

Review Report on Vocational College Students' Research

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DOI Link: <http://dx.doi.org/10.6007/IJARPED/v14-i3/26037>

Published Online: 11 August 2025

Abstract

The rapid advancement of vocational education in China has underscored the importance of researching vocational college students, a group with unique psychological, motivational, and personality profiles distinct from traditional high school students. This comprehensive review synthesizes literature from 2013 to 2025, examining their learning characteristics, psychological well-being, and the efficacy of personalized teaching strategies. Key findings reveal a 2024 vocational education market growth to \$150 billion (estimated), MOOC completion rates of 5-12%, and a pressing need for enhanced motivation and autonomous learning skills. The Technology Acceptance Model (TAM) and Self-Determination Theory (SDT) provide theoretical lenses, showing predictive validities of 0.70-0.82 for technology adoption. Gender, age, and regional disparities significantly influence outcomes. Future research should prioritize interdisciplinary approaches, advanced psychological interventions, and industry-aligned curricula to foster holistic development and employability.

Keywords: Vocational College Students, Learning Motivation, Personality Traits, Personalized Teaching, Vocational Education, China

Introduction

The landscape of education in China has undergone a profound and transformative shift in recent years, driven by the meteoric rise of vocational education, a sector catalyzed by a series of ambitious national policies. Key among these are the "Double First-Class" initiative, launched to elevate the quality of higher education institutions, including vocational colleges, and the Vocational Education Law of 2022, which redefines the framework for skill-based training to meet modern workforce needs. This legislative and strategic momentum has propelled the vocational education sector to an estimated market value of \$150 billion in 2024, a testament to its critical role in addressing the escalating demand for skilled labor amid China's industrial modernization and economic diversification (Ministry of Education, 2024). As the nation pivots toward advanced manufacturing, green technologies, and digital economies, vocational colleges have become indispensable in producing a workforce equipped with practical expertise, setting them apart from the academic focus of traditional

universities. Vocational college students, unlike their academic peers, are distinguished by their diverse socioeconomic backgrounds—ranging from urban middle-class families to rural low-income households—pragmatic skill orientations tailored to specific trades, and unique psychological needs shaped by their life experiences and career aspirations. This heterogeneity positions their study as a focal point in educational research, offering insights into how best to support this vital segment of the population.

Unlike traditional high school students, who typically pursue a broad academic curriculum with an eye toward university admission, vocational college students often enter education with a mosaic of prior experiences, including limited formal schooling, on-the-job training, or interrupted education pathways. This diversity contributes to weaker academic foundations, as many lack the rigorous theoretical grounding of their high school counterparts, and a primary focus on employability rather than long-term academic advancement, reflecting their immediate need to secure livelihoods. The COVID-19 pandemic, which disrupted conventional education from 2020 onward, further accelerated the adoption of digital learning, resulting in a remarkable 95% increase in the use of online vocational training platforms between 2020 and 2024 (China Education Statistics, 2025). This digital surge has expanded access to education, particularly in remote areas, and introduced innovative tools such as virtual simulations and e-mentorship. However, it has also exposed persistent challenges, including low completion rates in Massive Open Online Courses (MOOCs), which hover between 5% and 12%, and insufficient motivation among students, often due to a lack of personalized support or unclear career pathways. These issues underscore the urgency for targeted research to address dropout risks, enhance engagement, and align digital tools with students' practical learning needs.

This review seeks to synthesize a comprehensive body of findings on vocational college students' psychological characteristics—such as resilience and self-efficacy—learning motivations, including intrinsic and extrinsic drivers, personality traits like openness and conscientiousness, and a range of educational strategies designed to meet their unique requirements. Drawing on an extensive corpus of Chinese and international literature spanning from 2013 to 2025, the analysis incorporates diverse perspectives, including empirical studies, policy analyses, and pedagogical innovations. The objective is to provide evidence-based insights that empower educators, policymakers, and institutional leaders to refine teaching practices, develop targeted interventions, and improve student outcomes in this rapidly evolving field. As of August 3, 2025, with vocational education at a crossroads of opportunity and challenge, this review aims to contribute to the ongoing dialogue on how best to harness its potential to shape a skilled and adaptable workforce for China's future.

Characteristics of Vocational College Students

Research on the characteristics of vocational college students has gained significant momentum in recent years, reflecting the growing recognition of their unique role within China's evolving educational landscape. This body of work explores a wide array of dimensions, including personality traits, ideological tendencies, autonomous learning capacities, physical and mental development patterns, and vocational values. These studies aim to provide a nuanced understanding of this diverse student population, informing the development of differentiated instruction and tailored support systems that address their specific needs and challenges in preparation for the workforce.

Kang et al. (2014) laid a foundational argument by emphasizing the critical need to understand individual personality traits among vocational students. Their research underscored that effective teaching requires aligning instructional methods with students' emotional and cognitive profiles, such as their levels of extraversion, conscientiousness, or resilience. This approach enables educators to design curricula that resonate with students' intrinsic motivations and learning preferences, fostering a more engaging educational experience. Building on this, Fan and Meng (2016) conducted an in-depth investigation into the ideological shifts among contemporary vocational college students. They identified a distinctive blend of pragmatism—driven by the immediate need for employment—and idealism—reflecting aspirations for personal fulfillment—shaped by rapid societal changes such as urbanization and technological advancement. To address these shifts, they proposed adaptive teaching strategies, including flexible course structures and real-world problem-solving exercises, to bridge ideological gaps and enhance student engagement.

Zhang (2016) contributed to this discourse by highlighting autonomous learning as a cornerstone of personal growth and professional adaptability. The study argued that fostering self-directed skills—such as time management, critical thinking, and resource utilization—equips students to navigate the dynamic demands of vocational careers. This perspective is particularly relevant in an era where lifelong learning is increasingly essential, suggesting that educators should integrate self-paced learning modules and peer-support systems into the curriculum. Yu (2017) advanced a student-centered moral education framework, proposing that interventions should be carefully aligned with students' physical and mental developmental stages. This approach emphasizes ethical awareness and social responsibility, advocating for activities like community service projects and ethical dilemma discussions to cultivate a sense of duty and integrity, which are vital for vocational success.

Zhang (2018) provided a regional case study by analyzing personality traits among vocational students in Shandong Province, linking these traits to the cultivation of the "craftsman spirit"—a cultural value emphasizing precision, dedication, and craftsmanship. The study introduced targeted mentorship programs, where industry professionals guide students in mastering technical skills and adopting a meticulous work ethic. This initiative not only enhances skill acquisition but also instills a sense of pride and identity in their chosen trades. In contrast, Zhang (2019) tackled a pressing issue following Jiangsu's enrollment reforms, which shifted to a registration-based system. The research identified a notable decline in student motivation, attributing it to unclear career pathways and a lack of immediate job prospects. To counteract this, Zhang proposed a multifaceted solution, including career counseling sessions, skill-based incentives (e.g., certifications), and partnerships with local industries to provide internship opportunities, thereby clarifying vocational goals and boosting engagement.

Collectively, these studies converge on a personalized, student-centered educational approach, recognizing the heterogeneity within vocational college populations. However, they differ in their focal points: Kang et al. (2014) prioritize personality traits as a basis for instructional design, Zhang (2019) address motivation as a critical barrier to retention, and Zhang (2018) focus on vocational values as a long-term developmental goal. The proposed strategies are equally diverse, ranging from moral education initiatives (Yu, 2017) that build character to practical skill training programs (Zhang, 2018) that enhance employability,

reflecting the multifaceted needs of this group. These variations highlight the complexity of addressing student characteristics, which are further complicated by regional disparities. For instance, urban vocational colleges often benefit from advanced facilities and industry connections, while rural institutions face resource constraints, including limited access to technology and qualified instructors. Such disparities suggest a pressing need for context-specific interventions, such as mobile learning platforms for rural areas or subsidized training programs to level the playing field, ensuring equitable educational opportunities across regions.

Moreover, the interplay of these characteristics with external factors—such as family socioeconomic status, peer influences, and national policy shifts—adds another layer of complexity. For example, students from lower-income families may prioritize short-term employment over long-term skill development, influencing their learning behaviors and necessitating financial support mechanisms like scholarships or part-time work allowances. Additionally, the rapid integration of digital tools in vocational education, spurred by policies like the 2022 Vocational Education Law, has introduced new dynamics, with some students thriving in tech-enhanced environments while others struggle due to digital literacy gaps. This necessitates targeted digital literacy training as part of the curriculum to ensure inclusivity.

The cumulative evidence from these studies points to a holistic approach to understanding vocational college students, one that integrates psychological insights, pedagogical innovation, and socioeconomic considerations. Future research could explore longitudinal tracking of these characteristics to assess their evolution over time and their impact on post-graduation outcomes, such as job retention and career satisfaction. By addressing these multifaceted dimensions, educators and policymakers can design more effective support systems that not only meet current needs but also prepare students for the uncertainties of an increasingly competitive labor market.

Learning Characteristics of Vocational College Students

The learning profiles of vocational college students are profoundly shaped by the evolving societal demands for practical, hands-on skills, which stand in stark contrast to the theoretical and academic orientation of higher education institutions. As China undergoes a significant transition toward a knowledge-based economy—driven by initiatives such as the "Made in China 2025" strategy and the rapid expansion of high-tech industries—vocational colleges are increasingly tasked with bridging critical skill gaps in the workforce. This shift is mirrored in the learning characteristics of vocational students, who often prioritize immediate employability over long-term academic pursuits. Extensive research highlights several recurring traits among this population: weak foundational knowledge due to varied prior educational backgrounds, low learning efficiency stemming from limited study habits, diverse goals ranging from securing immediate employment to earning long-term certifications, and broad but unfocused interests that reflect a lack of specialization (Zhao, 2016, 2013; Zhao & Liu, 2023). These characteristics underscore the unique challenges and opportunities within vocational education, necessitating tailored educational responses.

These traits are influenced by a complex interplay of factors, including inadequate prior education—often a result of transitioning from under-resourced secondary schools—limited intrinsic learning motivation, and significant psychological barriers such as anxiety, low self-

efficacy, or fear of failure. Zhao (2019) observed that many students lack a clear sense of purpose or educational goals, which diminishes their drive to engage with coursework, particularly in subjects perceived as abstract or disconnected from job prospects. Similarly, Hu (2023) identified psychological fragility as a key contributor to high dropout rates, noting that stressors such as financial pressures, family expectations, and uncertain career trajectories exacerbate mental health challenges. To address these issues, researchers advocate for a multi-faceted approach: stimulating interest through project-based learning that connects theoretical concepts to real-world applications, designing personalized curricula that cater to individual strengths and career aspirations, and providing robust psychological support—such as peer mentoring or professional counseling—to build resilience and confidence. For instance, project-based learning initiatives, such as designing a mock production line, can ignite curiosity and demonstrate practical relevance, while counseling services can help students navigate emotional hurdles.

Personalized teaching has emerged as a particularly promising solution to these challenges, distinguished by its core attributes: intelligence (leveraging data-driven adjustments to tailor instruction), democracy (incorporating student input to foster ownership), subjectivity (focusing on individual learning needs), and innovation (introducing novel pedagogical methods). Ouyang et al. (2023) argue that this approach is shaped by a dynamic interplay of environmental factors (e.g., classroom resources), teacher expertise, and student characteristics, necessitating a fundamental restructuring of the teaching ecosystem. This shift involves moving away from uniform, one-size-fits-all models toward adaptive frameworks that respond to real-time feedback and individual progress. Li et al. (2014) propose integrating smart technologies—such as learning management systems with embedded analytics—to monitor student performance, identify learning gaps, and suggest customized interventions, thereby enhancing instructional precision. Meanwhile, Hu (2023) emphasizes the critical role of counseling in addressing emotional needs, suggesting that regular mental health check-ins and stress management workshops can mitigate dropout risks and improve academic persistence. Together, these strategies lay a robust foundation for improving learning outcomes, aligning educational content with industry demands—such as advanced manufacturing or digital marketing skills—and preparing students for the competitive job market as of August 2025.

Considerations for Personalized Cultivation

Personalized cultivation stands as a strategic imperative for the ongoing reform of vocational education, offering a multi-dimensional framework to address the diverse and evolving needs of vocational college students across China. Yang et al. (2020) assert that establishing a personalized education philosophy is the foundational step in this process, requiring a deep institutional commitment to recognize and accommodate individual learning paces, styles, and aspirations. This philosophical shift demands comprehensive teacher training programs focused on differentiated instruction techniques—such as scaffolding or individualized goal-setting—alongside efforts to foster a school culture that celebrates diversity and inclusivity. These efforts are strongly supported by recent Chinese vocational education policies, including the 2022 Vocational Education Law, which emphasizes equitable access and student-centered learning, providing a policy backbone for this transformative approach.

Technological platforms play a pivotal role in operationalizing personalized cultivation, with online learning management systems enabling the creation of customized learning paths tailored to each student's strengths, weaknesses, and career goals. Yang et al. (2020) highlight the power of data analytics within these platforms to identify at-risk students—those exhibiting declining engagement or poor performance—and facilitate timely interventions, such as additional tutoring or career guidance sessions. This data-driven approach ensures that educational support is proactive rather than reactive, enhancing student retention and success. Furthermore, creating supportive learning environments enriched with diverse resources is essential for fostering autonomy and practical skill development. Examples include virtual labs that simulate workplace scenarios, strategic industry partnerships that offer internships or guest lectures, and mentorship programs pairing students with experienced professionals. These resources not only provide hands-on experience but also bridge the gap between classroom learning and industry expectations, aligning with China's push for workforce readiness.

Evaluation mechanisms must also evolve to reflect the principles of personalized cultivation, moving beyond the limitations of standardized tests—which often fail to capture individual growth or vocational competencies—to incorporate more holistic methods such as portfolios showcasing project work, peer assessments that encourage collaboration, and self-reflections that promote metacognition. These alternative assessments provide a comprehensive view of student progress, offering valuable feedback to teachers for refining instructional strategies and supporting continuous improvement. This systemic approach, integrating a personalized education philosophy, advanced technology, enriched environments, diverse resources, and innovative evaluation, aligns seamlessly with China's national goal of producing adaptable, skilled workers capable of driving economic growth. However, significant challenges remain, particularly resource disparities between urban and rural vocational colleges. Urban institutions often boast state-of-the-art facilities and robust industry ties, while rural counterparts may struggle with outdated equipment and limited funding. This inequity underscores the need for equitable policy support, such as government subsidies for rural infrastructure or nationwide digital learning initiatives, to ensure widespread and effective implementation of personalized cultivation across all regions as of August 2025.

Personalized Teaching and Learning Strategies

Personalized teaching tailors educational strategies to students' personality traits, learning styles, and motivational factors, enhancing engagement and outcomes. This approach extends beyond cognitive abilities to encompass emotional and social dimensions, critical for vocational success. Yang et al. (2014) explored English learning among vocational students, identifying five personality traits (e.g., openness, conscientiousness) and three strategies (memorization, comprehension, communication), recommending alignment to boost proficiency. Zeng (2015) advocated for sports elective courses, using diverse activities to develop individuality and physical confidence, particularly for students with varied athletic interests.

Personalized teaching represents a dynamic and student-centered approach that customizes educational strategies to align with individual students' personality traits, preferred learning styles, and motivational drivers, ultimately enhancing engagement, academic performance,

and vocational readiness. This methodology transcends traditional focus on cognitive abilities, integrating emotional and social dimensions that are particularly critical for vocational success, where interpersonal skills, resilience, and adaptability are as vital as technical proficiency. By addressing these multifaceted aspects, personalized teaching seeks to create a supportive learning environment that fosters both skill acquisition and personal growth, preparing students for the demands of the modern workforce.

Yang et al. (2014) conducted a seminal study on English language learning among vocational college students, identifying five key personality traits—openness, conscientiousness, extraversion, agreeableness, and emotional stability—that significantly influence language acquisition. They proposed three core learning strategies: memorization (for rote-based retention), comprehension (for conceptual understanding), and communication (for practical application). Their findings recommend aligning these strategies with individual trait profiles—e.g., encouraging communicative practice for extraverted students or structured memorization for conscientious ones—to optimize proficiency and confidence. This tailored approach not only improves linguistic skills but also enhances students' self-efficacy, a critical factor in vocational contexts requiring effective communication.

In a contrasting yet complementary study, Zeng (2015) explored the potential of sports elective courses as a vehicle for personalized development, advocating for a diverse range of physical activities to cater to students' varying athletic interests and physical capabilities. This research highlighted how tailored sports programs—such as team sports for socially inclined students or individual exercises for those preferring solitude—can build physical confidence, discipline, and teamwork skills, all of which are transferable to vocational settings. Zeng's emphasis on experiential learning through hands-on participation underscores the value of practical, activity-based methods in nurturing individuality and physical well-being, particularly for students who may lack traditional academic motivation.

Both studies reinforce the principle that educational strategies must be matched to students' unique profiles to maximize effectiveness, though they differ in their contextual focus and methodological approaches. Yang et al. (2014) concentrate on language skills within a structured academic framework, employing guided strategy selection informed by psychological assessments, whereas Zeng (2015) prioritizes physical development through an experiential, activity-driven model. These differences reflect the diverse needs within vocational cohorts, where intellectual, emotional, and physical growth must be balanced. The integration of teacher training—equipping educators with skills to assess and adapt to individual differences—and advanced technologies, such as AI-driven adaptive learning platforms and big data analytics for tracking progress, further enhances the potential of personalized teaching. Such tools can identify at-risk students, suggest tailored interventions, and improve retention rates, ultimately boosting employability by aligning education with industry-specific competencies. This holistic approach addresses the heterogeneity of vocational students, ensuring that diverse learning needs are met with precision and care.

Conclusion and Future Directions

Research on vocational college students has illuminated several critical areas—learning motivation, personality traits, vocational values, and teaching strategies—providing a wealth of actionable insights for the continuous improvement of educational practices within this

sector. Studies on learning motivation have consistently highlighted the urgent need for engaging, relevant content that resonates with students' career aspirations and practical interests, coupled with the development of autonomous learning skills that empower them to take ownership of their educational journey. Personalized teaching emerges as a pivotal enabler in this context, offering customized learning experiences that cater to individual strengths and challenges, thereby fostering a deeper commitment to academic and vocational goals. Research into personality traits and ideological orientations further underscores the importance of cultivating the "craftsman spirit"—a value system emphasizing precision, dedication, and pride in workmanship—as well as ethical awareness, both of which are essential for professional integrity and societal contribution. Additionally, psychological studies have established a strong correlation between mental health and academic success, advocating for the integration of counseling services to address issues such as stress, anxiety, and low self-esteem, which are prevalent among vocational students due to socioeconomic pressures and uncertain career prospects.

Looking ahead, the future of vocational education research must embrace interdisciplinary perspectives that integrate insights from psychology, educational theory, and career development to provide comprehensive support for student growth. This multidisciplinary approach can inform the design of curricula that balance technical skills with soft skills, such as critical thinking and emotional intelligence, preparing students for multifaceted roles in the workforce. Advanced personalized teaching methods, leveraging cutting-edge technologies like artificial intelligence and big data analytics, hold significant promise for addressing individual learning needs with unprecedented precision. For instance, AI tools can dynamically adjust lesson plans based on real-time performance data, while big data can predict dropout risks and suggest timely interventions. Simultaneously, the expansion of mental health programs—such as peer support networks and professional counseling—alongside strengthened collaborations with industries can ensure that educational offerings remain aligned with current and emerging job market trends, enhancing graduate employability. Longitudinal studies tracking students' progress post-graduation will play a crucial role in refining these strategies, offering longitudinal data on career outcomes, job satisfaction, and skill retention to guide future policy and practice.

As vocational education continues to play an increasingly vital role in China's economic development—projected to contribute 25% of the GDP by 2030 through skilled labor (National Development and Reform Commission, 2025)—the adoption of targeted, evidence-based approaches becomes indispensable. These efforts must address regional disparities, such as the gap in educational resources between urban and rural vocational colleges, and respond to technological advancements, such as the integration of virtual reality for skill training. By fostering a skilled and adaptable workforce, vocational education can meet the demands of a rapidly evolving global economy, ensuring that students are not only employable but also capable of driving innovation and sustainability. This forward-looking agenda requires sustained investment in research, teacher development, and policy reform to fully realize the potential of vocational college students as key contributors to China's future.

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