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Impact of Competency Based Education on Learning Outcomes

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Abstract

This research abstract synthesizes findings from a literature review on the impact of Competency-Based Education (CBE) on learning outcomes. CBE, characterized by its focus on mastering specific competencies, is a learner-centric approach gaining traction across diverse educational contexts. The literature review spans K-12 education, higher education, vocational training, and professional development.

Key themes emerge, highlighting the positive influence of CBE on learning outcomes. In K-12 settings, personalized pacing and tailored instruction enhance student success. In higher education, the emphasis on competency mastery aligns with the cultivation of measurable, applicable skills. Vocational and professional development literature underscores the role of CBE in fostering job-ready skills and workplace readiness.

Formative assessments, immediate feedback, and adaptive learning technologies within CBE frameworks are identified as crucial contributors to improved learning outcomes. Challenges, including the need for faculty training and addressing equity concerns, are also recognized.

This abstract provides a concise overview of the literature, contributing insights for educators, policymakers, and researchers interested in optimizing instructional models to enhance learning outcomes through Competency-Based Education.

Keywords: competency-based education, learning outcomes, literature review, educational contexts, student success

Introduction

Competency-based education (CBE) is a learner-centered approach that focuses on the mastery of specific skills and knowledge rather than traditional time-based measures. This paper seeks to review and synthesize the existing literature to provide insights into the impact of competency-based education on learning outcomes. The study explores key concepts, theoretical frameworks, and implementation strategies associated with CBE.

Riesman (1979) defines CBE a form of education that derives curriculum from an analysis of a prospective or actual role in modern society and that attempts to certify student progress on the basis of demonstrated performance in some or all aspects of that role. Theoretically, such demonstrations of competence are independent of time served in formal educational settings.

Ozhegov's dictionary uses activity-based descriptions of concepts.

- 1) Competence refers to the ability to control a specific area or phenomenon;
- 2) Competence awareness;
- 3) Competence as a recognised expert in a specific issue (e.g., insurance); and
- 4) Willingness to assess risks and contribute to risk spreading. The concept of

"willingness" refers to a person's preparedness to accomplish a task.

In contrast, Ozhegov and Shvedova (1993) define willingness as agreement to do anything when everything is complete and ready.

Nowadays, competency is defined as "a person's ability to carry out any activity on the basis of life experience and the acquired knowledge and skills".

Theoretical Foundations of Competency-Based Education

Competency-Based Education (CBE) is grounded in various educational theories that inform its principles and practices. The theoretical foundations of CBE emphasize student-centred learning, mastery of skills, and a departure from traditional time-based models. Here are some key theoretical frameworks that underpin Competency-Based Education:

Behaviorism:

Based on Principle: CBE aligns with behaviorist theories, which posit that learning is a result of observable behaviors shaped by external stimuli and reinforcement. In CBE, mastery of competencies is often reinforced through positive feedback, assessments, and rewards, promoting a focus on measurable outcomes.

Constructivism:

Based on Principle: Rooted in constructivist theories, CBE recognizes that learning is an active process where students construct knowledge based on their experiences and interactions. CBE promotes personalized learning experiences, allowing students to actively engage with content, demonstrate mastery, and apply knowledge in real-world contexts.

Andragogy (Adult Learning Theory):

Based on Principle: CBE incorporates principles of andragogy, recognizing that adults learn best when they see the relevance of the material to their lives and when they are self-directed. Competency-Based Education often allows adult learners to progress at their own pace, catering to their individual needs and experiences.

Humanism:

Based on Principle: CBE shares humanistic principles that emphasize individual growth, self-actualization, and meeting the unique needs of learners. The focus on personalized learning plans, continuous feedback, and the development of real-world skills aligns with humanistic theories that prioritize the holistic development of the individual.

Cognitivism:

Based on Principle: Cognitivist theories emphasize the mental processes involved in learning, such as perception, memory, and problem-solving. In CBE, the emphasis on mastering competencies reflects a cognitive approach, where learners actively process information and build mental models of knowledge.

Connectivism:

Based on Principle: Emerging in the digital age, connectivism posits that learning is distributed across networks, and the ability to navigate these networks is a crucial skill. CBE often leverages technology to facilitate connections and collaborations, aligning with the

principles of connectivism in fostering a networked approach to learning.

Experiential Learning:

Based on Principle: CBE draws from experiential learning theories, emphasizing the importance of learning through direct experience. Competencies in CBE often involve practical applications, simulations, or real-world projects, allowing learners to apply their knowledge in authentic contexts.

Systems Theory:

Based on Principle: CBE can be viewed through a systems theory lens, where the education system is seen as an interconnected set of elements working together to achieve defined goals. CBE seeks to create a coherent system where competencies are aligned with learning objectives, assessments, and instructional strategies.

By integrating these theoretical foundations, Competency-Based Education strives to create a dynamic and adaptive learning environment that prioritizes the mastery of skills, personalized learning experiences, and the development of lifelong learners capable of meeting the demands of the 21st-century world.

Empirical Evidence on the Impact of Competency-Based Education on Learning Outcomes

Empirical evidence on the impact of Competency-Based Education (CBE) is crucial for understanding its effectiveness in improving learning outcomes. Numerous studies have investigated various aspects of CBE, including student achievement, engagement, and satisfaction. Here are some key findings from empirical research:

Açıkgöz and Babadoğan (2021) in their study found that CBE focuses on the display of competence when analysing students' development and assesses it via formative assessments, and that CBE eliminates students' learning gaps by assisting them at each level.

Jenkins, D., & Lahr, H. (2021) in the study *Accounting for Non-Completers in Assessing Community College Student Success. Examining a competency-based program at a community college*, this study found that CBE contributed to higher completion rates compared to traditional models. The research emphasized the importance of flexible pacing and personalized learning plans in supporting student success.

Baughman, Brumm & Mickelson (2012) in their findings revealed that self-assessed professional improvements were made, self-assessed results were greater than peer results, and overall peer assessments suggested aggregate increases in professional growth. This case study serves as a platform for future research into competency-based learning and evaluation.

Kellogg (n.d.) in their study found rationales, techniques, and programming at the institutions that participated in this study varied. While there were some commonalities, it is obvious that institutions must consider particular rationales for implementing CBE programmes, as well as how CBE fits into the institution's overall strategic objectives and purposes. CBE programmes offer potential for universities, but they also present certain obstacles.

Anderson (2018) in the article addresses the changing student population on college campuses, especially adult learners, and highlights current legislative and policy activities related to competency-based education (CBE). It recommends that states and institutions evaluate the learning environment, investigate alternative pathways to credentialing, modernise financial aid policies, assist students, and coordinate efforts among institutions and industry leaders to

improve completion rates and attainment goals.

Baker (n.d.) in the study discusses how CBE programmes disrupt the structure and choices of traditional higher education. The most clearly defined components of traditional higher education programmes (such as class schedule and timing, time to degree, course materials, course prerequisites, and the number of credits required at the school) are far less regimented in CBE programmes. In contrast, the components of traditional higher education programmes that are often the most variable and customisable (such as major selection, class selection within majors, and learning objectives within individual courses) are frequently set in CBE programmes.

The US government is looking into competency-based education as an alternative to traditional college degrees, with an emphasis on student understanding rather than classroom time. This literature review examines several programmes and techniques, emphasising the need for a more cost-effective alternative (Ordonez, 2014).

Key Findings of the study analysed four institutions implementing CBE models and found positive outcomes related to cost reduction, increased accessibility, and improved learning outcomes. Students in CBE programs demonstrated higher levels of proficiency and mastery of skills compared to their counterparts in traditional programs (Ehrmann & Kinzie, 2023).

Kamenetz, A. N. Y. A. (2014) in the study investigated the impact of a CBE program in an online university and found that students progressed at their own pace. The CBE students completed their degrees more quickly than traditional students, and there was no significant difference in learning outcomes between the two groups.

Chacko (2014) report highlighted the positive outcomes of CBE programs, including

increased completion rates, enhanced student engagement, and improved alignment with workforce needs. The report emphasized the potential of CBE to address challenges in higher education.

Sturgis (n.d.) in the literature review explored various aspects of CBE in K-12 education. It identified positive impacts on student engagement, motivation, and achievement. The review suggested that CBE could provide a more personalized and flexible learning experience, leading to improved learning outcomes.

While these studies offer valuable insights, it's important to note that the impact of CBE may vary based on factors such as program design, implementation strategies, and the context in which it is applied. Continued research and longitudinal studies will contribute to a more comprehensive understanding of the long-term effects of Competency-Based Education on learning outcomes.

This section presents a synthesis of empirical studies investigating the impact of competency-based education on learning outcomes. The review includes quantitative and qualitative research exploring student achievement, engagement, and satisfaction within CBE programs. Key findings and trends from these studies are analyzed to provide a comprehensive understanding of the effects of CBE on learning outcomes.

Challenges and Critiques of Competency-Based Education

While Competency-Based Education (CBE) holds promise for improving learning outcomes, it is not without challenges and critiques. Addressing these concerns is crucial for the effective implementation and continuous improvement of CBE programs. Here are some

common challenges and critiques associated with Competency-Based Education:

Equity and Access:

Challenge: Critics argue that CBE may exacerbate existing educational inequities. Students with limited access to technology, support systems, or those facing socioeconomic challenges may struggle in a system that relies heavily on self-directed learning and technology.

Critique: Some argue that CBE could widen achievement gaps, as students with better resources and support may navigate the system more successfully, leading to disparities in learning outcomes.

Assessment Validity and Reliability:

Challenge: Ensuring the validity and reliability of assessments in a CBE model is challenging. Critics express concerns about the accuracy of evaluating complex competencies, particularly in subjective domains such as critical thinking or creativity.

Critique: Critics argue that the shift from traditional assessments, such as exams, to competency-based assessments may compromise the comparability and consistency of evaluation.

Faculty Preparedness and Resistance:

Challenge: Faculty members may face challenges adapting to the CBE model, especially if they are accustomed to traditional teaching methods. The shift requires a change in mindset, pedagogical approaches, and the development of new instructional materials.

Critique: Some faculty members may resist the move to CBE due to concerns about

workload, lack of training, or skepticism about the effectiveness of this approach.

Quality and Consistency of Content:

Challenge: Ensuring the quality and consistency of content across different competency-based programs can be challenging. The absence of standardized content may lead to variations in the depth and breadth of learning experiences.

Critique: Critics argue that the lack of standardized content could result in a fragmented educational experience, with disparities in the knowledge and skills acquired by students in different programs.

Motivation and Engagement:

Challenge: Some students may struggle with the autonomy and self-regulation required in a CBE model. Maintaining motivation and engagement can be challenging, particularly for learners who thrive in more structured, teacher-led environments.

Critique: Critics contend that CBE may not be suitable for all learners, and some students may struggle without the external structure and guidance provided by traditional educational models.

Workforce Recognition and Acceptance:

Challenge: The recognition and acceptance of CBE credentials by employers and traditional academic institutions can be a hurdle. Skepticism about the equivalency and relevance of competencies to traditional degrees may impact the market value of CBE credentials.

Critique: Some employers may prefer candidates with traditional degrees, leading to potential challenges for graduates of CBE programs in the job market.

Regulatory and Accreditation Challenges:

Challenge: The regulatory and accreditation landscape for education may not fully align with the principles of CBE. Existing frameworks may pose challenges for the recognition and accreditation of CBE programs.

Critique: Critics argue that the lack of clear regulatory guidelines and accreditation standards for CBE may hinder its widespread adoption and acceptance.

Resource Intensity in Implementation:

Challenge: Implementing CBE requires significant investments in technology, faculty training, and the development of competency-based assessments. Institutions may face financial and logistical challenges in transitioning to or sustaining CBE models.

Critique: Critics raise concerns about the resource-intensive nature of CBE, particularly for institutions with limited budgets, which may limit the scalability and accessibility of such programs.

Addressing these challenges and critiques requires a thoughtful and collaborative approach from educators, policymakers, and stakeholders involved in the implementation of Competency-Based Education. Ongoing research, professional development, and iterative improvements to program design are essential for mitigating these challenges and ensuring the success of CBE in improving learning outcomes for diverse student populations.

Conclusion

In conclusion, this research paper provides a thorough literature review on the impact of competency-based education on learning outcomes. By synthesizing theoretical foundations, empirical evidence, and addressing challenges, the paper contributes to a comprehensive understanding of the current state of CBE and its potential implications for the future of education.

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