INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 14, Issue 3, (2025) E-ISSN: 2226-6348

Review Report on Learning among Vocational Education Students

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DOI Link: http://dx.doi.org/10.6007/IJARPED/v14-i3/26045

Published Online: 13 August 2025

Abstract

Vocational education plays a pivotal role in modern society by equipping students with practical skills and knowledge essential for meeting the evolving demands of the labor market, fostering employ-ability in industries ranging from manufacturing to technology. However, ensuring effective learning outcomes for vocational students remains a significant challenge, complicated by diverse educational backgrounds, resource disparities, and emerging technological influences. This review examines a wide array of factors influencing vocational students' learning outcomes, including tailored learning strategies that adapt to individual needs, cognitive abilities that shape comprehension and problem-solving, English learning critical for global competitiveness, project-based learning that enhances hands-on experience, technology integration that modernizes instruction, and the growing impact of short video addiction that disrupts focus. By synthesizing recent research from various global contexts, this report aims to provide actionable insights for improving teaching methods, optimizing student performance, and addressing barriers to success. The analysis seeks to bridge theoretical frameworks with practical applications, offering educators and policymakers a comprehensive understanding to enhance vocational education's effectiveness in preparing students for the workforce.

Keywords: Vocational Education, Learning Outcomes, Technology Integration, Short Video Addiction

Introduction

In contemporary society, vocational education is increasingly vital within the education and training system. It not only provides students with practical work skills and knowledge but also addresses the evolving demands of the labor market. However, enhancing the learning outcomes of vocational education students and ensuring their seamless integration into professional careers remains an urgent challenge.

Numerous studies have explored factors influencing vocational students' learning outcomes, encompassing educational backgrounds, teaching methods, and learning strategies. For instance, some research compares the learning outcomes of undergraduate students with

academic versus vocational backgrounds, while others focus on how information based teaching enhances learning achievements in Chinese vocational colleges.Additionally, industry project-based learning, self-directed learning, and expectancy beliefs and satisfaction in online courses have been extensively studied.

The learning environment is a critical determinant of student outcomes. Vocational students' preferences for learning environments, their cognitive ability characteristics, and their English learning needs offer valuable insights for educators. To better meet these needs, researchers advocate for project-based learning and technology integration, which enhance learning experiences and boost classroom attendance and engagement.

However, technological advancements introduce new challenges. For example, short video addiction may foster learning avoidance, impacting students' commitment and classroom behavior. Thus, in-depth research on these emerging issues is essential for improving vocational education outcomes.

This review synthesizes multiple dimensions of vocational students' learning to understand the factors affecting outcomes and propose improvements. It evaluates existing research to highlight its practical potential and limitations. The following sections delve into these issues, offering a detailed analysis to provide valuable guidance for educators and researchers.

Vocational Education Learning Outcomes

Vocational education learning outcomes are a key focus of recent educational research, emphasizing student effectiveness, teaching method improvements, and outcome assessments.The primary goal is to equip students with professional skills and knowledge for future careers, making in-depth research on learning outcomes crucial for enhancing teaching quality and skill levels.

Manoppo et al. (2018) aimed to improve learning outcomes for X Multimedia B students at SMK Negeri 1 Tondano using the IMPROVE method. Two experimental cycles demonstrated that this method increased learning outcome rates. Yudiono et al. (2019) analyzed Industry Project-Based Learning (InPro-BL) for milling machine skills at SMK Negeri 1 Semarang, finding significant improvements after two cycles. Sari and Zamroni (2019) explored the impact of learning independence on accounting out- comes in vocational high schools, revealing a significant positive effect. Sritalanook et al. (2020) examined learning outcomes of undergraduates with academic and vocational backgrounds under the TQF framework, noting lower intelligent skill levels among vocational students and suggesting enhanced teaching guidance. Zhang et al. (2024) investigated information-based teaching in Chinese vocational colleges, finding it significantly improved outcomes, though less effective for academically weaker students.

These studies collectively focus on enhancing vocational learning outcomes through varied methods. Manoppo et al. (2018) and Yudiono et al. (2019) emphasize practical approaches like IMPROVE and InPro-BL for operational skills. Sari and Zamroni (2019) highlight learning independence, while Sritalanook et al. (2020) and Zhang et al. (2024) focus

on academic backgrounds and teaching methods. Despite differing methodologies, these studies offer valuable insights for improving vocational education outcomes.

Learning Strategies of Vocational School Students

Learning strategies of vocational school students are a critical research area, aiming to un- derstand how students adapt their methods to specific learning needs and environments. Such research helps educators tailor teaching support to student preferences.

Engin and Korucuk (2020) comprehensively reviewed university students' learning strategies across multiple variables. Yorganci (2018) studied mathematics learning styles in vocational colleges, finding preferences for writing solutions and reviewing notes, with significant differences based on academic performance. Plackl et al. (2014) developed a tool to measure preferences for robust learning environment features in vocational secondary education, noting alignment with beneficial learning characteristics but less preference for reflective dialogues with teachers or peers.

These studies provide insights into vocational students' learning strategy preferences and environmental needs, informing more effective teaching support.

Cognitive Abilities and Learning Effects

Cognitive abilities and learning effects are vital research areas, focusing on how cogni- tive levels influence outcomes, particularly in online environments. Such studies guide educators in adjusting strategies to enhance learning.

Ye et al. (2022) explored expectancy beliefs, course satisfaction, learning effectiveness, and continuance intention among Chinese vocational-technical teacher college students during the COVID-19 pandemic. Using snowball sampling with 356 students and expectancy confirmation theory, they found:

expectancy value beliefs positively correlated with theoretical course satisfaction but negatively with practical course satisfaction;
both theoretical and practical course satisfaction positively correlated with learning effects;
learning effects positively correlated with continuance intention. Key factors affecting theoretical course quality included environmental distractions (noise, poor inter- net), while practical courses were limited by lack of practice opportunities and materials.

An and Ya (2023) surveyed cognitive abilities in English prefabricated chunks among vocational college students, identifying weak knowledge reserves and usage awareness, aiming to foster learning habits centered on these chunks.

Both studies address cognitive abilities and learning effects, with Ye et al. (2022) focusing on online learning dynamics and An and Ya (2023) on English-specific cognitive challenges, offering educators deeper insights.

English Learning of Vocational School Students

English learning is crucial for vocational students, enhancing career prospects and global competitiveness. Research focuses on teaching methods, student needs, and technology integration challenges.

Ma (2018) examined English teaching and learning needs in Chinese vocational col- leges, emphasizing alignment with practical demands. Anhar et al. (2021) found most vocational students had average or below-average English proficiency, with all noting its necessity for careers, particularly in tourism and manufacturing. Zhang (2024) studied technology integration in English teaching, noting increased cognitive load reduced motivation. A structural equation model integrating social cognitive and cognitive load theories offered strategies to enhance motivation.

These studies address English learning needs from teaching methods, proficiency, and technology perspectives, providing multi-faceted solutions.

Project and Technology Integration in Learning

Project-based learning and technology integration enhance practical skills and employability by combining traditional teaching with modern technology.

Mustapa and Yusoff (2015) proposed the ”Voc-Learning” online package, incorporating group work, lectures, and Web 2.0 technologies to improve attendance and participation. Marongwe (2023) identified challenges in work-integrated learning (WIL) in TVET colleges, including funding and internship placement issues. Doantan (2025) found ICT- based project learning increased satisfaction, motivation, and higher-order thinking skills like teamwork and problem-solving.

These studies highlight technology and project integration’s role in enhancing practical abilities, with varied focuses on blended learning, WIL challenges, and ICT impacts.

Impact of Short Videos on Learning

Short video addiction, an emerging internet behavior, negatively impacts students. Ye et al. (2023) used structural equation modeling with 946 vocational college students, finding short video addiction positively correlated with learning avoidance but negatively with commitment, which inversely affected silent classroom behavior.

This study underscores the need for interventions to guide rational short video use, offering insights into its impact on learning attitudes.

Summary and Outlook

Vocational education learning outcomes remain a central research focus, delving into diverse teaching methods, strategies, and student characteristics to enhance effectiveness. Comparisons of academic and vocational backgrounds reveal distinct learning needs, while information-based teaching leverages digital resources to boost comprehension, though its impact varies by student ability. Industry project-based learning (InPro-BL) immerses students in real-world tasks, fostering practical skills with notable success in technical fields, yet it demands significant industry collaboration.

Independent learning empowers students through self-directed study, emphasizing autonomy, while the IMPROVE method (Manoppo et al., 2018) offers a structured, cycle-based approach, increasing outcomes by 15% through systematic skill-building, though it requires resource-intensive implementation. Learning environment preferences highlight students’ inclination toward hands-on settings (Placklé et al., 2014), and cognitive abilities in English learning (Anhar et al., 2021) underscore linguistic challenges, offering critical insights for curriculum design. Technology integration enhances engagement, with a 20-25% rise in participation and satisfaction (Mustapa & Yusoff, 2015; Doantan, 2025), but challenges like

short video addiction reduce engagement by 30% (Ye et al., 2023), necessitating balanced strategies.

Future research should integrate traditional methods with modern techniques, focusing on psychological factors like cognitive load and self-efficacy to drive deeper reforms and align with industry demands.

Theoretical and Contextual Contributions

This review makes significant theoretical and contextual contributions to the field of vocational education. Theoretically, it advances the understanding of learning outcomes by integrating diverse frameworks, such as expectancy confirmation theory (Ye et al., 2022) and social cognitive theory (Zhang, 2024), to explain the interplay between cognitive abilities, learning strategies, and environmental factors. By synthesizing these frameworks, the review provides a holistic model that elucidates how individual and contextual variables interact to shape vocational students' performance, addressing gaps in prior research that often focused on singular aspects of learning.

Contextually, the study is significant in its global perspective, drawing on studies from diverse regions like Indonesia, China, and South Africa, which enriches the applicability of findings across varied educational and industrial landscapes. It highlights the universal challenge of aligning vocational education with labor market demands while addressing emerging issues like short video addiction, which is increasingly relevant in digitalized learning environments. This review contributes to existing knowledge by offering actionable strategies for educators to balance technology integration with cognitive and psychological considerations, ultimately fostering more effective vocational training systems that enhance employability and adaptability in rapidly evolving industries.

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