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Design-Based Case Study of JoB+AI Model: Developing and Implementing Remote AI Competency Education Program for Disconnected Youth

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The JoB+AI Model is a remote education framework for marginalized youths (19-34 years), providing AI-based skills in graphic design, video, and music production. Built on e-education and competency-based learning theories, it offers a scenario-driven online curriculum supported by AI tutors for personalized learning. The model addresses skill gaps with flexible, industry-aligned training while tackling challenges like varying digital literacy and tech support. As a design-based case study, it emphasizes pedagogy and curriculum design, aiming to empower underserved learners and spark future research into inclusive AI competency development. Although no empirical outcome data are reported, this study illustrates how targeted support mechanisms can empower disconnected youth, enhance digital literacy, and stimulate further investigations into inclusive AI competency development. Through this integrated approach, the JoB+AI Model aims to bridge the educational divide and expand career pathways for marginalized learners in a rapidly evolving digital economy.

Keywords: AI competencies, Disconnected youth, Education gap

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Ⅰ. Introduction

As the global labor market increasingly hinges on digital technologies and artificial intelligence AI-driven innovations, the demand for workforce-ready competencies in AI continues to surge across diverse industries. However, many disconnected youths, young individuals who have experienced educational disruptions and face limited employment opportunities, struggle to acquire skills and experiences that would enable them to thrive in this evolving landscape. This persistent gap, intensified by the COVID-19 pandemic's acceleration of remote work and online learning modalities, calls for new educational models that transcend conventional formats, broaden access to high-quality instruction, and foster both the theoretical understanding and practical application of AI competencies.

In this context, the integration of AI into remote learning environments is a promising approach. Adaptive learning platforms, AI-driven feedback mechanisms, and scenario-based skill development can create pathways for disconnected youth to build industry-aligned competencies wherever they are located. However, current research often focuses on technologically advanced learners or traditional academic settings, leaving questions about how best to adapt and implement AI-enhanced educational frameworks for marginalized populations that may lack foundational digital literacy or stable educational trajectories.

The JoB+AI Model is designed to address these challenges. Focusing on three target domains, AI-based graphic design, video production, and music production, this remote program integrates competency-based learning, iterative skill building, and personalized support from AI tutors and instructors. By focusing on the authentic tasks and workflows found in professional creative environments, the model aims to equip learners with the tangible skills and confidence necessary to navigate the fast-changing AI-driven job market.

This study presents a design-based case study of the JoB+AI Model. It does not report empirical data or formal evaluations of the learning outcomes. Instead, it articulates the conceptual foundations, instructional strategies, and curricular structures that underpin the model, illustrating how its key components are interwoven to address the needs of the disconnected youth. Drawing on theoretical perspectives from e-education, AI-supported teaching, and competency-based frameworks, this study describes how the model was conceived, developed, and implemented in a remote-learning context, while also anticipating potential challenges and opportunities for refinement.

By highlighting the guiding principles and potential applicability of the model, this study contributes to the broader discourse on leveraging AI in remote education for marginalized learners. The following sections provide an overview of the relevant literature (Section 2), outline the design-based research methodology (Section 3), situate the model in its specific institutional and social context (Section 4), detail the curriculum and course design (Section 5), discuss implementation considerations (Section 6), and offer a preliminary reflection on the model's implications and directions for future work (Sections 7 and 8). Through

this structured exploration, we aim to inform on-going conversations about harnessing AI-enhanced pedagogy to empower disconnected youth, bridging the gap between aspirations and opportunities in the modern digital economy.

Ⅱ. Literature Review

The integration of artificial intelligence (AI) into educational practices has generated substantial interest regarding how emerging technologies can augment learning experiences, streamline assessments, and broaden access to quality instruction. Existing research has consistently highlighted the potential of AI to personalize learning paths, deliver adaptive feedback, and support learners with varying skill levels, ultimately enhancing engagement and improving outcomes (Holmes, Bialik, & Fadel, 2019; Luckin et al., 2016). However, the translation of these possibilities into meaningful interventions for disconnected youths remains underexplored. Many studies have focused on learners in more traditional contexts, those with consistent academic backgrounds and relatively stable technological infrastructures, leaving critical questions about how to tailor AI-supported education to individuals who may lack digital fluency or have limited exposure to formal learning environments.

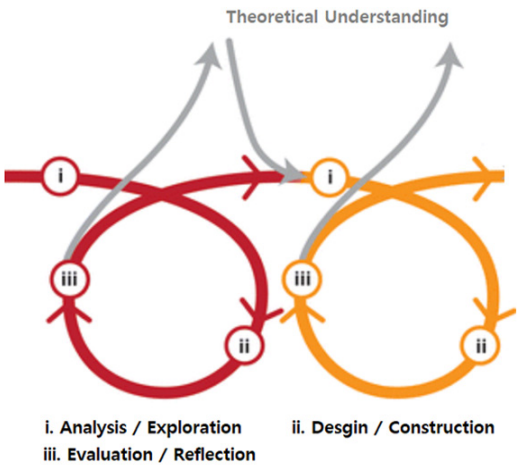
1. Remote Learning and AI Opportunities

Studies on AI in education have underscored its capacity for personalization, differentiated instruction, and ongoing formative feedback. For instance, AI-driven tutors can identify learner misconceptions in real-time and recommend targeted resources, helping individuals refine their skills at a pace suited to their unique contexts and backgrounds (Holmes et al., 2019; Luckin et al., 2016). Such adaptive systems hold particular promise for disconnected youths who may benefit from non-linear pathways, scaffolded exercises, and motivational support. Simultaneously, practical and ethical considerations persist, and technological infrastructure, data privacy concerns, and the risk of algorithmic bias remain significant issues. Researchers caution that without careful design, AI tools can unintentionally replicate or exacerbate existing disparities, undermining the inclusivity they intend to promote (Smith & Mitchell, 2023).

Remote learning, especially when combined with AI-driven tools, offers a promising avenue for closing educational gaps and extending opportunities to marginalized groups. Disconnected youths often face barriers related to geography, socio-economic status, and cultural capital, making it difficult to access conventional training programs (Smith & Mitchell, 2023). Remote delivery can bypass some of these hurdles by offering flexible, just-in-time learning that is not constrained by physical location or traditional scheduling. Nonetheless, the literature also documents that remote learning alone does not guarantee equitable outcomes; learners may still encounter digital skill gaps, unreliable Internet access, and low initial motivation (Zawacki-Richter et al., 2019). Therefore, a key challenge lies in designing AI-enhanced remote frameworks that actively support learners who start from less advantaged positions, thereby reducing rather than

reinforcing existing inequalities.

2. Design-Based Research Approaches



[Fig 1] Design-Based Research Approaches, based on figures by Fraefel (2014).

Another strand of the literature points to the importance of embedding AI applications in competency-based job-oriented curricula. As digital economies evolve, employers are increasingly seeking candidates who can apply their theoretical knowledge to authentic industrial scenarios. Research suggests that competency-based frameworks, in which learners progress by demonstrating mastery rather than completing fixed seat-time requirements, can help bridge the gap between academic learning and employability (Holmes et al., 2019). Authentic, project-driven tasks and scenario-based assessments can reinforce the relevance of acquired skills, fostering motivation and a clear understanding sense of occupational pathways. This approach is particularly relevant for disconnected youths, who often need tangible outcomes and portfolios to demonstrate their newly acquired competencies to potential employers.

Design-based research offers a methodological lens that emphasizes iterative refinement, contextual responsiveness, and close collaboration among researchers, practitioners, and learners (Zawacki-Richter et al., 2019). These approaches enable educators to develop, test, and adapt interventions in real-world settings, leading to more sustainable and context-sensitive solutions. Given the diverse challenges faced by disconnected youths ranging from technical infrastructure limitations to varying levels of digital literacy, a design-based approach allows for continuous adjustments, ensuring that the resulting model remains relevant, accessible, and effective over time.

While the literature acknowledges the potential of AI to enhance remote and competency-based education, there remains a need for conceptual models tailored specifically to marginalized learners. Existing studies often presume stable technological ecosystems and consistent learner readiness, which are conditions that do not hold universally. In contrast, a model designed from the outset for disconnected youths, considering their starting skill levels, resource constraints, and motivational barriers, can help address these gaps. The JoB+AI Model aims to fill this niche by offering a structured, scenario-driven curriculum enriched in AI-based feedback loops and flexible delivery methods.

Ⅲ. Methodology

This study adopted a design-based research

(DBR) approach to conceptualize and examine the JoB+AI Model as a remote AI competency education program for disconnected youths. Unlike traditional research designs centered on hypothesis testing or controlled experiments, DBR emphasizes iterative development, ongoing refinement, and close alignment with the needs and contexts of the target learners (Zawacki-Richter et al., 2019). In this study, the methodology focused on how the model's structure, curriculum, and instructional strategies were developed and implemented rather than on collecting or analyzing empirical data from participants.

1. Research Framework and Target Population

DBR provides a flexible and adaptive framework that is well-suited to addressing the unique challenges that disconnect youth face, such as varying levels of digital literacy, limited prior academic experience, and unstable technological infrastructure. The DBR process guides the iterative development of the JoB+AI Model by integrating continuous feedback loops, expert insights, and theoretical underpinnings. This approach supports a holistic understanding of the educational environment, ensuring that the final design is not only theoretically sound, but also practically viable and responsive to learners' evolving needs.

The intended beneficiaries of the JoB+AI Model are disconnected youths aged 19 to 34 years who have encountered barriers to formal education or stable employment. While these learners come from diverse backgrounds, they share common obstacles, such as limited access to traditional educational programs and fluctuating motivation due to past academic disruptions. The model's competency-based remote delivery format aims to reduce these barriers by providing flexible engagement opportunities and tailored instructional support, which is particularly important in contexts where reliable transportation, stable housing, and consistent Internet access may be uncertain.

2. Instructional Focus and Role of AI Tutors

The model's curriculum targets three AI-enhanced creative fields, graphic design, video production, and music production, that are becoming increasingly prominent in the digital industry. Rather than offering abstract theories divorced from a practical context, the program emphasizes authentic scenario-driven assignments that mirror real-world tasks. Competency-based progression ensures that learners develop foundational skills before advancing to more complex challenges, culminating in integrated projects that demonstrate readiness for AI-driven work environments.

A central aspect of this methodology is the inclusion of AI-powered tutors and adaptive learning tools. Although this study does not report learner interactions or feedback data, it outlines the conceptual rationale for employing AI tutors to deliver personalized guidance, promptly target practice, and suggest remediation for skill gaps. By incorporating these tools into the design, the model envisions a learning environment in which learners can overcome individual difficulties through just-in-time support, thereby enhancing their engagement and skill acquisition.

In a DBR framework, the model is never con-

sidered "final" after a single implementation. Instead, it evolved through iterative cycles of design, enactment, analysis, and redesign. Although this study did not present formal evaluation data, the methodology anticipated future feedback from instructors, AI systems, and participants to be integral to ongoing improvements. Adjustments may include modifying learning materials, reordering skill modules, refining project briefs, and increasing scaffolding for certain groups of learners.

3. Limitations of the Current Approach

As this study conceptually proposes the JoB+AI Model, empirical data from actual field implementations are required to validate its effectiveness and scalability. A follow-up pilot study will gather both quantitative and qualitative learner feedback (e.g., perceived learning gains, satisfaction, and skill improvement) to refine the model. This will allow us to examine how AI tutors influence motivation and outcomes and whether the approach can be adapted to various educational contexts. Notwithstanding the current lack of outcome metrics and learner performance data, the methodological approach adopted in this study lays a strong foundation for future empirical studies that can generate data-driven insights to further enhance the JoB+AI Model.

With the core design principles articulated, future research could involve deploying the JoB+AI Model in real learning contexts and collecting quantitative and qualitative data on learner progress, satisfaction, and employment outcomes. Subsequent investigations could compare variations in the model, explore its transferability to other demographic groups or creative domains, and validate the conceptual underpinnings proposed here.

Ⅳ. Contextualizing the JoB+AI Model

The JoB+AI Model was conceived in response to converging pressures in education and labor markets, such as the rising importance of AI-related competencies, persistent challenges facing disconnected youth, and the need for flexible, scalable educational solutions. Rather than simply adapting existing curricula to online formats, this model was designed to operate as a remote, scenario-driven framework that foregrounds job readiness and real-world applicability.

1. Improving Accessibility to Digital Education for Disconnected Youth

In a rapidly digitizing economy, employers increasingly value workers who can apply AI tools and processes to creative fields such as graphic design, video production, and music production. By honing these domains, the JoB+AI Model addresses the skill gap often left unfilled in traditional education. Unlike conventional courses that rely on static content delivery, this model adopts a competency-based approach, ensuring that learners demonstrate tangible proficiency and adapt these skills to evolving industry standards.

Disconnected youths frequently encounter systemic barriers that limit their access to advanced technical education and professional networks. Geographic isolation, variable internet connectivity,

and unpredictable schedules complicate engagement with conventional programs. The JoB+AI Model leverages remote instructions and flexible pacing to reduce these constraints. By incorporating AI tutors and self-directed learning pathways, the program seeks to meet learners in terms of both skill level and life circumstances, thereby expanding entry points into the digital economy.

2. Institutional Support with Educational Goals

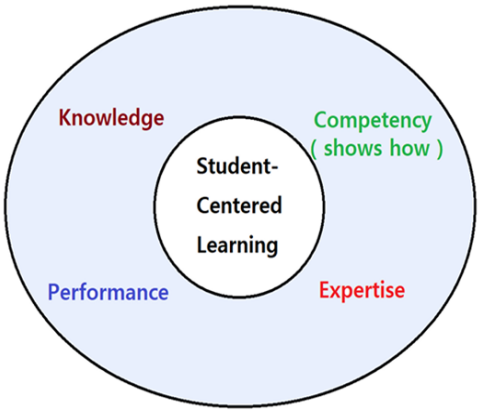
The model is based on Seoul Cyber University's established e-learning infrastructure, which provides a stable, scalable, and learner-friendly environment. Existing learning management systems, streaming tools, and collaborative platforms form the backbone of the program. This institutional backing enables an iterative, design-based research process wherein curricular elements and instructional strategies can be continuously refined, even before formal data collection begins. As challenges emerge, such as accessibility issues and digital literacy gaps, the model can be adjusted to better align with learners' circumstances.

Contextualizing the JoB+AI Model also involves choosing and integrating AI technologies that directly support the desired learning outcomes. The AI tutors embedded in the program are not generic add-ons; they are purposefully aligned with the competency-based designs of the curriculum. By providing personalized feedback, curating supplemental materials, and guiding learners through progressively complex tasks, these tools reinforce the model's overarching aim of transforming AI concepts from abstract ideas into actionable skills with clear professional relevance.

3. Theoretical Foundations and Practical Constraints

Although the model's theoretical underpinnings are drawn from AI in education-, e-learning-, and competency-based frameworks, its actual implementation must contend with real-world limitations. The variability in learners' technological resources, potential need for basic digital literacy support, and demands for balancing coursework with other life responsibilities influence how the model is contextualized and presented. Acknowledging these constraints upfront informs design choices, such as offering asynchronous materials, modular content structures, and multilingual resources, and lays the groundwork for iterative improvements guided by future empirical evidence.

The contextualization presented herein does not rely on data-driven validation. Instead, it sets conceptual and logistical stages for future evaluation efforts. Once the model has been piloted with actual learner cohorts, researchers can apply rigorous data collection and analysis methods to examine outcomes, refine components, and assess scalability. The contextual understanding of the JoB+AI Model provided a reference point for how and why certain design decisions were made, anticipating the complexities that would arise when translating conceptual frameworks into lived educational experiences.



[Fig 2] Competency-Based Learning,
based on figures by Dalia (2020).

V. Model Development and Course Design

<Table 1> Key Results

Course	Key Results
Fundamentals of AI Graphic Design	• Learners advance their foundational design skills to a practical level, enabling them to produce diverse, creative visual materials that meet industry standards.
AI Video production and Editing	• Learners acquire the capabilities to produce creative, professional video content. AI technologies further optimize work efficiency and output quality.
AI Music production	• Learners expand their creative possibilities in music production with AI, developing the ability to produce complete tracks that reflect both technical skill and creativity.

<Table 2> Learning Outcomes

Course	Learning Outcomes
Fundamentals of AI Graphic Design	• Acquire skills in using Adobe photoshop and AI-based design tools. • Understand and apply graphic design principles (color theory, typography, and layout) in practice. • produce creative and realistic design outputs through project-based learning (pBL). • Strengthen global competitiveness by preparing for international certification exams.
AI Video production and Editing	• Develop proficiency in Adobe premiere pro and AI-based editing tools. • Gain experience in the entire video production process (planning, editing, effects, and output). • Internalize advanced video editing and effects application through weekly practice. • Enhance global competitiveness through international certification exam preparation.
AI Music production	• Utilize DAW and AI music production tools to manage composition, arrangement, mixing, and mastering. • Apply AI-based voice synthesis and virtual vocals. • Experience all stages of music production through comprehensive projects. • Improve workflow efficiency and create original musical content by integrating AI tools.

The development and course design of the JoB+ AI Model emerged from the interplay among the-

oretical frameworks, industry insights, and the practical need to address the unique challenges faced by disconnected youths. Rather than focusing on abstract theories or static content, the model architecture integrates competency-based principles, AI-supported guidance, and project-based learning. The result is a structured yet flexible curriculum designed to incrementally build skills, foster creativity, and enhance job readiness in domains in which AI is increasingly integral.

1. Competency-Based Progression

At the core of the model's instructional design is a learner-centered philosophy that acknowledges the starting points and aspirations of the disconnected youth. Instead of following traditional lecture-based sequences, the curriculum emphasizes scenario-driven tasks that mirror real-world work flows in graphic design and video and music production. Each instructional element is intended to reinforce practical proficiency; learners progress through foundational skills, master intermediate techniques, and ultimately synthesize their knowledge in integrated, industry-relevant projects.

The model frames learning outcomes in terms of competencies rather than course completion or seat time. This implies that learners are not merely consuming information; they also actively demonstrate growing capabilities. The early stages focused on essential software navigation, basic design, or editing principles, and fundamental AI-assisted functions. As learners gain confidence, they tackle more complex tasks, such as applying advanced filters or mixing multi-track audio, before culminating in integrated projects that simulate professional deliverables. This phased approach aligns with the model's underlying goal of equipping learners with tangible, transferable competencies that can serve as stepping-stones into the job market.

2. Scenario-Driven / Project-Based Learning and AI Tutors

To maintain motivation and relevance, each module incorporates realistic "missions" or projects completed by learners over time. For instance, a scenario may involve designing marketing materials for a hypothetical client, editing promotional video clips using AI-driven color grading, or composing and mixing thematic music tracks. By situating learning activities within these authentic contexts, the curriculum encourages creative problem-solving, iterative refinement, and a direct connection to potential workplace tasks. Although the present study does not include empirical results, the scenario-driven approach is intended to engage learners more deeply than passive content-delivery methods.

The course design strategically leverages AI tutors to offer personalized feedback, adaptive difficulty adjustments, and on-demand support. Although no learner data or performance metrics are presented here, the conceptual intent is clear: AI tutors would serve as accessible, responsive resources that can help learners navigate challenging content, recommend targeted tutorials, and provide incremental insights. This continuous feedback loop ensures that learners who struggle with a particular skill receive a timely inter-

vention, whereas those who excel can pursue advanced tasks that keep them engaged and progress at a suitable pace.

Suppose a learner is working on a video-editing assignment that requires color correction and sound balancing. Upon analyzing the learner's timeline edits, the AI tutor detected that the learner consistently applied an overly high saturation level to multiple clips. In response, the system automatically prompts a short, targeted tutorial on "Balancing Saturation and Contrast in premiere pro," highlighting step-by-step guidance. If the learner continues to make similar mistakes, the AI tutor suggests additional practice tasks focused on color grading fundamentals. Throughout this process, the AI tutor tracks the learner's progress and notifies the instructor if ongoing difficulties persist, enabling more focused human feedback.

3. Aligning with Industry Standards

Recognizing that disconnected youths may face constraints such as limited bandwidth, unpredictable schedules, or diverse digital literacy levels, the course design incorporates flexible formats. The asynchronous modules allow learners to proceed at their own pace. Supplementary materials, such as video tutorials, step-by-step guides, and resource libraries support self-directed learning. Although the efficacy of this support remains to be empirically tested, the design anticipates varying learner needs and aims to create an inclusive environment in which all participants can build competencies regardless of their starting point.

<Table 3> Operational Direction

Course	Operational Direction
Fundamentals of AI Graphic Design	• Gradual increase in assignment complexity, from simple editing to advanced compositing tasks, culminating in professional-level promotional materials ex) Basic editing exercises → complex image compositing → final projects for a design portfolio
AI Video production and Editing	• progressive mastery of premiere pro and AI editing tools through weekly assignments, midterm, and final projects ex) Sequencing clips → applying color correction and effects → producing a 1-2 min documentary film
AI Music production	• Step-by-step skill building in composition, mixing, mastering with AI tools, culminating in end-to-end music production ex) Analyzing genres with AI → short track composition → final album production including cover design

While immediate empirical validation is not provided in this study, the curriculum aligns with recognized industry standards and prepares learners for potential certifications (e.g., Adobe Certified professional Credentials). By weaving standard-aligned practice tasks and exam-oriented exercises into the program, learners not only master the tools of their trade, but also gain familiarity with benchmark assessments that can bolster their employability.

VI. Implementation Considerations

Implementing the JoB+AI Model in a real-world context involves navigating a range of logistical, technical, and pedagogical factors that influence accessibility and effectiveness. Although this study does not present empirical data on learner participation or outcomes, it offers a conceptual blueprint of the implementation phase, focusing on infrastructure, learner support, and iterative adjustments informed by design-based principles.

1. Supporting Diverse Digital Literacy Levels

A critical element in remote education models is ensuring that learners have reliable access to the necessary hardware, software, and Internet bandwidth. Disconnected youth may rely on mobile devices, shared computers, or unstable Internet connections, which can impede their engagement with AI-driven tools and multimedia-rich content. Anticipated implementation plans consider these constraints by providing low-bandwidth alternatives (e.g., downloadable materials), asynchronous formats that accommodate fluctuating availability, and user-friendly interfaces that reduce the cognitive load of navigating online platforms.

The varying digital literacy levels of disconnected youths are key considerations during implementation. Some learners may require additional tutorials on basic computer operations, navigating the learning management system, or understanding file management. Although no usage data are reported here, the conceptual design of the model includes optional orientation modules, step-by-step guides, and just-in-time digital literacy resources. This anticipatory support sets the foundation for equitable access to advanced AI-related competencies.

2. Instructor and Iterative Refinement

Behind these scenes, instructors and support staff played pivotal roles in bringing the JoB+AI Model to life. Effective implementation depends on their ability to guide learners, interpret AI tutor feedback, and provide personalized support when automated interventions are insufficient. Although the present study does not detail professional development activities, a successful rollout would likely involve training instructors to use an LMS effectively, manage synchronous and asynchronous interactions, and integrate AI tools into their teaching practices. Continuous staff development ensures that human facilitators and AI tutors function as complementary resources.

Design-based research emphasizes the importance of ongoing refinement, even after initial implementation. In practice, this means that once the model is launched, informal feedback loops, from learner comments, instructor observations, and platform analytics, guide the iterative adjustments. For example, if instructors notice frequent learner difficulties with a particular AI editing technique, the subsequent instructional materials can be modified or supplemented to address these challenges. Although this study does not present data from such iterations, the conceptual framework anticipates continuous improvement, ensuring that the model evolves in

response to emerging insights and evolving learner needs.

3. Contextual Adaptations and Sustainability

Implementing the JoB+AI Model across diverse cultural and linguistic contexts may require the localization of content, translations, or adaptation of scenario-based tasks to align with regional industry norms. Although no specific cultural adaptation data were provided, the model was designed with flexibility in mind. Its competency-based architecture and modular structure allow for adjustments that respect cultural nuances and respond to the unique conditions of different learner populations and institutional settings.

Ultimately, the viability of the JoB+AI Model depends on its potential to scale up and sustain its impact over time. Robust and scalable infrastructure and cost-effective implementation strategies are crucial. partnerships with industry stakeholders, government agencies, or non-profit organizations can facilitate resource sharing, mentorship opportunities, and job placement support. The absence of empirical data does not diminish the importance of these forward-looking considerations. Rather, it highlights that the model's design was conceived from a long-term perspective, anticipating growth as more experience and evidence accumulate.

The AI-driven tutoring and data management processes in the JoB+AI Model require rigorous attention to privacy. All learner data, such as usage logs and performance metrics, must be anonymized or encrypted using strict protocols governing access. Regular reviewsl ensure that the recommendation algorithms and feedback features do not introduce bias. In addition, learners should have the option to view and delete their data, thereby enhancing transparency and upholding ethical standards for AI-based education.

Ⅶ. Discussion

This design-based case study introduced the JoB+AI Model as a framework intended to expand AI competency education for disconnected youths through a remote, competency-based, and scenario-driven approach. Although this study does not present empirical data, the model's conceptual underpinnings provide a platform for discussing potential impacts, identifying key challenges, and setting directions for future research.

1. Potential Implications for Disconnected Youth

Drawing on the literature on AI-enabled learning, remote education, and competency-based frameworks, the JoB+AI Model proposes a structured means of equipping marginalized learners with job-relevant skills. By integrating authentic scenarios, AI tutors, and incremental skill-building tasks, the model aims to bridge the gap between theoretical instruction and practical application. Although its effectiveness and scalability remain to be validated through empirical research, the model's design aligns with the broader educational shifts emphasized in the literature: personalized feedback, contextualized learning, and skill sets aligned with market demands.

For disconnected youths, who often face systemic barriers to quality education and stable

employment, the model holds potential as a flexible and accessible alternative to conventional training programs. providing asynchronous scenario-based instruction and AI-driven support can mitigate issues related to geographic isolation, digital skill disparities, and time constraints. While these potential benefits cannot be confirmed without learner data, the conceptual framework suggests that if effectively implemented and continually refined, the model may help learners gain confidence, assemble work portfolios, and better understand the pathways into AI-driven careers.

1) AI Graphic Design

Visualization and practical design skills in AI graphic design, learners acquire proficiency in both conventional tools (e.g., Adobe photoshop) and emerging AI-driven platforms that automate tasks, such as layout and image enhancement. By working on progressively challenging design briefs aligned with industry needs, the participants developed a competitive portfolio that could lead to recognized certifications. They also gain branding and marketing insights, enabling them to create promotional materials and explore diverse freelance and entrepreneurial pathways. Ultimately, mastery of these creative visualization techniques helps disconnected youths build confidence and expand their employability in design-oriented sectors.

2) AI Video Production

AI Video production equips learners with practical editing and effect capabilities by introducing automated functions, such as color grading or object tracking, to streamline production workflows. Through scenario-based assignments, they not only practiced technical tasks (e.g., storyboarding, shooting, and post-production) but also refined their problem-solving and team communication skills in a realistic project environment. This combined emphasis on technical literacy and collaborative work fosters career readiness in fields that rely increasingly on innovative media strategies and dynamic content creation.

3) AI Music Production

Technical proficiency, and holistic CollaborationIn. In AI Music production, participants immersed themselves in digital audio workstations and AI-assisted composition tools, gradually assembling genre-specific tracks that highlight both creative flair and technical competence. This hands-on experience offers an avenue for self-expression and confidence building, which is particularly valuable for disconnected youths seeking to reconnect with education or the labor market. The final outputs serves as a compelling portfolio, opening doors to roles in music production, audio engineering, and related creative industries, while reinforcing a foundational skill set that embraces contemporary AI-assisted workflows.

2. Challenges and Complexities

Recognizing that disconnected youth may have limited access to stable technology, variable digital literacy, and differing motivational levels, this

model anticipates numerous implementation challenges. Addressing these issues will likely require ongoing refinement, such as adjusting content difficulty, improving technical support, enhancing cultural and contextual relevance, and ensuring that AI tutors do not inadvertently reinforce inequities. Although this study dis not document learner experiences or outcomes, acknowledging these complexities is an essential step toward crafting interventions that are truly inclusive and sustainable.

The lack of data in this study underscores the importance of future empirical studies. pilot implementations, user testing, and evaluative studies can offer valuable insights into how learners interact with the curriculum, how AI tutors influence skill acquisition, and which modifications may enhance effectiveness. Systematic data collection, ranging from pre- and post-program skill assessments to learner interviews and platform analytics can help pinpoint strengths, identify shortcomings, and guide data-driven improvements.

3. Directions for Future Research

If subsequent evaluations confirm the potential of the model, educational institutions, policymakers, and community organizations may consider leveraging its principles in other contexts. Aligning curricula with industry-recognized competencies and integrating AI-based feedback mechanisms could address labor market demand more directly. Moreover, the model's design-based approach, which is iterative, responsive, and context sensitive, can inform future policy interventions aimed at reducing educational inequities and enhancing workforce readiness among underrepresented groups. Additionally, the JoB+AI Model underscores the importance of ethical responsibility in AI-enhanced learning. Because the program relies on continuous learner data to provide personalized feedback, strict adherence to privacy regulations and transparent data governance practices is essential. Future iterations of the model will incorporate learner-centered data dashboards, allowing participants to track and manage their data usage and retention preferences.

Beyond validating the current model, future research might explore comparative studies between the JoB+AI Model and traditional training programs, investigate its adaptability across various cultural and linguistic contexts, or integrate emerging AI tools that further personalize learning paths. Longitudinal studies can track learners' career trajectories and assess whether the competencies gained translate into meaningful employment opportunities and professional growth.

Ⅷ. Conclusion and Future Directions

This study introduced the JoB+AI Model as a design-based conceptual framework for delivering remote, AI-enhanced competency education to disconnected youths. Although no empirical data or outcome assessments have been presented, the model's guiding principles, competency-based progression, scenario-driven tasks, integration of AI tutors, and flexible delivery, reflect a deliberate effort to address the skill gaps and access barriers faced by marginalized learners in an increasingly AI-driven economy.

Although the JoB+AI Model was initially designed for disconnected youths aged 19-34 years, its competency-based and scenario-driven structure holds promise for other learner populations. In particular, adult learners seeking career transitions, university students seeking industry-aligned AI skills, and working professionals aiming to improve their skills could benefit from the program's flexible, AI-supported approach.

In conclusion, although the conceptual foundations of the JoB+AI Model have now been established, the journey toward full validation and scaling has only just begun. It is hoped that this foundational work will inspire further research, experimentation, and collaboration, leading to robust evidence-based strategies for empowering disconnected youths through AI-competency education in a rapidly changing world.

References

Aleven, V., Roll, I., B. M., & Koedinger, K. R. (2010). Automated, Unobtrusive, Action-by-Action Assessment of Self-Regulation During Learning With an Intelligent Tutoring System. *Educational Psychologist, 45,* 224-233.

Baartman, L. K. J., Bastiaens, T. J., Kirschner, P. A., & van der Vleuten, C. P. (2007). Evaluating assessment quality in competence- based education: A qualitative comparison of two frameworks. *Educational Research Review, 2*(2), 114-129.

Barab, S., & Squire, K. (2004). Design-based research: putting a stake in the ground. *The Journal of the Learning Sciences, 13*(1), 1-14.

Bonk, C. J., & Graham, C. R. (2005). *The handbook of blended learning: Global perspectives, local designs.* Pfeiffer.

Dalia Bajis Betty Chaar and Rebekah J Moles (2020). Rethinking Competence: A Nexus of Educational Models in the Context of Lifelong Learning. *Pharmacy, 8*(2), 81.

Fraefel U., (2014), Professionalization of pre-service teachers through university-school partnerships, *WERA Focal Meeting,* Edinburgh

Herrington, J., Reeves, T. C., & Oliver, R. (2010). *A guide to authentic e-learning.* Routledge.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning,* Independently published.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education.* Pearson.

McKenney, S., & Reeves, T. C. (2012). *Conducting Educational Design Research.* Routledge

Means, B., & Neisler, J. (2021). Teaching and learning in the time of COVID: The student perspective. *Online Learning, 25*(1).

Means, B., Bakia, M., & Murphy, R. (2014). *Learning online: What research tells us about whether, when and how.* Routledge.

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record, 115*(3), 1-47.

Mulder, M. (2017). *Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education.* Springer.

Roll, I., & Wylie, R. (2016). Evolution and revolution in artificial intelligence in education.

International Journal of Artificial Intelligence in Education, 26(2), 582-599.

Stein, S. J., Isaacs, G., & Andrews, T. (2004). Incorporating authentic learning experiences within a university course. *Studies in Higher Education, 29*(2), 239-258.

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development, 53*(4), 5-23.

Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of Research in Education, 34*(1), 179-225.

Yoon Jung Kim and Hyunjin Kim (2024). Effects of Academic Self-efficacy and Course Satisfaction on Core Competencies among Adult Learners at a Cyber University. *Journal of Future Society, 15*(3), 245-264.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education. *International Journal of Educational Technology in Higher Education, 16*(39), 1-27.

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JoB+AI 모델의 디자인 기반 사례 연구: 경력 단절 청년을 위한 원격 AI 역량 교육 과정 설계

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고용시장에서 인공지능(AI) 역량 등 기술에 대한 접근성이 점점 더 중요해지고 있다. 그러나 많은 경력 단절 청년은 이러한 기술을 육성하는 교육에서 소외된 것이 현실이다. 본 연구에서 19~34세의 소외된 학습자를 위한 원격교육 프레임워크인 JoB+AI 모델을 소개한다. 이 모델은 그래픽 디자인, 비디오 제작, 음악 제작 등 분야에서 AI 관련 역량을 제공하도록 설계되었다. 경력 단절 청년이 자신감을 키우고 AI 관련 분야에서 취업 가능성을 확대하는 데 중점을 둔다. 또한 이 모델은 전자 교육, AI 통합 및 역량 기반 학습에 대한 이론적 관점에 근거하여 전적으로 온라인으로 제공되며, 실무 및 시나리오 중심의 커리큘럼이 기술격차를 어떻게 해결할 수 있는지 제안한다. 본 연구는 디자인 기반 사례로 제시되었으며, 데이터 수집과 평가뿐만 아니라, 모델의 개념 기초, 교육 전략, 의도하는 학습 성과를 포함한다. 커리큘럼 구조 및 AI 튜터 등 개인화된 지원을 통하여, 본 모델은 유연한 학습 경로, 수요에 맞는 기술, 최근 현업 적합성 등의 장점을 지닐 수 있다. 실증적 결과 데이터는 아직 축적 중이나, 경력단절 청년에게 어떻게 디지털 리터러시를 향상시키고 포괄적 AI 역량을 개발할 수 있는지 소개한다. JoB+AI 모델은 통합접근 방식을 통해 빠르게 진화하는 디지털 경제에서 소외된 학습자의 교육 격차를 해소하고 경력 경로를 확장하는 것을 목표로 한다.

주요어: AI 역량 개발, 경력 단절 청년, 교육격차