

A Theoretical Framework for Strengthening Community Digital Talent Through Lifelong Learning: Insights from Program BAKAT at Community College Arau

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Abstract—Community-based digital skills initiatives have become an important strategy for addressing digital competency gaps among diverse population groups in Malaysia. However, existing programs are often examined from training outcome perspectives, with limited attention given to the mechanisms through which community colleges facilitate digital talent development through lifelong learning approaches. This conceptual paper develops a theoretical framework based on *Program Penguatan Bakat Komuniti* (BAKAT) implemented by Community College Arau. Unlike many digital literacy initiatives that primarily focus on short-term technical training, *Program BAKAT* combines lifelong learning opportunities, community participation, and locally responsive skill development within a community college setting. Using an integrative review of literature on lifelong learning, human capital development, community engagement, and digital talent development, the study synthesizes key concepts and proposes a framework explaining the relationships among lifelong learning participation, digital skills training, community engagement, and community digital talent development. Community engagement is positioned as a contextual factor that may influence the effectiveness of learning and training initiatives. Rather than proposing a new theory, the paper offers a structured conceptual model that consolidates existing perspectives into a community college context. The framework provides a basis for future empirical studies examining digital talent development initiatives within Technical and Vocational Education and Training (TVET) institutions and community-based learning environments.

Keywords: Lifelong Learning; Digital Talent; Community Colleges; TVET; BAKAT; Malaysia

1. INTRODUCTION

The accelerating pace of digital transformation has increased the demand for individuals who possess not only technical competencies but also the ability to continuously adapt to emerging technologies and changing workplace requirements (World Economic Forum, 2023; OECD, 2023). As digital technologies become increasingly embedded across economic and social sectors, governments and educational institutions are under growing pressure to develop sustainable mechanisms for digital talent development (UNESCO, 2022; International Labour Organization, 2024). In Malaysia, the national digital agenda has highlighted the importance of strengthening digital competencies among citizens to support economic competitiveness and social inclusion (Malaysia Digital Economy Corporation [MDEC], 2023). However, disparities in access to digital learning opportunities continue to limit community participation in the digital economy, particularly among underserved populations (Asian Development Bank, 2024).

Lifelong learning has been widely recognised as a critical approach for supporting continuous skills acquisition and workforce adaptability in rapidly evolving digital environments (Field, 2006; Jarvis, 2009; UNESCO Institute for Lifelong Learning, 2022). Recent studies have further demonstrated that lifelong learning enhances workforce resilience and digital readiness in the context of Industry 4.0 and Society 5.0 (Othman et al., 2025; Noordin et al., 2025). Through lifelong learning opportunities, individuals are able to upgrade their knowledge and competencies throughout different stages of life, thereby enhancing their capacity to respond to technological change (UNESCO Institute for Lifelong Learning, 2022; OECD, 2023).

Community colleges have emerged as important institutions that facilitate accessible and flexible learning opportunities for local communities, particularly in supporting TVET-based community empowerment and digital inclusion (JPPKK, 2024; UNESCO-UNEVOC, 2023). Among these initiatives, Program BAKAT implemented by Community College Arau represents an example of a community-oriented effort aimed at strengthening digital competencies through lifelong learning activities. Program BAKAT also differs from several existing digital skills initiatives implemented in Malaysia. For example, the eUsahawan programme introduced by the Malaysia Digital Economy Corporation primarily focuses on developing digital entrepreneurship capabilities and online business competencies among micro-entrepreneurs and small business owners. Similarly, MyDigitalMaker, another initiative supported by Malaysia Digital Economy Corporation, emphasises computational thinking, coding, robotics, and digital creativity among school students to prepare future digital innovators. In contrast, Program BAKAT adopts a broader community-based lifelong learning approach by targeting diverse community groups, including adults, youth, job seekers, and local residents through flexible and locally responsive training activities.

Furthermore, while Community Internet Centre digital literacy programmes primarily concentrate on basic digital literacy and internet usage, Program BAKAT integrates digital skills development with community engagement and lifelong learning principles within the community college ecosystem. This integration positions

Program BAKAT not merely as a digital training initiative but as a community empowerment mechanism that seeks to strengthen digital talent development through sustained learning opportunities and local participation.

Unlike many conventional digital literacy programmes that focus primarily on short-term skills acquisition, Program BAKAT integrates lifelong learning principles, community participation, and locally relevant training opportunities. However, despite increasing attention to digital talent development, existing studies have largely examined lifelong learning, digital skills development, community engagement, and institutional empowerment as separate constructs (Van Laar et al., 2020; Bowen et al., 2010). Limited research has explored how these elements interact within a community college ecosystem to support community digital talent development. Therefore, this conceptual paper aims to develop a theoretical framework that explains the relationships among lifelong learning, community engagement, community college empowerment, and digital talent development. The proposed framework uses Program BAKAT as a contextual reference to illustrate how community-based educational initiatives may contribute to strengthening digital talent within local communities.

2. RESEARCH METHODS

This study adopts a conceptual research design based on an integrative literature review approach. Conceptual research seeks to synthesise existing theoretical and empirical knowledge to generate new insights and develop explanatory frameworks rather than collect primary data (Jaakkola, 2020). Relevant literature was identified through academic databases including Scopus, Web of Science, Google Scholar, and ERIC. The review focused on four key themes: lifelong learning, digital talent development, community engagement, and community college empowerment. Articles, reports, and policy documents published in reputable sources were selected based on their relevance to the study objectives.

The collected literature was analysed using thematic synthesis. Concepts, theoretical perspectives, and empirical findings were systematically compared to identify recurring themes and relationships. The findings from the literature were subsequently integrated into a proposed theoretical framework that explains the mechanisms through which lifelong learning initiatives implemented by community colleges may contribute to community digital talent development (Snyder, 2019).

3. RESULTS AND DISCUSSION

3.1 Lifelong Learning and Digital Talent Development

Human Capital Theory suggests that investments in education and training contribute to the development of knowledge, skills, and competencies that enhance individual productivity and socio-economic participation (Becker, 1993). Within digital economies, continuous learning has become increasingly important due to the rapid obsolescence of technical skills and the emergence of new technological competencies (World Economic Forum, 2023; OECD, 2023). Recent studies indicate that digital talent development requires a combination of technical competencies, problem-solving skills, creativity, adaptability, and continuous learning capabilities (Mazlan et al., 2025; Cabigas & Silor, 2025). Research has consistently demonstrated that lifelong learning supports the acquisition of digital skills, adaptability, and innovation capabilities required in contemporary labour markets (Field, 2006; Jarvis, 2009; Othman et al., 2025). Community-based learning programmes provide opportunities for individuals to access training regardless of age, educational background, or employment status, thereby contributing to broader digital inclusion efforts (UNESCO, 2022; ADB, 2024).

3.2 The Role of Community Engagement

Community engagement refers to collaborative processes that involve community members in identifying needs, planning activities, and evaluating outcomes (Bowen et al., 2010). Effective engagement enhances programme relevance, participation rates, and sustainability by ensuring that initiatives reflect local priorities and aspirations (Bringle & Hatcher, 2002). Recent evidence suggests that community participation significantly improves the effectiveness of digital learning initiatives and contributes to long-term knowledge retention and skills application (Hashim et al., 2025). Within lifelong learning environments, community engagement may strengthen learning outcomes by promoting knowledge sharing, peer support, and collaborative problem-solving. Consequently, engagement can influence the effectiveness of digital training initiatives and their contribution to digital talent development.

3.3 Community College Empowerment

Community colleges play a strategic role in supporting lifelong learning through flexible, community-oriented educational provision (JPPKK, 2024). Their accessibility and responsiveness to local needs position them as important agents of community empowerment and skills development (Raby & Valeau, 2016). Recent TVET literature highlights that community colleges are increasingly becoming local innovation hubs that facilitate digital skills development, workforce readiness, and community resilience (Rasid et al., 2025; UNESCO-UNEVOC, 2023).

Program BAKAT illustrates how community colleges can facilitate digital talent development by combining technical training with community participation and lifelong learning principles. his approach is consistent with current TVET transformation agendas emphasising digital innovation, community empowerment, and Industry 4.0 readiness (Noordin et al., 2025; Rokeman et al., 2024).

3.4 Proposed Theoretical Framework

Based on the literature synthesis, the proposed framework identifies lifelong learning participation and digital skills training as key antecedents of community digital talent development. Community engagement is positioned as a contextual factor that may strengthen the effectiveness of learning and training activities. The framework further recognises the enabling role of community colleges in facilitating access to learning opportunities and supporting community empowerment (UNESCO-UNEVOC, 2023; Zhong & Juwaheer, 2024). Rather than introducing a new theory, the framework consolidates existing perspectives from Human Capital Theory and Lifelong Learning Theory into a community college context. The framework contributes by providing a structured explanation of how educational, institutional, and community factors may interact to support digital talent development in local communities.

4. CONCLUSION

This conceptual paper developed a theoretical framework for understanding community digital talent development through lifelong learning initiatives implemented by community colleges. The framework integrates perspectives from Human Capital Theory, Lifelong Learning Theory, community engagement literature, and digital talent development research. The study contributes to literature by synthesizing previously fragmented constructs into a coherent framework applicable to community-based TVET contexts. Although the framework remains conceptual, it provides a foundation for future empirical studies examining the effectiveness of community college initiatives such as Program BAKAT in supporting digital talent development and lifelong learning participation.

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