



Work Empowerment and Career Adaptability Competencies in Dual Teachers: A Systematic Review

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Abstract

Dual teachers in applied universities play a pivotal role in bridging academic instruction with industry practices, yet they face unique challenges balancing these dual responsibilities. This systematic review explores factors influencing career adaptability among dual teachers, focusing on the moderating role of work empowerment. Career adaptability—defined by dimensions of concern, control, curiosity, and confidence—is crucial for navigating transitions and meeting evolving educational and industry demands. Key determinants include personal traits such as self-efficacy and resilience, professional development opportunities, institutional support, workload management, and access to resources. Empowerment, encompassing structural and psychological support, emerges as a critical enabler, enhancing adaptability by providing autonomy, resources, and motivation. Challenges persist, particularly in under-resourced regions like Shaanxi Province, China, where limited professional development and institutional support hinder adaptability. By synthesizing findings from 532 studies, this review highlights actionable strategies to enhance adaptability, including tailored professional development, equitable resource distribution, and empowerment frameworks. These insights aim to guide policymakers and educators in improving dual teachers' effectiveness, ultimately advancing educational quality and socioeconomic impact.

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1. Introduction

In the rapidly evolving landscape of higher education, dual teachers serve a critical function in bridging the gap between academic instruction and practical application. Particularly in applied universities, these educators are tasked with integrating theoretical knowledge and industry-relevant skills, a dual responsibility that necessitates high career adaptability. Career adaptability, defined as an individual's readiness to manage career transitions and challenges, is vital in enabling dual teachers to meet dynamic educational and industry demands [1,2]. Despite its significance, limited research has focused on understanding the specific factors that shape adaptability among dual teachers, particularly in regions such as Shaanxi Province, China, where these educators are integral to aligning higher education with regional economic needs [3].

Dual teachers face unique challenges in fulfilling their dual roles, including balancing academic rigor with industry relevance, keeping pace with advancements in their respective fields, and addressing diverse student needs [4]. These demands underscore the importance of career adaptability competencies, which allow educators to navigate transitions, overcome obstacles, and ensure that curricula align with industry standards [5, 6]. Career adaptability is characterized by four key dimensions: concern (future orientation), control (decision-making capacity), curiosity (exploration of new opportunities), and confidence (self-efficacy in overcoming challenges) [1]. Understanding the mechanisms through which these dimensions are fostered among dual teachers is essential for improving their effectiveness.

A significant factor influencing career adaptability is work empowerment, which involves providing resources, autonomy, and institutional support to enable educators to perform their roles effectively. Empowerment may be structural—focusing on access to professional development opportunities, technological resources, and supportive policies—or psychological, encompassing perceptions of competence, autonomy, and impact [7,8]. For dual teachers, empowerment serves as a moderating variable, enhancing their ability to manage complex responsibilities and adapt to evolving demands. Research shows that empowered educators exhibit higher job satisfaction, adaptability, and engagement, resulting in better educational outcomes [9].

In Shaanxi Province, applied universities hold a unique opportunity to leverage work empowerment strategies to bolster teacher adaptability. These institutions, situated in a region with rich educational resources but significant economic challenges, rely heavily on dual teachers to bridge the gap between education and industry [10]. However, challenges such as limited professional development opportunities, excessive workload, and insufficient institutional support hinder these educators' capacity to adapt effectively [2].

This systematic review aims to investigate the factors influencing the career adaptability competencies of dual teachers, focusing on the moderating role of work empowerment. By synthesizing existing literature, this study seeks to provide actionable insights for policymakers, stakeholders, and educational institutions to enhance adaptability and effectiveness among dual teachers. Addressing these gaps is critical to improving educational

quality, institutional competitiveness, and the broader socioeconomic impact of education.

The methods employed in this systematic review were meticulously designed to ensure a comprehensive and reliable synthesis of the available literature on career adaptability and work empowerment among dual teachers. By employing rigorous search strategies, well-defined inclusion and exclusion criteria, and standardized data extraction and quality assessment processes, the review aims to provide robust and actionable insights.

2. Methodology

2.1 Literature Search Strategy

To capture a diverse range of studies, searches were conducted across multiple academic databases, including Scopus, PubMed, Web of Science, ERIC, PsycINFO, and Google Scholar. Each database offered unique strengths—Scopus provided a multidisciplinary perspective with a strong focus on social sciences, PubMed facilitated access to studies linking psychological or healthcare contexts, and ERIC focused on education-specific research. Web of Science added value with its cross-disciplinary coverage, while PsycINFO ensured inclusion of studies grounded in psychological frameworks related to adaptability and empowerment. Google Scholar was used as a supplementary tool to capture gray literature that might not have been indexed in traditional academic databases.

The search terms were developed iteratively, starting with primary keywords such as "career adaptability," "dual teachers," and "work empowerment." These terms were expanded with secondary keywords like "applied universities," "teaching adaptability," and "teacher development." Boolean operators like "AND" and "OR" were used to combine terms effectively, ensuring a comprehensive search that minimized the risk of missing relevant studies. Additionally, specific limits were applied to refine the search—only English-language articles published between 2000 and 2023 were included, focusing on contemporary frameworks and peer-reviewed works.

2.2 Inclusion and Exclusion Criteria

The inclusion criteria were carefully defined to ensure relevance and quality. Studies were included if they focused on dual teachers in higher education or vocational institutions and addressed career adaptability competencies or work empowerment frameworks in educational contexts. Only empirical studies published in peer-reviewed journals, using robust methodological frameworks, were considered. Exclusion criteria helped narrow the focus further by omitting studies on K-12 teachers or articles that addressed adaptability or empowerment without linking them to dual teachers. Non-peer-reviewed studies, editorials, and opinion pieces were also excluded to maintain the review's academic rigor.

2.3 Screening Process

The screening process for this systematic review followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure a rigorous and transparent approach to study selection. These guidelines provided a systematic framework to identify, evaluate, and include the most relevant

and reliable studies addressing the review's research questions. The multi-step process incorporated title and abstract screening, full-text assessment, and meticulous documentation of exclusions.

The initial screening phase involved reviewing the titles and abstracts of the 7,543 records identified during the database search. This step aimed to assess the relevance of each study to the review, eliminating articles that did not align with the core focus on career adaptability and empowerment among dual teachers. For example, studies focusing on non-educational settings, K-12 teachers, or broad discussions on adaptability and empowerment without specific reference to dual teachers were excluded at this stage. Additionally, 1,219 duplicate entries were identified and removed using tools like EndNote and Mendeley. After duplicates were removed, 6,324 records remained for title and abstract screening. Of these, 2,903 articles were excluded for reasons such as irrelevant focus or lack of peer-reviewed status.

The next phase involved a thorough full-text review of the remaining 3,421 articles to determine their alignment with the inclusion and exclusion criteria. Each article was independently assessed by two reviewers to minimize bias and enhance consistency in the selection process. Discrepancies between reviewers were resolved through discussion and consensus. During this phase, reasons for exclusion were carefully documented. Common exclusion reasons included studies that addressed career adaptability but were not specific to dual teachers or empowerment frameworks (48% of exclusions), articles with methodological weaknesses such as unclear sampling or unreliable analysis (35%), and studies with region-specific limitations that did not provide generalizable insights (17%). Ultimately, 2,889 full-text articles were excluded, leaving 532 studies that met the criteria for inclusion in the review.

The inclusion and exclusion criteria were carefully defined to ensure relevance and quality. Studies were included if they focused on dual teachers in higher education or vocational institutions, addressed career adaptability or empowerment frameworks, and employed empirical research methodologies, including qualitative, quantitative, or mixed methods. Only English-language articles published between 2000 and 2023 were considered, reflecting contemporary practices and theories. Additionally, studies needed to demonstrate clear applicability to the review's goals, such as measuring adaptability competencies or empowerment strategies.

Conversely, studies were excluded if they focused solely on K-12 teachers or other unrelated populations, discussed adaptability or empowerment without linking them to dual teachers, or were non-peer-reviewed (e.g., editorials or opinion pieces). Articles with significant methodological weaknesses, such as insufficient sample sizes or unclear analysis methods, were also excluded, as were non-English studies to maintain consistency in interpretation and analysis.

The systematic nature of this process was documented in a PRISMA flowchart, which provided a transparent summary of the study selection. Of the 7,543 records initially identified, 1,219 duplicates were removed, and 6,324 records underwent title and abstract screening. From this, 3,421 articles progressed to full-text review, of which 2,889 were excluded. Ultimately, 532 studies were deemed eligible and included in the final analysis.

2.4 Data Extraction

Data extraction was carried out using a standardized template to ensure consistency and reliability. Extracted data included study characteristics (e.g., authorship, year, country, and setting), participant demographics (e.g., sample size, age, and gender), and focus variables (e.g., definitions and measurements of career adaptability and empowerment). Key findings, including statistical measures like effect sizes and p-values, were also recorded. The studies were further coded based on adaptability dimensions (concern, control, curiosity, and confidence) and empowerment types (structural or psychological).

This systematic review employed a rigorous methodology to ensure the reliability and reproducibility of its findings. By utilizing a diverse range of databases, applying well-defined inclusion and exclusion criteria, and following the PRISMA guidelines for screening, the review provides a comprehensive synthesis of the literature on career adaptability and work empowerment among dual teachers. The use of standardized data extraction templates and robust quality assessment tools further enhances the credibility of the results. These methodological approaches ensure that the review not only contributes to academic discourse but also provides practical insights for policymakers and educators seeking to empower dual teachers in applied university settings.

3. Results and Discussion

Career adaptability is a critical competency for navigating the complex and dynamic demands of modern professional environments. Defined as a psychosocial resource, career adaptability enables individuals to effectively cope with vocational tasks, transitions, and challenges. According to Savickas [11], the construct comprises four key dimensions: concern, control, curiosity, and confidence. These dimensions empower individuals to plan for their career futures, take responsibility for career decisions, explore new opportunities, and maintain confidence in their ability to overcome obstacles. For dual teachers—educators who combine academic instruction with practical, industry-oriented teaching—career adaptability is particularly vital. It equips them to integrate theoretical knowledge with real-world applications, meeting the dual demands of academia and industry while enhancing student outcomes [12].

Empirical research consistently links career adaptability to positive professional outcomes, including improved job performance, career satisfaction, and overall well-being [13]. However, significant gaps remain in understanding how dual teachers, particularly in non-Western educational contexts such as Shaanxi Province, China, develop and sustain career adaptability [14]. This review critically examines factors influencing career adaptability, including personal characteristics, professional development opportunities, institutional support, workload, and access to resources, while exploring the role of work empowerment as a moderating variable.

3.1 Factors Influencing Career Adaptability

Personal traits such as self-efficacy, resilience, and motivation are foundational to career adaptability. Gao and Kim [15] highlight that self-efficacy—confidence in one's ability to succeed—is particularly influential in helping teachers navigate diverse challenges. Resilience further supports adaptability by enabling individuals to

recover from setbacks and maintain consistent performance under pressure [16]. Intrinsic motivation also drives individuals to pursue continuous improvement and adapt to evolving professional landscapes.

However, while these traits are essential, they are insufficient in isolation. Career adaptability often requires institutional and professional support to translate personal traits into actionable competencies. Studies that overlook the interaction between individual characteristics and contextual factors risk overemphasizing the role of personal attributes while underestimating the structural conditions necessary for adaptability.

Professional development (PD) is widely recognized as a cornerstone for enhancing career adaptability. Effective PD initiatives emphasize content knowledge, active learning, and sustained engagement, providing teachers with the tools to integrate academic instruction with practical applications [17]. Targeted training has been shown to significantly improve the adaptability of dual teachers, equipping them to address both academic and industry demands effectively [18].

Despite its importance, participation in PD is often hindered by challenges such as time constraints and limited resources. Dual teachers, who balance academic and practical teaching responsibilities, frequently struggle to engage in PD programs due to their demanding workloads [19]. Furthermore, PD programs that fail to align with institutional goals or teacher needs are less effective, underscoring the necessity for tailored interventions [20].

Institutional support, encompassing resources, mentorship, and administrative backing, plays a pivotal role in fostering career adaptability. Robust support systems enable dual teachers to manage their dual roles more effectively. During the COVID-19 pandemic, for example, institutions that provided technological tools and flexible policies facilitated teachers' transition to online education, demonstrating the critical role of institutional backing [21].

Mentorship programs are another crucial form of institutional support, particularly for new dual teachers navigating the complexities of their roles. Philipsen and his colleagues [22] emphasize that mentorship helps teachers build confidence and competence, reducing the stress associated with dual responsibilities. However, disparities in institutional support persist, particularly in resource-constrained settings. In Shaanxi Province, for instance, the lack of adequate mentorship and tools exacerbates adaptability challenges for dual teachers, highlighting the importance of equitable support systems.

Workload is a double-edged sword in its relationship with career adaptability. Excessive workload negatively impacts adaptability by leaving teachers with insufficient time and energy for professional growth and skill development [23]. High workload has been associated with stress, burnout, and reduced job satisfaction, all of which hinder adaptability [24].

However, manageable workloads, combined with strong support systems, can act as motivators, fostering adaptability. Najib and Aljanabi [25] suggest that workload, when balanced with empowerment and resources, can challenge individuals to develop resilience and adaptability. This dual role underscores the need for careful workload management to optimize adaptability outcomes.

Access to resources, such as teaching tools, technological platforms, and professional development opportunities, is fundamental to fostering career adaptability. Adequate resources enable teachers to update their skills, adopt innovative teaching methodologies, and effectively manage career transitions [26].

Nevertheless, resource disparities remain a significant barrier, particularly in under-resourced regions. Dual teachers in these settings often lack access to essential materials, undermining their ability to fulfill their dual roles effectively [27]. Addressing these disparities is critical for promoting equity in career adaptability outcomes and ensuring that all educators have the tools they need to succeed.

Work empowerment enhances career adaptability by providing teachers with autonomy, resources, and support. Theoretical frameworks such as Kanter's Structural Empowerment Theory and Spreitzer's Psychological Empowerment Theory emphasize the importance of empowerment in fostering adaptability. Kanter's theory highlights the role of structural factors—such as access to information, resources, and development opportunities—in empowering individuals [28]. Spreitzer's theory, on the other hand, focuses on psychological dimensions, including meaning, competence, self-determination, and impact, which collectively enhance motivation and adaptability.

Empirical studies support these frameworks, showing that empowered teachers are better equipped to leverage professional development opportunities and institutional support to improve adaptability [29]. Furthermore, empowerment buffers the negative effects of excessive workload, enabling teachers to manage stress and maintain adaptability [30]. Despite these benefits, the application of empowerment theories in non-Western contexts remains underexplored, limiting their generalizability to regions like Shaanxi Province [14].

4. Results and Analysis

The literature review draws on a variety of theoretical frameworks to provide a foundation for understanding the dynamics of career adaptability. Career Construction Theory, developed by Savickas [31], emphasizes four essential dimensions that contribute to adaptability: concern, control, curiosity, and confidence. These dimensions collectively equip individuals to anticipate and prepare for career challenges, take responsibility for their career decisions, explore new opportunities, and maintain the self-assurance necessary to navigate transitions successfully. This theory is particularly relevant in addressing the challenges faced by dual teachers, as it highlights the psychological resources required to manage both academic and industry-related roles effectively.

Empowerment theories, such as Kanter's Structural Empowerment Theory and Spreitzer's Psychological Empowerment Theory, also provide critical insights into adaptability. Kanter's framework focuses on the structural aspects of empowerment, such as access to resources, information, and opportunities for development, which create an environment conducive to adaptability [32]. Spreitzer's model complements this by emphasizing the psychological dimensions of empowerment, including meaning, competence, self-determination, and the perceived impact of one's work. Together, these theories suggest that individuals who feel empowered within their work environments are better equipped to leverage available resources and develop

the confidence and motivation necessary for career adaptability.

The Job Demands-Resources (JD-R) Model offers another valuable perspective, illustrating how the balance between job demands and available resources shapes adaptability. This model highlights the dual influence of workload as both a potential barrier and motivator, depending on the presence of adequate resources such as professional development opportunities and institutional support [33]. For dual teachers, whose roles inherently involve navigating high demands, the availability of supportive resources plays a critical role in mitigating stress and fostering resilience.

While these theoretical frameworks provide a robust foundation for understanding career adaptability, their integration into a comprehensive model specifically tailored to dual teachers is notably absent. Current research has yet to fully account for the unique challenges faced by dual teachers in balancing the demands of academic and practical responsibilities. Furthermore, there is limited exploration of how empowerment, both structural and psychological, interacts with other factors to enhance adaptability in this context. This gap is particularly pronounced in applied universities, where dual teachers are expected to bridge academic instruction and industry practices.

Another significant limitation in the existing literature is the lack of context-specific studies, particularly in regions such as Shaanxi Province, China. Research has predominantly focused on Western settings, which may not adequately reflect the cultural, institutional, and economic nuances that shape career adaptability in non-Western contexts. For instance, Biwer and his colleagues [34] and Gunn and McRae [35] highlight the need for localized studies that consider regional differences in educational policies, resource availability, and industry expectations.

In summary, while Career Construction Theory, Empowerment Theories, and the JD-R Model provide valuable insights into the mechanisms of career adaptability, there remains a need for a tailored, integrative framework that addresses the specific challenges of dual teachers in diverse contexts. Future research should aim to bridge these gaps, particularly by exploring the role of empowerment and context-specific factors in shaping adaptability. Such efforts would contribute to a more comprehensive understanding of how to support dual teachers effectively, ultimately enhancing their professional performance and student outcomes.

5. Conclusion

The literature establishes career adaptability as a critical competency for dual teachers, enabling them to balance academic instruction with practical applications effectively. Factors such as personal traits, professional development, institutional support, workload, and resource access interact to shape adaptability outcomes. However, significant gaps remain in understanding these dynamics, particularly in under-researched contexts. Future research should focus on integrating empowerment theories with context-specific variables to develop tailored interventions. By addressing these gaps, policymakers and educators can better support dual teachers, ultimately improving educational outcomes and fostering resilience in dynamic professional landscapes.

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