average Actual Learning Time} = \frac{95.0}{20} = 4.75 \text{ years}$$

$$\text{LE} = \left(\frac{5}{4.75} \right) \times 100 \approx 105.26\%$$

Analysis: An efficiency rate of 105.26% in learning indicates that newcomers are picking up information faster than the standard. This shows that the teaching methods are effective and that the students are highly skilled.

Knowledge Depth Index (KDI)

The Knowledge Depth Index (KDI) stems from Anderson and Krathwohl's work in 2001. It measures how well learners grasp knowledge encompassing both aspects. This metric is crucial to ensure that learners not only develop skills but also grasp the intricate and nuanced aspects of the subject matter.

$$\text{KDI} = \frac{\text{Average Tacit Knowledge Score} + \text{Average Explicit Knowledge Score}}{2}$$

$$\text{Average Tacit Knowledge Score} = \frac{1637}{20} = 81.85$$

$$\text{Average Explicit Knowledge Score} = \frac{1710}{20} = 85.5$$

$$\text{KDI} = \frac{81.85 + 85.5}{2} = 83.675$$

Analysis: An 83.675 KDI rating indicates that apprentices have a grasp of both the hands-on (and theoretical (explicit) aspects of their craft essential for maintaining the quality and craftsmanship of handmade goods.

Innovation Index (II)

The Innovation Index (II) based on Amabile, T. M. (1996) measures the ability of learners to introduce ideas or approaches within the existing structure. This metric is vital for assessing

how well knowledge is being passed on to foster creativity and innovation, both crucial, for the progress and importance of age crafts

$$\text{II} = \left(\frac{\text{Total New Designs Introduced}}{\text{Total Designs}} \right) \times 100$$

Total new designs introduced by all apprentices:

$$\text{Total Designs} = 20 \times 20 = 400$$

$$\text{II} = \left(\frac{50}{400} \right) \times 100 = 12.5\%$$

Analysis: The Innovation Index of 12.5% suggests that while the apprentices display some creativity, there is an opportunity to nurture imaginative thinking and the creation of fresh designs. This particular aspect of the training program holds promise for improvement.

Sustainability Index (SI)

Elkington (1997) introduced the Sustainability Index (SI) which evaluates how sustainable the knowledge transmission process is by considering the participation of practitioners and the economic viability of the trade. Understanding this index is key to ensuring the long-term viability and support of the craft.

$$\text{SI} = \left(\frac{\text{Number of Active Practitioners}}{\text{Total Number of Trained Artisans}} \right) \times 100$$

There are 16 active practitioners out of 20 trained artisans.

$$\text{SI} = \left(\frac{16}{20} \right) \times 100 = 80\%$$

Analysis: A sustainability index (enced artisans are continuing to practise their craft, indicating a /. This implies that the training program effectively equips apprentices to participate in the handicraft industry for an extended period.

Qualitative Analysis

Five themes were identified in the analysis: learning experiences, challenges, knowledge transfer, suggestions for development, and cultural significance. These themes were identified by transcribing and categorising the interviews and observations in accordance with Cresswell (2018). In order to ascertain the issues and focal points that the participants emphasised, the frequency of each theme was quantified.

Table 3
Thematic Analysis

Theme	**Frequency Count (out of 20 students)**	**Proportion (%)**
Learning Experiences	18	90.0
Challenges	16	80.0
Knowledge Transfer	14	70.0
Suggestions for Improvement	12	60.0
Cultural Significance	10	50.0
Total	**70**	**350.0**

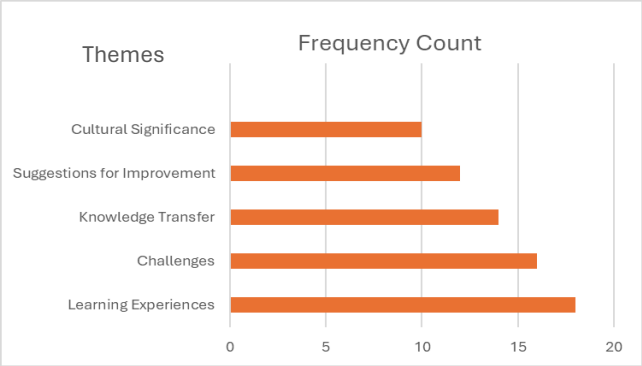

Figure 1: Themes and Frequency Count

Findings from a Qualitative Analysis

1. The study emphasises that apprentices highly appreciate the opportunity to learn through practical experience and receive personalised guidance from skilled artisans, which they consider essential for their skill development. Hence, practical learning is essential for the effective transfer of knowledge in this particular subject. It is important for training programs to prioritize practical experience and individualised feedback from both participants (Zhang et al., 2020).
2. Both trainees and master artisans identified age and language differences as obstacles to knowledge transfer. To overcome these problems, it is necessary to incorporate context into training approaches and make use of instruction. resources.
3. Although apprentices recognised the acquisition of practical skills, they observed deficiencies in their theoretical understanding. Enhancing comprehension can be accomplished by utilising resources such as instructional videos or succinct instructional guides to supplement the learning process.
4. Apprentices indicated a desire for a training period that is exclusively dedicated to achieving mastery in their skill, without any inclusion of courses or assignments.

Table 4
Key Findings from Interviews

Question	Apprentices' Responses	Master Craftsmen's Responses
Learning Experience	- Hands-on experience and direct mentorship were highly valued.	- Personalized feedback and observational learning were crucial.
	- Practical application of skills was critical to their development.	
Challenges	- Mastering intricate techniques was challenging.	- Generational gaps made it difficult to convey cultural context.
	- Access to sufficient resources for practice was limited.	
Knowledge Transfer	- Practical skills were effectively transferred, but there were gaps in theoretical knowledge.	- Current methods were effective but lacked structured educational materials.
Suggestions for Improvement	- Incorporating modern teaching aids, such as video tutorials and written manuals, would enhance learning.	- More frequent workshops and collaborative projects were recommended to enhance learning and creativity.
Cultural Significance	- Felt a strong sense of duty to preserve and promote the cultural heritage of their crafts.	- Emphasized the importance of apprentices understanding the cultural stories and meanings behind the techniques.

Table 5
Observational Focus Areas

Focus Area	Observations on Apprentices' Actions	Observations on Master Craftsmen's Actions
Teaching Methods	- Apprentices learned through demonstration, verbal instruction, and corrective feedback.	- Used a variety of teaching methods tailored to individual apprentice needs.
	- Tools and materials were used effectively in the teaching process.	
Application of Skills	- Apprentices displayed varying levels of proficiency; more experienced students were more confident and precise.	- Addressed common mistakes through immediate feedback and additional practice.
Interaction Dynamics	- Interactions were generally supportive and collaborative.	- Maintained a relationship of mutual respect and shared goals.
Problem-Solving & Creativity	- Encouraged to experiment and find creative solutions.	- Fostered innovation within traditional frameworks.

Discussion

Effectiveness of Training Programs

The training programs, which encompass both practical training and structured theoretical learning, are effectively equipping the apprentices with the requisite skills and knowledge, as evidenced by the high KRR. The significant apprentice retention rate serves as evidence of the

effectiveness of craftsmen, in offering support and mentorship to apprentices.

Competency Challenges

While the knowledge retention rate (KRR) showed results, the research revealed that a minority of apprentices (20%) failed to meet the expected level of proficiency. Further investigation could explore the reasons behind this issue, such as challenges in learning gaps, in the curriculum, or external factors affecting the journey.

Decline in Apprentice Interest

In addition, experienced artisans have noted a decline in apprentices' interest in pursuing and upholding traditional skilled trades or crafts. In a craft school, where there are initially 18 students per class, it is projected that 6 to 1 apprentice will persist until the end of training, which will last for over 2 to 5 years. This trend is attributed to their lack of enthusiasm and view of handicrafts as a career path, with restricted opportunities and no promising prospects.

Perception of Handicrafts as Complex and External Socioeconomic Factors

A significant number of apprentices perceive crafts as a profession that primarily offers financial opportunities but limited potential for career progression in the long run. This idea discourages individuals from being involved and committed, leading to higher rates of student dropouts. Additionally, they encounter factors like the desire for paying jobs or societal underappreciation of crafts, which affect their level of commitment.

Educational, Training Gaps, Innovation and Creativity

Although training programs are implemented, there may be certain aspects of the curriculum that fail to consider the evolving preferences and needs of apprentices. Incorporating techniques such as marketing and entrepreneurship into the training program could improve its applicability and appeal. The research revealed an Innovation Index (II) of 12.5%, suggesting that current training programs may not adequately foster creativity and novel ideas. In order to preserve the liveliness and attractiveness of the craft, it is crucial to create an environment that fosters both innovation and established methods.

Generational Shifts

The disparity in age and experience between skilled craftsmen and newly trained apprentices can lead to difficulties in effectively communicating and understanding each other. Inexperienced apprentices may not completely comprehend the significance and historical value of these trades, which affects their motivation to pursue them. The historical narratives and cultural background associated with these crafts may not resonate with folks who are acclimated to the globalised period. In addition, the challenging and time-consuming nature of handicrafts may appear daunting to apprentices who are used to the benefits of advanced technology (Othman et al., 2023).

Conclusion

The study emphasises the importance of transmitting expertise to maintain Malaysia's history of handicrafts. Although the current training programs are effective in teaching skills, it is crucial to address the gaps in comprehension and promote innovation in order to guarantee the sustainability and advancement of these ancient crafts. By implementing the recommended enhancements and adopting a knowledge transfer approach, stakeholders

may more effectively meet the needs of apprentices, preserve cultural heritage, and ensure the long-term success of Malaysian handicrafts. These endeavours will not only safeguard specialised knowledge but also modify it to align with the evolving environment of contemporary society, rendering handicrafts a compelling and enduring employment option for future generations.

Recommendations

Curriculum Enhancement

To enhance the curriculum, it is recommended that individuals at all skill levels, both novices and seasoned artisans, employ resources such as video lessons, frequent workshops, and collaborative projects to augment their creative learning process. This approach highlights the significance of creative programs that integrate novel pedagogical methods with the transfer of vital tacit knowledge, fostering innovation while 6 preserving essential skills. In addition, integrating lessons on business acumen might assist apprentices in comprehending the various facets of their trade.

Cultural Significance

Both groups emphasised their dedication to preserving and commemorating their cultural inheritance through each item. Hence, it is crucial to comprehend the historical significance of their crafts in order to maintain the integrity and authenticity of their techniques. Training programs should include elements that emphasise the narratives and symbolism inherent in each technique and design.

Mentorship Programs

Improve mentoring programs by pairing apprentices with skilled craftsmen and younger mentors who can effectively bridge generational and cultural differences, regardless of their personal connections or social standing. To incorporate an additional element, contemplate extending invitations to artists and designers to facilitate workshops.

Innovation Encouragement

Offer apprentices the chance to investigate designs and procedures that encourage creativity and innovation within a structured framework. Striking a balance between retaining traditional ways and introducing new ideas is crucial for fostering innovation (Yan & Li, 2023). By integrating technology such as design tools, artificial intelligence (AI), augmented reality (AR), 3D printing, and laser cutting, individuals can expand their range of skills. Facilitate the development of new opportunities for innovation (Wanniarachchi et al., 2020). The objective is to incorporate methodologies that enhance traditional crafts, with a specific emphasis on the motifs associated with these crafts, rather than substituting them with new ones. By fostering a culture of experimentation among apprentices within established practices, they can cultivate a deep understanding and respect for their legacy while also making valuable contributions to its ongoing development.

Acknowledgements or Notes

The Ministry of Higher Education Malaysia's scholarship is the sole source of funding for this research endeavour. We are deeply grateful for their invaluable financial support. In addition, we would like to express our appreciation to the Department of Information Systems at the Faculty of Management in Universiti Teknologi Malaysia, as well as the Information Science

Studies Department at the College of Computing, Informatics, and Media in Universiti Teknologi MARA (UiTM) Negeri Sembilan Branch, Rembau Campus, and UiTM Johor Branch, Segamat Campus, for their constant backing and considerable insights.

References

Amabile, T. M. (1996). *Creativity in Context: Update to the Social Psychology of Creativity.* Westview Press.

Anderson, L. W., & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives.* Allyn & Bacon.

Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals* (1st ed.). Longman Group.

Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business.* Capstone.

Gagné, R. M. (1985). *The Conditions of Learning and Theory of Instruction.* Holt, Rinehart & Winston.

Othman, R., Ibrahim, O., Kamal, S. N. M., & Ahmad, M. (2023). Charting Digital Humanities: A Bibliometric View of Cultural Heritage. *The European Proceedings of Social & Behavioural Sciences*. https://doi.org/10.15405/epsbs.2023.11.4

Wanniarachchi, T., Dissanayake, K., & Downs, C. (2020). Improving sustainability and encouraging innovation in traditional craft sectors: the case of the Sri Lankan handloom industry. *Research Journal of Textile and Apparel*, *24*(2), 111–130. https://doi.org/10.1108/rjta-09-2019-0041

Yan, W., & Li, K. (2023). Sustainable cultural Innovation practice: heritage education in universities and creative inheritance of intangible cultural heritage craft. *Sustainability*, *15*(2), 1194. https://doi.org/10.3390/su15021194

Zhang, A., Olelewe, C. J., Orji, C. T., Ibezim, N. E., Sunday, N. H., Obichukwu, P. U., & Okanazu, O. O. (2020). Effects of innovative and traditional teaching methods on technical college students' achievement in computer craft practices. *SAGE Open*, *10*(4), 215824402098298. https://doi.org/10.1177/2158244020982986