



DOI: <https://doi.org/10.52714/dthu.15.3.2026.1788>

REVIEWING STUDIES ON THE MANAGEMENT OF ARTICULATION PROGRAM ADMISSIONS AT UNIVERSITIES

Tran Thuy Nhu Phuong

Center for Training Partnership and Professional Development,
Dong Thap University, Cao Lanh 870000, Vietnam

Email: tnphuong@dthu.edu.vn

Article history

Received: 07/9/2025; Received in revised form: 08/10/2025; Accepted: 16/10/2025

Abstract

This article presents the results of a literature review on the management of admission activities for transfer training programs at universities. It aims to synthesize empirical research findings to identify trends, knowledge gaps, and propose practical solutions and future research directions. Based on the collection, screening, and analysis of relevant scientific studies, the results show that the management of transfer admissions is a complex administrative activity influenced by both macro and micro factors. Current empirical studies are mainly case studies, which provide realistic insights at the institutional level but lack generalizability. Thereby, four major knowledge gaps are identified: the lack of comparative studies between different types of institutions; limited research on the application of Industry 4.0 technologies (Big Data, AI); insufficient attention to learners' experiences; and the absence of in-depth analyses regarding the specific characteristics of transfer learners. Based on these findings, the article proposes managerial implications related to digital transformation, professional communication, and strategic partnerships, and suggests four new research directions to fill the identified gaps.

Keywords: *Digital transformation, management of admission activities, transfer training, universities.*

Cite: Tran, T. N. P. (2026). Reviewing studies on the management of articulation program admissions at universities. *Dong Thap University Journal of Science*, 15(3), 106-120. <https://doi.org/10.52714/dthu.15.3.2026.1788>

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TỔNG QUAN CÁC NGHIÊN CỨU VỀ QUẢN LÝ HOẠT ĐỘNG TUYỂN SINH ĐÀO TẠO LIÊN THÔNG TẠI CÁC TRƯỜNG ĐẠI HỌC

Trần Thụy Như Phượng

Trung tâm Liên kết đào tạo-Bồi dưỡng nghề, Trường Đại học Đồng Tháp, Việt Nam

Email: ttnphuong@dthu.edu.vn

Lịch sử bài báo

Ngày nhận: 07/9/2025; Ngày nhận chỉnh sửa: 8/10/2025; Ngày duyệt đăng: 16/10/2025

Tóm tắt

Bài viết này trình bày kết quả nghiên cứu tổng quan về quản lý hoạt động tuyển sinh đào tạo liên thông tại các trường đại học, nhằm tổng hợp kết quả nghiên cứu thực tiễn, từ đó xác định các xu hướng, khoảng trống tri thức và đề xuất các giải pháp và các định hướng nghiên cứu mới. Vận dụng phương pháp tổng quan tài liệu có hệ thống thông qua việc thu thập, sàng lọc và phân tích các công trình khoa học liên quan, kết quả nghiên cứu cho thấy quản lý tuyển sinh liên thông là một hoạt động quản trị phức hợp, chịu ảnh hưởng bởi cả yếu tố vĩ mô và vi mô. Các nghiên cứu thực tiễn hiện nay chủ yếu là nghiên cứu tình huống, cung cấp được cái nhìn thực tế tại các đơn vị nhưng thiếu tính khái quát hóa. Nghiên cứu đã chỉ ra bốn khoảng trống tri thức lớn, bao gồm: sự thiếu hụt các nghiên cứu so sánh giữa các mô hình trường; hạn chế trong việc nghiên cứu ứng dụng công nghệ 4.0 (Big Data, AI); việc chưa chú trọng đến trải nghiệm của người học; và sự thiếu vắng các phân tích sâu về đặc thù của đối tượng người học liên thông. Trên cơ sở đó, bài viết đã đề xuất cho nhà quản lý về chuyển đổi số, truyền thông chuyên nghiệp và đối tác chiến lược, đồng thời gợi mở bốn định hướng nghiên cứu mới nhằm lấp đầy các khoảng trống đã xác định.

Từ khóa: Chuyển đổi số, đào tạo liên thông, quản lý hoạt động tuyển sinh, trường đại học.

1. Introduction

In the context of Vietnam's accelerated industrialization, modernization, and deep international integration, education and training continue to be identified as a top national policy and the decisive driving force for the country's sustainable development. Resolution No. 29-NQ/TW dated November 4, 2013, of the Central Committee of the Communist Party of Vietnam affirmed the need to shift from an education system focused primarily on knowledge transmission to the one that comprehensively develops learners' qualities and competencies, while building an open and lifelong learning system. Continuing this vision, the *Education Development Strategy to 2030, with a Vision toward 2045* (Decision No. 1705/QĐ-TTg, 2024) emphasizes the creation of a national education system that is open, flexible, interconnected, and internationally integrated aiming to support lifelong learning and the development of a high-quality human resource base.

In parallel with this reform agenda, the *Law on Higher Education (Amended) 2018* (Law No. 34/2018/QH14) established a crucial legal framework expanding university autonomy across academic, organizational, personnel, financial, and enrollment domains. Once granted autonomy, universities must take full responsibility of training quality, operational efficiency, and competitiveness in attracting learners. Consequently, student admission has fundamentally transformed from an administrative procedure into a strategic management process that requires market analysis, strategic planning, and the application of modern technologies to optimize performance.

Within this context, *articulation programs* (adapted from APL - articulation pathway learning) have become an essential component in realizing an open education system. Legal documents such as Circular No. 55/2012/TT-BGDĐT, Decision No. 18/2017/QĐ-TTg, and Circular No. 27/2017/TT-BLĐTĐBXH have concretized the regulatory framework for such programs, enabling learners at the intermediate or college level to have their prior learning recognized and continue their studies toward a university degree. This form of education shortens study time, reduces training costs, and meets the growing demand for a highly qualified workforce, thereby enhancing the competitiveness of the knowledge economy (Stern, 2016). However, to ensure the effectiveness of these programs, the management of *articulation enrollment* plays a decisive role as the initial stage that determines input quality and program sustainability.

In practice, managing articulation enrollment in Vietnamese universities still faces numerous challenges. In an autonomous and increasingly competitive environment, institutions must simultaneously meet enrollment targets, maintain input quality, and optimize every stage from planning, communication, counseling, and admission to training organization. The effectiveness of this working process is influenced by both macro-level factors (policies, labor market, socio-economic context) and micro-level factors (institutional strategy, brand reputation, staff competence, infrastructure, technology). Accordingly, the absence of effective management models and sustainable coordination mechanisms between universities and feeder institutions (colleges and vocational schools) remains a major issue.

From a theoretical perspective, several international models have analyzed students' decision-making in choosing a university. For instance, the model of Cabrera and La Nasa (2000) and the framework of Perna (2006) indicate that institutional factors (reputation, facilities, communication) and individual factors (motivation, finance, career opportunities) jointly shape enrollment behavior. Vietnamese studies such as those by Tran and Cao (2009), Nguyen et al. (2011), Dang and Dinh (2019), Le (2020), and Vu et al. (2021) similarly emphasize that understanding learners' psychology and behavior is critical for designing effective enrollment strategies. Nonetheless, these works primarily focus on full-time

undergraduate admissions and rarely address the articulation cohort whose learners typically differ in profile, needs, and motivation (e.g., working adults seeking flexible study and targeted career advancement).

From the viewpoint of higher-education governance, managing articulation enrollment is a complex process requiring the integration of strategic planning, operational organization, resource management, and performance evaluation. Yet, to date, no comprehensive and systematic study has synthesized this domain within the current Vietnamese higher-education context. Existing research remains largely descriptive and case-based, focusing on individual institutions and thus lacking generalizability and an overarching theoretical framework for articulation enrollment management. Moreover, emerging approaches such as the application of Industry 4.0 technologies, learner experience management, and cross-institutional model comparisons remain underexplored in the current literature.

Given this reality, the present study aims to provide a *systematic review* of research on the management of articulation enrollment in universities. This review seeks not only to portray the existing research landscape but also to identify trends, knowledge gaps, and directions for future inquiry.

Specifically, the study addresses three core questions:

1. How has the theoretical foundation for managing articulation enrollment in universities been developed?
2. What findings and limitations have emerged from empirical studies, both domestic and international?
3. Based on the review, what recommendations and research directions can enhance articulation enrollment management in the context of university autonomy and digital transformation?

This research contributes to the theoretical development of higher-education management, particularly in enrollment, a field shaped by autonomy, competition, and digitalization. It also offers practical insights to support university leaders in strategic planning and quality improvement toward sustainable institutional development.

2. Research methodology

This study employs a systematic literature review method to analyze, synthesize, and generalize domestic and international research findings on the management of articulation enrollment among universities. The research process was carried out in three main steps. First, relevant literature was purposefully collected from reputable academic databases such as Scopus, Google Scholar, SpringerLink, and leading Vietnamese scientific journals during the period 2000-2025, focusing on studies in educational management, higher education, and admission policy. Second, document selection and screening were conducted based on three criteria: The content directly relates to enrollment management or articulation programs at the university level; The study clearly describes its methodology and findings; and The work was published in legitimate academic sources. Duplicate or nonconforming materials were excluded. Third, the selected documents were analyzed and synthesized using a thematic coding approach, focusing on five major dimensions: theoretical foundations, management contents, influencing factors, implementation status, and management models. Comparative analysis between international and domestic studies was then conducted to identify trends, knowledge gaps, and further research directions in the future. This methodological approach ensures objectivity, logical coherence, and replicability, providing a solid foundation for drawing scientifically grounded conclusions and recommendations.

3. Research findings

3.1. Overview of theoretical foundations on articulation enrollment management

3.1.1. Studies on conceptual foundations

From a scientific perspective, management is understood as a purposeful and organized process by which a managing entity exerts influence over a managed object and system to achieve defined goals within a changing environment. This activity involves the application of appropriate principles, methods, and tools to ensure effective governance. In essence, management is a complex process comprising four interrelated and cyclical functions: (1) Planning - determining objectives, directions, contents, and implementation measures; (2) Organizing - establishing organizational structures, allocating and coordinating resources such as human, material, and financial assets; (3) Leading/Directing - guiding, supervising, and motivating individuals and units to accomplish common goals; and (4) Controlling - monitoring and evaluating outcomes, detecting deviations, and making timely adjustments to ensure goal achievement. This functional approach, first introduced by Henri Fayol (1916) and later developed by Koontz and O'Donnell (1972), has become one of the foundational theories of modern management science.

When applied to the educational domain, educational management refers to a system of lawful and systematic actions by educational management entities (e.g., ministries, departments, or training institutions) directed toward the education system as a whole to ensure effective implementation of social educational objectives. This forms a macro-level action encompassing strategy formulation, policy planning, promulgation of legal documents, and coordination of operations across the national education system (Central Committee of the Communist Party of Vietnam, 2013; Government of Vietnam, 2024).

At the micro-level, school management involves the application of these management functions to the operation of an individual educational institution. This perspective aligns with Bush (2011), who views school management as the application of general management principles within an educational context to achieve teaching and learning objectives. The scope of management includes organizing, directing, and supervising teaching, learning, assessment, research, admissions, and resource utilization to fulfill the institution's mission and strategic goals in the context of university autonomy (National Assembly of Vietnam, 2018).

Student admission refers to the process of selecting qualified candidates who meet the academic and professional requirements of a given program or discipline. This is a continuous sequence of activities including admission announcements, counseling and guidance, application submission, examination or review, result publication, and enrollment procedures. The process is regulated by national legal frameworks to ensure fairness, transparency, and efficiency (Ministry of Education and Training of Vietnam, 2017).

Accordingly, admission management entails the execution of planning, organizing, directing, and controlling functions throughout the admission process to achieve enrollment goals in both quantity and quality, consistent with institutional development strategies. This approach embodies the core philosophy of Strategic Enrollment Management (SEM), a concept pioneered by Hossler and Bean (1990), which positions admissions as an integral component of an institution's mission and long-term sustainability. The effectiveness of admission management is influenced by multiple factors, including institutional policies, brand reputation, facilities, communication, and student decision-making behavior (Cabrera & La Nasa, 2000; Perna, 2006).

Articulation programs or *articulation pathway learning* (APL) refer to a training modality that allows learners who have completed a certain level of education to have their prior learning recognized and continue to a higher academic level, either within the same or a different discipline, provided that they meet the specific required criteria. The essence of articulation education lies in ensuring continuity, connectivity, and mutual recognition among educational levels and programs, reflecting the philosophy of an open and lifelong learning system (Central Committee of the Communist Party of Vietnam, 2013).

This model has been recognized worldwide as a key mechanism in building seamless transfer pathways, which expand access to education and optimize training resources (Cohen & Brawer, 2008). Articulation programs serve three principal functions: Expanding educational opportunities for the workforce and improving human capital quality; Enhancing educational streamlining and integration across the national education system; and Maximizing the efficiency of social investment in education.

Specific regulations on forms, target groups, quotas, and implementation procedures are stipulated in documents such as Circular No. 55/2012/TT-BGDĐT (Ministry of Education and Training of Vietnam, 2015), Decision No. 18/2017/QĐ-TTg (Prime Minister of Vietnam, 2017), and Circular No. 27/2017/TT-BLĐTBXH (Ministry of Labour, Invalids, and Social Affairs of Vietnam, 2017). These provide a unified legal framework for universities to conduct articulation programs consistent with current policies on innovation and institutional autonomy.

Building upon these foundational concepts of management, admission management, and articulation education, the following section delves into the specific contents of managing articulation enrollment in higher education institutions.

3.1.2. Studies on the management contents of articulation enrollment

Managing articulation enrollment is a comprehensive process that integrates key management functions across interrelated activities and areas. It can be structured into six core areas based on theory and practice in higher education:

First, managing the formulation of plans, quotas, and target groups. This strategic planning stage provides the foundation for the entire enrollment process. It requires integrating external environmental analysis with internal capacity assessment a core principle of Strategic Enrollment Management (Hossler & Bean, 1990). Institutions must evaluate macro- and micro-contexts, including current legal frameworks on articulation programs (Ministry of Education and Training of Vietnam, 2015; Prime Minister of Vietnam, 2017), practical labor market demands, internal training capacity (staff, programs, infrastructure), and competitors' activities. Based on this analysis, universities develop specific admission plans, define quotas, and identify learner segments consistent with institutional strategies under university autonomy (National Assembly of Vietnam, 2018).

Second, managing communication, branding, and admission counseling. This strategic component aims to shape institutional image and attract potential learners. Studies have shown that university selection decisions are influenced by institutional reputation (Ramdhiani & Wahdiniwaty, 2018), program quality, career prospects, and promotional activities (Kango et al., 2021). Therefore, universities must design integrated communication strategies, select appropriate channels (websites, social media, press, relevant events), and especially leverage digital marketing tools to effectively reach their target audience (Hayes, 2017). Empirical evidence in Vietnam likewise confirms the role of communication and counseling in informing and orienting learners' educational choices (Tran & Cao, 2009; Nguyen et al., 2020).

Third, managing the organization of entrance examinations or admission review. This is a crucial stage determining input quality. Institutions must establish transparent, fair, and regulation-compliant admission processes (Ministry of Education and Training of Vietnam, 2017). Ensuring fairness and ethical conduct in candidate selection is not only a legal requirement but also a determinant of long-term institutional trust and reputation (Zwick, 2017). This includes preparing admission projects, receiving and processing applications, organizing examinations or reviews, forming professional committees, and publishing results.

Fourth, managing resources for admission activities. This is a prerequisite for effective implementation. It encompasses: (1) Human resources management - assigning qualified staff with appropriate expertise, as staff professionalism is a decisive factor in successful enrollment (Bontrager, 2004); (2) Financial management - budgeting, allocation, and cost control; and (3) Facilities and technology management. Research by Price et al. (2003) indicates that infrastructure quality directly affects students' school-choice decisions, underscoring the need for appropriate investment and management.

Fifth, managing coordination between internal and external units. Articulation enrollment is cross-sectoral, requiring tight cooperation both internally and externally. Internally, clear mechanisms must exist among departments and faculties, reflecting a whole-institution approach to admissions (Black, 2001). Externally, universities must establish and maintain partnerships with feeder institutions (high schools, colleges and vocational schools). Articulation agreements play a critical role in ensuring a stable recruitment base and have proven effective internationally (Stern, 2016).

Sixth, managing monitoring, evaluation, and continuous improvement. This corresponds to the control function of management, ensuring ongoing refinement of the working process. Universities should develop performance indicators, collect and analyze enrollment data, and implement feedback loops aligned with principles of quality assurance and continuous improvement in higher education (Sallis, 2014). This enables institutions to identify strengths and weaknesses, make timely adjustments, and enhance the effectiveness of subsequent admission cycles.

3.1.3. Factors influencing articulation enrollment management

a. Macro-level (external) factors

First, national policies and legal frameworks constitute the strongest determinants shaping the management of articulation enrollment. The Party and State's orientations such as *Resolution No. 29-NQ/TW* (Central Committee of the Communist Party of Vietnam, 2013) and the *Education Development Strategy to 2030, Vision 2045* (Government of Vietnam, 2024) affirm the role of an open and lifelong learning education system. Legal documents such as the *Law on Higher Education* (National Assembly of Vietnam, 2018), *Circular No. 55/2012/TT-BGDĐT* (Ministry of Education and Training of Vietnam, 2015), and *Decision No. 18/2017/QĐ-TTg* (Prime Minister of Vietnam, 2017) stipulate specific regulations on quotas, target groups, admission forms, and enrollment procedures, thereby establishing the legal corridor for implementation. Any policy change requires universities to promptly adjust their enrollment strategies and plans.

Second, the socio-economic issues, living standards, and social awareness directly influences learners' needs and expectations for further education. During periods of stable growth, individuals are more willing to invest in education, creating favorable conditions for articulation programs. Conversely, economic downturns or rising unemployment tend to shift priorities toward job seeking rather than continued study. In addition, demographic trends such

as a young population, career mobility, and growing awareness of lifelong learning also significantly affect the size and characteristics of the potential applicant pool.

Third, the realistic labor-market demand is a decisive factor in determining the attractiveness of articulation programs. Learners often choose articulation pathways to enhance their professional competence and career advancement prospects. Hence, programs that are closely aligned with market needs, skill requirements, and employability outcomes are more likely to attract candidates. Consequently, enrollment management must be closely linked to labor-market analysis and forecasting to ensure program relevance and sustainability.

b. Micro-level (internal) factors

First, the institution's strategic development orientation its mission, vision, and strategic objectives determines the degree of priority given to articulation programs. When articulation is identified as a strategic area, the management process is typically systematic and professional; conversely, when treated as a secondary or supplementary activity, its effectiveness remains limited.

Second, institutional reputation and branding serve as powerful intangible assets influencing student decision-making. The study by Ramdhiani and Wahdiniwati (2018) demonstrated that institutional reputation directly affects students' choice of university. A well-recognized brand associated with quality training, employability opportunity, and degree value confers a distinct competitive advantage in the higher-education marketplace.

Third, training quality and support services are key determinants of learner satisfaction and trust. Quality is reflected in the qualifications of teaching staff, curriculum relevance, modern teaching methodologies, and linkages with relevant industry. At the same time, support services such as academic advising, library access, career assistance, and extracurricular activities enhance the overall learning experience (Nguyen et al., 2020).

Fourth, the competence and professionalism of the admissions staff significantly influence the institution's public image. Knowledgeable, professional, and friendly counselors can increase conversion rates from potential applicants to enrolled students, while strengthening social trust and institutional goodwill.

Fifth, infrastructure and technology are critical enablers. Modern facilities well-equipped classrooms, libraries, and laboratories help attract students (Price et al., 2003). Moreover, the application of information technology in admissions management such as online registration systems, automated counseling tools, and data-analytics platforms not only optimizes administrative processes but also enhances transparency and candidate experience.

The overall effectiveness of articulation enrollment management depends on the interaction between macro- and micro-level factors. In the context of university autonomy and rising competition, recognizing, assessing, and flexibly adapting to these factors are prerequisites for higher-education institutions to sustain and develop articulation enrollment effectively and sustainably.

3.2. Review of empirical studies

3.2.1. Studies on the current status of enrollment management

The first group of studies focuses on describing, analyzing, and evaluating the current state of enrollment management at specific higher-education institutions. These works are typically conducted as case studies, which although not always explicitly labeled as "status studies" aim to clarify the context, processes, outcomes, and challenges of enrollment management.

Research conducted at institutions such as the Banking Academy (Tran et al., 2018), Hanoi University of Industry (Dang & Dinh, 2019), Nam Dinh University of Nursing (Vu et al., 2021), and Kien Giang College (Truong & Phan, 2023) provides a relatively clear picture of current enrollment management practices in Vietnam. Findings indicate that universities especially non-public institutions and articulation programs face persistent challenges in attracting candidates, meeting quotas, and ensuring input quality.

Enrollment management remains heavily influenced by administrative mechanisms, lacks professionalization, and is insufficiently supported by data analysis and scientific forecasting. Although communication and counseling have received greater attention in recent years, they remain rather limited to create strong institutional branding or distinct market positioning. Furthermore, coordination among internal departments and between universities and feeder institutions (high schools, colleges, and vocational schools) is still fragmented and lacks sustainable collaboration mechanisms.

These empirical studies offer valuable practical insights for identifying core issues in enrollment management at the micro level, providing a foundation for further analysis of influencing factors and the development of more effective management strategies in the context of university autonomy (National Assembly of Vietnam, 2018).

3.2.2. Studies on factors influencing enrollment effectiveness

The second group of studies seeks to identify, measure, and analyze the degree of influence of various factors on students' decision to choose a university. This research stream has been extensively developed worldwide and provides important theoretical and practical foundations for strategic enrollment planning.

At the international level, several prominent theoretical models have been developed most notably, the College Choice Model by Cabrera and La Nasa (2000) and the Student Decision-Making Model by Perna (2006). These frameworks identify two major groups of factors shaping school-choice behavior:

- Institutional factors, including institutional reputation and prestige (Ramdhiani & Wahdiniwaty, 2018), program quality, physical facilities (Price et al., 2003), and the effectiveness of communication and marketing campaigns (Kango et al., 2021).
- Individual factors, including tuition level, campus location, scholarship opportunities, post-graduation career prospects, and the influence of family and social networks (Ming, 2010).

In Vietnam, studies by Tran and Cao (2009), Nguyen et al. (2011), Luu et al. (2017), Nguyen et al. (2020), and Le (2020) have explored these issues using quantitative methods and regression models. Results consistently show five groups of factors most strongly influencing students' university-choice decisions: (1) The reputation and brand of the institution; (2) The fit between program and students' abilities and interests; (3) Employment prospects and career development potential; (4) The quality of faculty and curriculum; and (5) Influence from family, friends, and counseling information channels.

However, most of these studies focus on high-school graduates applying for full-time undergraduate programs, while the articulation student group among typically working adults who require flexible learning schedules and prioritize career advancement remains under-researched. Consequently, distinctive factors related to this group (such as study-time flexibility, credit recognition, and post-program employability) constitute a significant knowledge gap that future research should address.

3.2.3. Studies proposing solutions to enhance enrollment management

Most studies in this category also adopt case-study approaches, and therefore their proposed solutions are often context-specific designed to address particular institutional challenges rather than constructing generalized theoretical models.

The most common solutions proposed include:

1. Enhancing professionalism in communication and counseling, through diversification of communication channels, application of digital media technologies, and development of consistent, engaging messages focusing on the practical value of programs (Tran & Cao, 2009).

2. Improving program quality and learner-support services, ensuring curricula are aligned with labor-market needs and facilitate students' employability and social integration (Nguyen et al., 2020).

3. Investing in infrastructure and technology, including facilities for training delivery, enrollment-data management systems, and online counseling and registration platforms.

4. Strengthening inter-institutional cooperation, particularly with colleges and vocational schools the main sources of articulation candidates through the establishment and implementation of articulation agreements. This approach has been empirically validated by Stern (2016) as highly effective in maintaining stable recruitment pipelines and ensuring continuity of educational pathways.

Overall, these solutions primarily emphasize operational and organizational improvements, focusing on process refinement, staff capacity, and communication enhancement. Nevertheless, there remains a lack of long-term strategic solutions, particularly regarding the application of digital transformation, big-data analytics, and artificial intelligence (AI) in forecasting, process optimization, and learner-experience management within enrollment systems.

3.3. Overall Assessment and Research Gaps

3.3.1. Achieved results

Although research specifically focusing on the management of articulation enrollment remains limited, existing studies in related domains have achieved three notable outcomes.

First, researchers have described and analyzed, with relative clarity, the current status of enrollment management in various higher-education institutions. Through case-study methodologies, many works have explored the contexts, procedures, and outcomes of enrollment activities while highlighting institutional differences. Studies conducted at the Banking Academy (Tran et al., 2018), Hanoi University of Industry (Dang & Dinh, 2019), Nam Dinh University of Nursing (Vu et al., 2021), and Kien Giang College (Truong & Phan, 2023) have provided valuable empirical data. These works reflect the practical application of management principles from planning, communication, and admission review to candidate-record management. Although fragmented, their combined findings offer an initial comprehensive picture of articulation-enrollment management in Vietnam, helping identify common operational models and areas for improvement.

Second, the studies have identified and analyzed key challenges in managing articulation enrollment. Prominent among them is competition for applicants in the context of university autonomy (National Assembly of Vietnam, 2018), which requires educational institutions to develop independent strategies and assume full responsibility for input quality.

Other constraints include limited human and financial resources, weak coordination among functional units, and insufficient accuracy in enrollment forecasting. Particularly, research on student choice behavior (Tran & Cao, 2009; Nguyen et al., 2011; Le, 2020) indirectly reveals the managerial challenge of simultaneously addressing multiple learner expectations in terms of training quality, institutional reputation, employability, and learning support.

Third, a range of practical management recommendations has been proposed. Many studies emphasize professionalizing communication and marketing activities (Kango et al., 2021), improving program quality and student support services (Nguyen et al., 2020), and strengthening partnerships between universities and feeder institutions such as colleges, vocational schools, and employers (Stern, 2016). While context-specific, these solutions contribute valuable experiences and operational reference models for other educational institutions.

3.3.2. Limitations and research gaps

Alongside these achievements, the review identifies four major limitations and knowledge gaps that require further scholarly attention.

First, most existing studies remain isolated case analyses that lack theoretical generalization. While case studies provide rich contextual insight, they limit external applicability. For example, findings from Hanoi University of Industry cannot be directly generalized to a private, economics-oriented university in Ho Chi Minh City. The heavy reliance on descriptive approaches has produced a fragmented body of knowledge, preventing the formation of an integrated theoretical framework on articulation-enrollment management in Vietnam.

Second, there is a lack of systematic comparative research across different management models. To date, no study has compared the effectiveness of articulation-enrollment management among institutional types of public versus private, comprehensive versus specialized, or across socio-economic regions. Expanding such comparative research could help identify effective management models, determine key success factors, and provide reliable empirical foundations for policymaking.

Third, existing studies have not sufficiently examined the application of Industry 4.0 technologies in enrollment management. Most previous works merely describe the use of websites or social media for communication without exploring the potential of Big Data or Artificial Intelligence (AI) in enrollment forecasting and management. Big-data analytics can enable trend detection in application behavior, segmentation of potential learner markets, and accurate prediction of applicant flows. AI can support the development of automated counseling systems (chatbots), candidate-behavior analysis, and personalized information delivery thereby enhancing managerial efficiency and resource optimization. This gap indicates that articulation-enrollment management in Vietnam has not yet kept pace with the global digital-transformation agenda in higher education.

Fourth, studies have largely neglected the learner's perspective, even though the learner is central to the admission process. Most research approaches those issues from the viewpoint of administrators or institutions, emphasizing procedures and organizational efficiency. However, the applicant experience from information search and application submission to final enrollment has rarely been examined as a key variable. Complicated, opaque, or slow administrative procedures may deter prospective candidates. Although some studies have assessed student satisfaction with training quality, extending this analytical lens to the admission phase to evaluate the "learner experience" remains a significant research gap.

3.4. Managerial recommendations for educational leaders

To strengthen competitiveness and enhance enrollment effectiveness under university autonomy and digital transformation, educational leaders should implement three strategic solution groups:

(1) Promote comprehensive digital transformation in enrollment management. Digital transformation should be viewed as an organizational restructuring process rather than a series of isolated technological adoptions. Universities should establish an integrated digital-enrollment ecosystem that connects promotion, application, selection, statistics, and feedback functions on a unified platform. Investments should be made in specialized Customer Relationship Management (CRM) systems for education to collect, store, and analyze potential-applicant data, enabling personalized outreach and engagement. Measuring communication effectiveness (e.g., conversion rates, average cost per enrolled student) and designing user-friendly, secure, and interactive online-application interfaces will directly enhance candidate experience and institutional professionalism.

(2) Develop a data-driven, professional communication and marketing strategy. Enrollment communication must move beyond administrative reporting toward strategic educational marketing. Managers should direct market-research initiatives to segment articulation-learner populations by age, occupation, needs, and learning objectives, thereby defining clear applicant personas. Communication messages should be creative, consistent, and centered on the institution's core values and competitive advantages such as flexible programs, employer partnerships, job opportunities, and successful alumni. Communication channels should be diversified (websites, social media, email marketing, live seminars, digital-consulting platforms) and evaluated using data analytics rather than intuition.

(3) Build and sustain strategic partnership networks. A stable articulation-enrollment pipeline requires multidimensional cooperation. Universities should formalize articulation agreements with colleges and vocational institutions to ensure seamless learning pathways, mutual credit recognition, and joint career-orientation initiatives. Collaboration with enterprises and professional associations can also align curricula with labor-market needs and strengthen institutional branding. The triangular partnership among universities, feeder institutions, and employers is key to an effective, sustainable, and symbiotic articulation-enrollment strategy.

4. Conclusion

The synthesis of domestic and international research reveals that articulation-enrollment management is a complex domain of university governance that demands the integration of administrative capability, strategic thinking, market analysis, and adaptive management in the era of autonomy and heightened competition. Although numerous case studies have provided valuable empirical evidence, the existing body of knowledge remains unsystematic and insufficiently theorized, lacking a comprehensive framework that fully reflects the nature of enrollment management within an open-education system.

From this review study, four major knowledge gaps are identified: (1) The absence of comparative studies on management models across institutional types (public-private, comprehensive-specialized, urban-rural); (2) The limited utilization of Industry 4.0 technologies, particularly Big-Data analytics and Artificial Intelligence (AI), for enrollment forecasting and management; (3) The lack of learner-centered approaches, leading to the omission of applicant experience a decisive factor in institutional choice; and (4) The scarcity of in-depth research on the characteristics, needs, and behaviors of articulation learners, who differ markedly from traditional full-time students in motivation and study conditions.

These gaps highlight not only the limitations of current scholarship but also the potential directions for advancing research and practice. They provide a critical empirical basis for educational leaders to modernize articulation-enrollment management in ways that are innovative, flexible, and learner-oriented.

To bridge these gaps and strengthen the scientific foundation of this field, future research should prioritize four directions: Comparative analyses of management models and effectiveness across institutional types (public vs. private, comprehensive vs. specialized, urban vs. regional) using mixed-methods approaches to identify optimal models and develop robust evaluation criteria; Assessment of digital-transformation impacts on enrollment effectiveness and applicant satisfaction, particularly through the adoption of CRM systems, chatbots, digital-advisory platforms, and UX/UI-optimized institutional websites; Development of predictive models for applicant volume and quality using machine-learning techniques, integrating historical enrollment data with socio-economic indicators to support strategic target-setting, communication, and resource allocation; and Examination of the relationship between articulation enrollment and universities' sustainable-development strategies, evaluating how articulation programs contribute to institutional finance, brand equity, and long-term community missions.

Acknowledgements: This research is supported by the Dong Thap University's science and technology project, code SPD2019.01.28.

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