Journal of Namibian Studies, 35 S1 (2023): 364-387 ISSN: 2197-5523 (online)

Examining The Factors Influencing Adoption To Innovative Curriculum Of Vocational College Students: A Case Study Of Hunan High Speed Railway Vocational College

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ABSTRACT

This study rigorously explores the multifaceted adoption of innovative courses at Hunan High-speed Railway Vocational and Technical College, concentrating on five critical dimensions: teaching, organization, knowledge, innovation, and social integration. The aim of this investigation is to discern the pivotal factors that exert influence on the embracement of avant-garde courses, including the role of institutional backing, the strategies employed for course incorporation, the provisioning of teacher training, the nurturing of information platform development, the integration of professional enhancement, and the fostering of an innovative educational milieu. Employing a robust methodology that synergizes the qualitative insights of the Delphi technique with the empirical rigor of quantitative questionnaires, the study engaged 10 subject-matter experts for in-depth interviews and surveyed 305 vocational students. Out of the 305 responses, 100 were deemed effective and meticulously analyzed using SPSSAU to delineate the salient elements driving innovation in the curriculum. The results elucidate that the teaching, organization, knowledge, innovation, and social dimensions are the linchpins in shaping the innovative curriculum, with the domains of knowledge and innovation emerging as the most potent influencers. The conclusions drawn from the study, reinforced by high data reliability (Cronbach's Reliability above 0.9) and a strong KMO value of 0.900, underpin the importance of all five dimensions in the successful integration of innovative courses. This research furnishes valuable insights and directional guidance for vocational colleges, especially those akin to

Hunan High-speed Railway Vocational and Technical College, equipping them with an understanding of the vital cogs in the innovative curriculum adoption wheel.

Keywords: Curriculum system, Curriculum education, Curriculum innovation, Course students adopt

INTRODUCTION

Background

China's recent policies emphasize training innovative talents in higher vocational colleges, necessitating reforms in the curriculum. However, many higher vocational colleges face deficiencies in teacher resources and curriculum development ability, limiting innovative course adoption. Innovative curriculum aligns with the demands of the modern information society and the national development strategy. It nurtures vocational students' creativity and professional competitiveness. This study takes Hunan High-speed Railway Vocational and Technical College as a case, focusing on the high-speed rail industry's need for innovation-driven education. Existing shortcomings and omissions in course development limit the practicality of current innovation courses, affecting students' adoption rate.

Significance of the Study

Theoretical Significance: While there is an abundance of research on innovative curriculum education, few studies concentrate on factors affecting specific higher vocational colleges. This paper enriches relevant theoretical research in China by analyzing a particular case at Hunan High-speed Railway Vocational and Technical College.

Practical Significance: Hunan High-speed Railway Vocational and Technical College, a prominent vocational school in Hunan Province, has 13,551 students with diverse backgrounds. Since 2016, it has nurtured many innovative talents, positively impacting the high-speed rail industry. However, the industry's changing demands necessitate continuous improvement in the college's innovative course construction. This study identifies shortcomings and proposes a new influence scheme, providing practical insights for the college's curriculum improvement.

Purpose of the Study

Building on the aforementioned context, this study seeks to explore the construction status, existing problems, and key influencing factors of innovative courses at Hunan High-speed Railway Vocational and Technical College. The specific aims are to:

1. **Examine the Status Quo and Challenges:** Utilizing Delphi technology, literature research, questionnaire surveys, and case analysis, this paper will offer an in-depth summary and analysis of the current state of innovative course adoption at Hunan High-speed Railway Vocational and Technical College. This includes identifying the shortcomings and barriers in the process.
2. **Identify Key Influencing Factors:** This paper aims to pinpoint the key factors that influence the adoption of innovative courses at the college. The five factors previously outlined will be explored in detail.
3. **Provide Construction Schemes and Safeguard Measures:** Based on the discoveries, the study will propose targeted strategies and measures to improve the adoption of innovative courses at Hunan High-speed Railway Vocational and Technical College.
4. **Address Core Research Questions:** Two central questions guide this study: a. What are the key factors affecting the adoption of higher vocational students in Hunan High-speed Railway Vocational and Technical College? b. What are the specific factors influencing the adoption of innovative courses for these students?
5. **Analyze Influences in Different Dimensions:** This paper will delve into the multifaceted influences on innovative curriculum, dissecting the key factors that sway student admission to higher vocational courses in the college.

   Overall, the primary goal of this research is to sift through data sources, categorize and understand the factors affecting vocational students' adoption of courses, and thereby provide a nuanced understanding of the dynamics at play in innovative curriculum adoption within Hunan High-speed Railway Vocational and Technical College.

LITERATURE REVIEW

Innovation education is often perceived as an ideological shift in education, rather than merely training students to become entrepreneurs. Various authors and studies have explored different aspects of innovation in education, leading to some noteworthy observations:

- **Understanding Innovation Education:** Innovation education enriches the concept of social practice, enabling students to discern between school education and real social life (Timmons, 2004).

- **Cultivating Entrepreneurial Spirit:** For students, the aim should not be just acquiring entrepreneurial skills but developing an entrepreneurial spirit to withstand pressure and challenges in future life (Lim, 2010).
- **Government and University Collaboration:** Many innovative educational initiatives are led by government and universities, with governments providing loans and R&D funds to convert school technology into societal contributions (Chris, 2014).
- **Influencing Factors in Course Adoption:** Recent studies have identified five critical elements affecting course adoption (Arthur Tatnall et al., 2022):

1. Background and experience of the teaching developer.
2. Selection of appropriate and widely accepted knowledge systems and course recommendations.
3. Adoption of new technologies in innovation and addressing school funds, equipment shortages, and organizational factors.
4. Industry alignment, such as the adoption of Industry 4.0 in undergraduate curriculum in Ho Chi Minh City (ICBE2019).
5. Consideration of occupational relevance, skills, facility conditions, and social impact (Xuan Truong NGUYEN, 2020).

- **Importance of Facilities and Support:** Both technological and organizational infrastructures are pivotal for technology adoption (Venkateshetal, 2003), with a need for facilitation conditions like training courses, technical support, and resources (Aypayetal, 2012).
- **Age Factor in Adoption:** Older workers often focus on receiving assistance in their work (Hall and Mansfield, 1975).
- **Internet and Multimedia Skills:** These can be leveraged for new web development including text, music, video, and mixed media content (Van Deursen et al., 2016).

  In his 2018 work, Weinstein details work experiences that both leveraged and complemented didactic educational experiences. Thompson (2018) investigates the alignment of teaching strategies and curriculum development used by Ontario college's general education instructors with methods endorsed by adult education literature to enhance or build students' critical thinking abilities. Yunos and colleagues (2019) worked to uncover the prevailing pedagogical decisions of non-engineering TVET teachers in Malaysia and Indonesia. Mabunda and others (2020) carry out an exploration of factors affecting the employability of NC(V) graduates in South Africa's Eastern Cape province, using a rural TVET college as a case study.

Different entry paths into a four-year bachelor's degree program are highlighted, where students might begin in Year One or Year Three, depending on qualifications such as an Early Childhood Education Diploma and a successful bridging term. Gorica and co-authors (2020) utilize a case study to scrutinize data from student enrollment and subsequent employment and educational statistics, such as Ontario's KPIs, over a five-year period.

Le and colleagues (2021) present a study conducted in a Vietnamese vocational college, probing student satisfaction in an Email marketing course employing a blended learning approach. Xu (2021) offers an analysis of factors like cultural internationalization, collaborative education mode between college and enterprise, and student status in relation to vocational English curriculum reform, from an ideological and political education standpoint. Tropnikova (2021) reports a survey indicating that only 24.6% of first-year vocational education system students are aware of the WSR movement. Hamzah and fellow researchers (2021) set out to identify what influences students in their selection of a study program at a Vocational College. Product brand influence significantly affect consumer behavior and their purchase intention (Taghipour et al., 2018). Consumer purchasing behavior is affected by standards and quality control such as halal signs (Ahadi, 2015). Liang (2022) brings forth strategies grounded in role theory to enhance the competence of youth social workers, aiming to foster an accurate understanding, proper enactment, and reasonable adjustment of their roles. NFT (Non-Fungible Token) represents a newer, more cost-efficient, and fairer method for the identification and ownership of intangible assets. (Zanjab, 2023). It is crucial to investigate whether players tend to pay attention to advertised products, even if they do not recall them (Taghipour et al., 2017).

In a study involving Chinese students from eight universities in Hunan Province, self-administered questionnaires were used, collected through printed or online formats (Li et al., 2022). (Lin et al., 2023) expanded research on how social support affects individuals. Utilizing validity, reliability, exploratory, and confirmatory factor analysis, (Kedia et al., 2023) implemented structural equation modeling (SEM). (Zhang et al., 2023) conducted a multi-site, cross-sectional, web-based study, gathering information from 1811 Chinese nursing interns at vocational colleges through a nationwide online survey between June and July 2022. Other significant contributions to the field were also made by (Zhang et al., 2023).

From a thorough examination of the literature, we have identified several prominent issues and unique characteristics in the adoption of an

innovative curriculum, particularly within vocational colleges. These issues are manifold and encompass various aspects of the educational sphere:

1. **Teaching Aspects**: With the relentless advancement of informational tools and a burgeoning number of teaching platforms, the transformation of teachers, teaching materials, and teaching methods within vocational institutions has reached an unprecedented scale. This constant evolution has made it extraordinarily challenging for colleges and universities to systematically promote and sustain the reform of integral educational elements such as "teachers, teaching materials, and teaching methods."
2. **Organizational Aspects**: Innovative courses often suffer from a lack of established standards. This includes deficiencies in teaching benchmarks, curriculum guidelines, and subject-matter specialization. The absence of these foundational elements can hinder the effective implementation and scalability of novel educational programs.
3. **Knowledge Constraints**: In the initial stages of course construction, certain inherent weaknesses can surface. These deficiencies may include gaps in content, pedagogical design, or even the alignment with broader educational goals. Such shortcomings often impose barriers to the further refinement and deepening of innovative courses within higher education settings.
4. **Updating and Maintenance Issues**: The realm of innovative curricula faces practical challenges such as the inability to refresh textbooks promptly, reliance on monolithic evaluation methods, and lagging development of information platforms. The slow pace of updates and the lack of dynamic adaptability can result in content stagnation and decreased relevance to contemporary educational needs.
5. **Social and Industry Alignment**: In the current context of rapidly evolving industrial demands, particularly in sectors like high-speed rail and rail transit, the depth of collaboration between educational institutions and industry partners falls short. Innovative courses often fail to keep pace with the shifting requirements of the job market. The causes underlying these issues are multifaceted and stem from both internal inefficiencies within educational systems and external pressures and changes in the broader social and economic landscape.

METHODOLOGY

Study Scope

The focus of this study is on the students and teachers of Hunan High-speed Railway Vocational and Technical College.

Population

The target group includes:

- 10 education experts in Hunan.
- 305 students from Hunan High-speed Railway Vocational and Technical College.

Conceptual Framework

Building on Arthur Tatnall et al's proposal of five influencing factors, this study will synthesize these with insights from previous literature to create a conceptual framework for understanding the adoption of innovative courses at Hunan High-speed Railway Vocational and Technical College. This comprehensive approach will ensure that the analysis is grounded in existing knowledge while exploring new avenues unique to the context of the study.

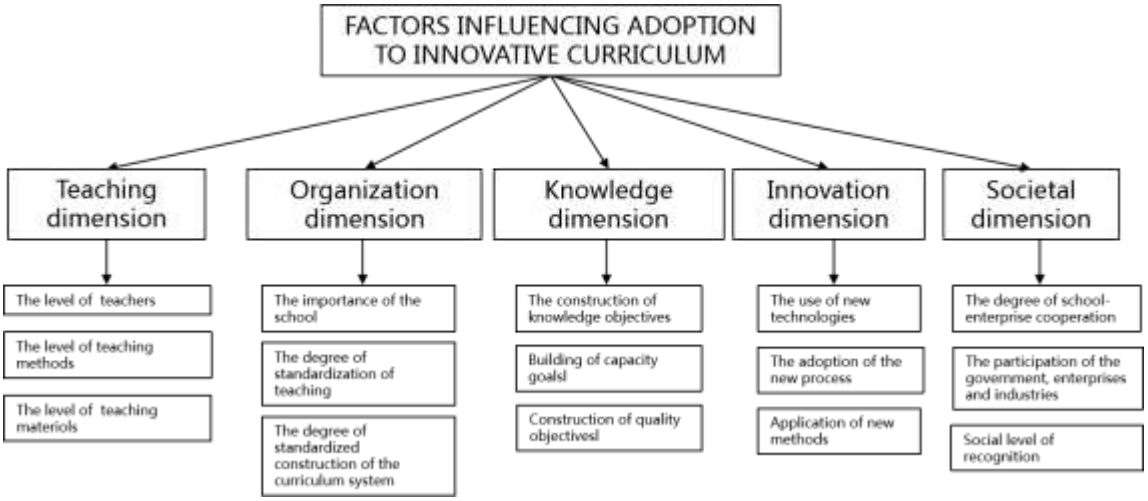

Figure1. Conceptual Framework

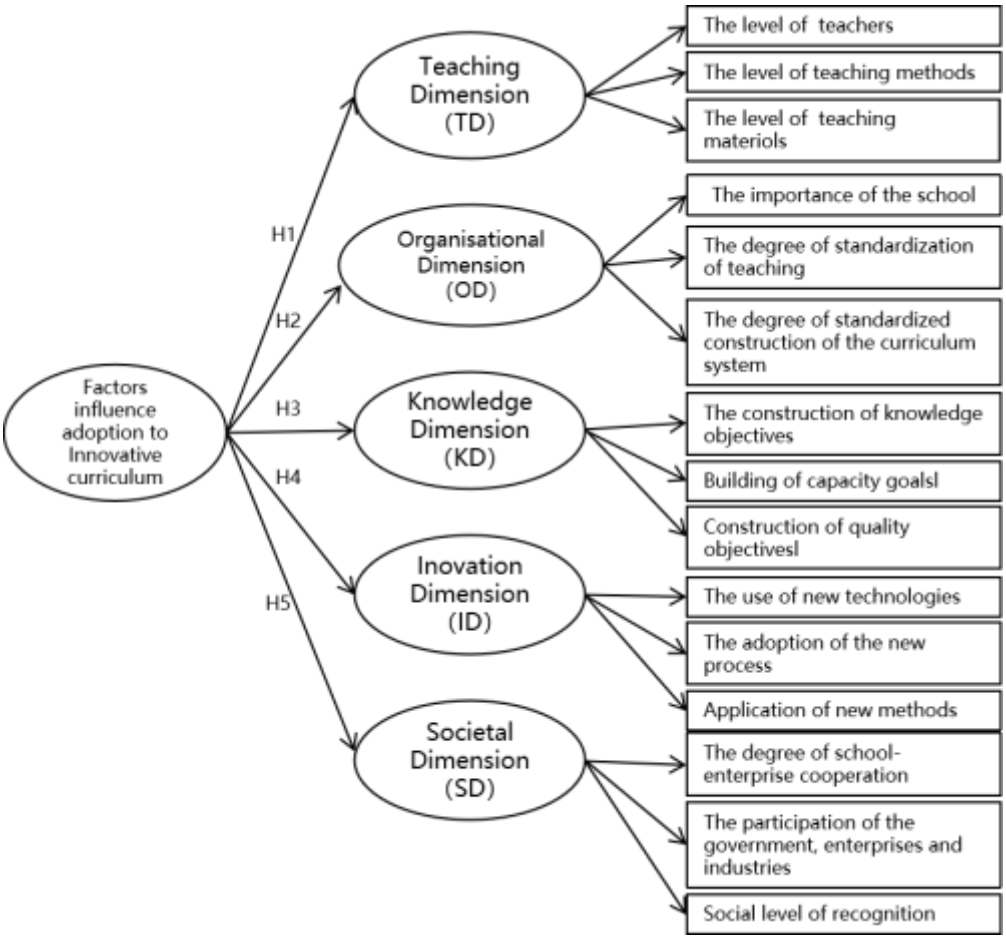

Figure2. Research Framework

HYPOTHESIS

The following hypotheses aim to explore different dimensions of adopting innovative curricula:

- **H1:** Three factors in the teaching dimension (TD) affect the adoption of the innovative curriculum: teacher level, teaching method level, and teaching material level.
- **H2:** Three factors in the organizational dimension (OD) influence the adoption: the importance of schools, the degree of standardization of teaching, and the degree of standardization of the curriculum system.
- **H3:** Three factors in the knowledge dimension (KD) affect adoption: the degree of construction of knowledge goals, ability goals, and quality goals.
- **H4:** Three factors in the innovation dimension (ID) affect adoption: the degree of the use of new technology, the adoption of new technology, and the application of new methods.

- **H5:** Three factors in the social dimension (SD) affect adoption: the degree of school-enterprise cooperation, the participation of government, enterprises and industries, and recognition at the social level.

STATISTICS

The Delphi questionnaire survey engaged 10 experts, including 2 higher education professors, 6 vocational education professors, 1 associate professor from enterprise, and 1 front-line vocational education educator. The expert team had diverse qualifications, including 4 PhDs, 6 Masters, 4 undergraduate university experts, 5 vocational education experts, and 1 enterprise representative. A total of 305 online questionnaires were distributed. Questionnaires with low completion, incomplete information, or unscorable entries were removed, and averages were computed for each influencing factor.

RESULTS

Study Design

This research engaged various channels, including email, QQ, WeChat, etc., for three rounds of consultation with expert members. A consensus-based approach was employed, using a modified Delphi technique.

- **Consultation:** The Internet education platform helped aggregate scattered experts to solicit their opinions. The use of Delphi technology enabled a planned, comprehensive, and systematic examination of the educational phenomenon of innovative curriculum adoption.
- **Data Collection and Analysis:** After the questionnaires were distributed online, 305 electronic copies were collected, and the results were obtained using SPSSAU for analysis.

  The design of this study, as well as the use of various methods of communication and statistical tools, ensures a thorough examination of the innovative curriculum adoption in the targeted college. By combining expert opinions with quantitative analysis, this study aims to yield significant insights into the factors that influence the adoption of innovative courses and the potential measures that could enhance their integration into the educational system. Further analysis and interpretation of the results would likely include a detailed exploration of the relationships between the different dimensions (TD, OD, KD, ID, SD) and how they interact to shape the innovative curriculum in the context of Hunan High-speed Railway Vocational and Technical College.

The reliability of the questionnaire was assessed by calculating Cronbach's alpha coefficient. This coefficient typically ranges between 0 and 1, and higher values (usually above 0.7) indicate good reliability.

Analysis of Five Factors

Teaching Dimension (TD)

The analysis of the teaching dimension (TD) validates H1, providing insight into how teacher level, teaching method level, and teaching material level are vital factors for adopting the innovative curriculum.

Organizational Dimension (OD)

The verification of H2 in the organizational dimension (OD) focuses on the importance of schools, the degree of standardization of teaching, and the degree of standardization of the curriculum system.

Knowledge Dimension (KD)

The analysis in the knowledge dimension (KD), as stated in H3, examines the degree of construction of knowledge goals, ability goals, and quality goals.

Innovation Dimension (ID)

The validation of H4 in the innovation dimension (ID) explores the degree of the use of new technology, the adoption of new technology, and the application of new methods.

Social Dimension (SD)

Lastly, the examination of the social dimension (SD) as per H5 emphasizes the degree of school-enterprise cooperation, the participation of government, enterprises, and industries, and recognition at the social level.

Validity and reliability analysis

The study findings reflect that the five dimensions identified through Delphi technology and quantitative research methods align with the influential factors that affect the school-running mode. The validation process, including the application of content validity analysis and the Likert scale, ensures a robust and comprehensive understanding of the subject.

- **Content Validity:** The questionnaire's content validity was confirmed using IOC indicators, showing strong alignment between the items and the concepts they were designed to measure.

- **Reliability:** The reliability analysis (such as Cronbach's alpha) would likely confirm the internal consistency of the questionnaire.
- **Factors Analysis:** The detailed examination of the five dimensions contributes to a holistic view of the adoption of innovative courses in Hunan High-speed Railway Vocational and Technical College.

  The results could guide future strategies for curriculum development, particularly in the field of vocational and technical education. The identification of specific factors across different dimensions can help educators, administrators, and policymakers tailor their approaches to fostering innovation in education. By recognizing and addressing these key areas, it may be possible to enhance the quality and effectiveness of innovative courses, meeting both contemporary industry demands and broader educational objectives.

According to the Delphi figures from the final round, The results are summarized in the following table.

Table 1. Cronbach reliability analysis

Cronbach Confidence Analysis			
Variables	CITC	Item deleted α coefficient	Cronbach's α
TD	0.873	0.995	0.995
OD	0.890	0.995	
KD	0.841	0.995	
ID	0.795	0.995	
SD	0.915	0.995	
Normalized Cronbach α coefficient: 0.995			

The observation of the reliability coefficient value being 0.995 (greater than 0.9) suggests an exceptionally high level of internal consistency within the data set. This provides strong confidence that the scale is measuring a single underlying construct and that the items are closely related to one another.

For the "CITC value," it is observed that the CITC value of the analysis items is greater than 0.4. This figure reflects a strong correlation between the analysis items, thus exhibiting a commendable level of reliability. The robustness of this correlation underscores the coherence and consistency of the underlying constructs being measured. In conclusion, with a reliability coefficient value higher than 0.9, the research data demonstrates high-quality data reliability. This affirms that the data set is

both stable and consistent, making it suitable for further detailed analysis. The strong correlation indicated by the CITC value enhances confidence in the research findings and lends credence to the potential implications derived from the study.

Table 2. Validity analysis results

Validity analysis results				
Variables	Factor Load Factor			Commonality
	Factor 1	Factor 2	Factor 3	
TD	0.813	0.317	0.352	0.886
OD	0.800	0.334	0.382	0.897
KD	0.758	0.303	0.379	0.810
ID	0.794	0.245	0.312	0.788
SD	0.807	0.353	0.336	0.890
Characteristic root value (before rotation)	37.159	2.059	1.132	-
The rate of variance interpretation%(Before rotation)	82.576%	76.676%	73.792%	-
Cumulative variance interpretation rate%(Before rotation)	82.576%	159.251%	233.043%	-
Characteristic root value (after rotation)	16.088	14.537	9.725	-
The rate of variance interpretation%(After rotation)	35.751%	32.304%	21.611%	-
Cumulative variance interpretation rate%(After rotation)	35.751%	68.054%	89.666%	-
KMO	0.900			-
Bart's spherical value	44685.281			-
DF	990			-
p	0.000			-

The validity study plays a critical role in analyzing whether the study item is logical and holds significance. Several indicators such as the KMO value,

commonality, the rate of variance explanation, and factor load coefficient are employed to ascertain the level of validity in the data.

1. **KMO Value**: The KMO (Kaiser-Meyer-Olkin) value assesses the adequacy of the samples in a study. Here, the KMO value is 0.900, well above the threshold of 0.6, signifying that the data can be effectively extracted. It confirms that the sampling is adequate for performing a reliable factor analysis.
2. **Commonality**: Commonality values assess how much of the variance in each variable is accounted for by the chosen factors. In this case, the commonality value for all research items exceeds 0.4, indicating that the information contained within the research items can be effectively extracted. It ensures that each variable shares some common variance with others and that factor analysis is suitable.
3. **Variance Interpretation Rate**: The rate of variance interpretation highlights how much of the variability in the data is explained by the extracted factors. In this study, the variance interpretation rate values for the three factors are 35.751%, 32.304%, and 21.611%, respectively. The cumulative variance interpretation rate after rotation is an impressive 89.666%, far exceeding the 50% threshold. This indicates a high level of information extraction from the research item, ensuring that the factors chosen account for a significant proportion of the observed variance.
4. **Factor Load Coefficient**: The factor load coefficient measures the relationship between the factors (dimensions) and the corresponding research items. It serves to confirm whether this correspondence aligns with expectations. If the absolute value of the factor load coefficient is greater than 0.4, it illustrates that the option and the factor correspond to each other, reflecting a strong relationship between the variables and the factors.

Table 3. Test of KMO and Bartlett

KMO and Bartlett		
KMO		0.900
Bartlett Sphericity inspection	Approximate chi square	44685.281
	df	990
	p	0.000

Using KMO and Bartlett test for validity verification, from the above table, KMO value is 0.900 and KMO value is greater than 0.8, the study data is perfect for extracting information (reaction validity from the side is good).

Descriptive data analysis

Table 4. Descriptive data indicators

Basic indicators						
Variables	sample size	minimum value	Maximum value	Average value	Standard deviation	Median
TD	100	3.000	5.000	4.720	0.587	5.000
OD	100	3.000	5.000	4.660	0.623	5.000
KD	100	2.000	5.000	4.650	0.716	5.000
ID	100	3.000	5.000	4.630	0.630	5.000
SD	100	3.000	5.000	4.670	0.620	5.000

Descriptive analysis describes the overall picture of the data by mean or median. As can be seen from the above table, there are no outliers in the current data, so SPSSAUAU recommends describing the average directly. In summary, there are no outliers in the data, and the average value can be directly described for the analysis. And for more details, please refer to the table below.

Table 5. Descriptive data in-depth indicators

In-depth indicators											
Variables	Mean values ± standard deviation	variance	In the 25th quartile	median	The 75thquantile	Standard error	95% CI(LL)□	95% CI(UL)□	IQR	Kurtosis	Skewness	CV
TD	4.720±0.587	0.345	5.000	5.000	5.000	0.059	4.605	4.835	0.000	2.812	-1.989	12.445%
OD	4.660±0.623	0.388	4.000	5.000	5.000	0.062	4.538	4.782	1.000	1.545	-1.655	13.372%

In-depth indicators												
Variables	Mean values ± standard deviation	variance	In the 25th quartile	median	The 75thquantile	Standard error	95% CI(LL)	95% CI(UL)	IQR	Kurtosis	Skewness	CV
KD	4.650±0.716	0.513	5.000	5.000	5.000	0.072	4.510	4.790	0.000	3.499	-2.062	15.397%
ID	4.630±0.630	0.397	4.000	5.000	5.000	0.063	4.506	4.754	1.000	1.067	-1.495	13.610%
SD	4.670±0.620	0.385	4.250	5.000	5.000	0.062	4.548	4.792	0.750	1.726	-1.712	13.286%

Table 6. Descriptive data percentiles

Percentile													
Variables	P2.5	P5	P10	P25	P27	P33	P50	P67	P73	P75	P90	P95	P97.5
TD	3.000	3.000	4.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
OD	3.000	3.000	4.000	4.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
KD	2.525	3.000	3.100	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
ID	3.000	3.000	4.000	4.250	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
SD	3.000	3.000	4.000	4.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000

Results of the linear regression analysis

Table 7. Results of the linear regression analysis

Results of the linear regression analysis (n=100)						
	Non-standardized coefficients		Standardization coefficient	t	p	VIF
	B	Standard error	Beta			
Constant	-0.081	0.199	-	-0.408	0.684	-
TD	0.480	0.092	0.452	5.215	0.000**	5.464
OD	0.265	0.136	0.254	1.952	0.054	12.323
KD	0.250	0.088	0.260	2.848	0.005**	6.065
ID	0.011	0.075	0.010	0.145	0.885	3.703
SD	0.006	0.080	0.006	0.070	0.944	4.774
R 2	0.871					
Adjust R 2	0.864					
F	F (5,94)=126.386,p=0.000					
D-W	1.824					
* p<0.05 ** p<0.01						

It can be seen from the above table that the model passed the F-test (F=126.386, p=0.000<0.05), which means that the model construction is meaningful.

From the table presented above, we can observe that the teaching dimension, organizational dimension, knowledge dimension, innovation dimension, and social dimension are employed as independent variables, with the influencing innovation course acting as the dependent variable in the linear regression analysis. The model formula elucidates the relationship as follows:

Influencing Innovation Course Adopts = -0.081 + 0.480 * Teaching Dimension + 0.265 * Organizational Dimension + 0.250 * Knowledge Dimension + 0.011 * Innovation Dimension + 0.006 * Social Dimension.

The R-squared value of this model is 0.871, signifying that the aforementioned dimensions collectively explain 87.1% of the variations affecting the adoption of innovative courses. Upon conducting an F-test on the model, it was found to be statistically significant (F=126.386, p=0.000<0.05), indicating that at least one of the dimensions will have a substantial impact on the adoption of innovative courses.

Further analysis reveals the presence of multicollinearity, as the VIF value in the model is greater than 10. This can be remedied through Ridge

regression or stepwise regression; it is also advisable to closely examine related independent variables, eliminate those that are highly correlated, and conduct new analysis.

A closer look at the specific analysis reveals the following:

1. **Teaching Dimension**: The regression coefficient value is 0.480 (t=5.215, p=0.000 <0.01), indicating a significant positive impact on the adoption of innovative courses.
2. **Organizational Dimension**: The regression coefficient value is 0.265 (t=1.952, p=0.054> 0.05), signifying that the organizational dimension does not notably influence the adoption of innovative courses.
3. **Knowledge Dimension**: The regression coefficient value is 0.250 (t=2.848, p=0.005 <0.01), implying a significant positive impact on the adoption of innovative courses.
4. **Innovation Dimension**: The regression coefficient value is 0.011 (t=0.145, p=0.885> 0.05), denoting a minimal impact on the adoption of innovative courses.
5. **Social Dimension**: The regression coefficient value is 0.006 (t=0.070, p=0.944> 0.05), reflecting a minor relationship with the adoption of innovative courses.

The summary and analysis demonstrate that the teaching, knowledge, and social dimensions exert a significant positive impact on the adoption of the innovative curriculum. Conversely, the smaller organization and innovation dimensions appear to have a lesser impact on the adoption of innovative curricula within schools.

DISCUSSION

The findings of this study offer insights into the adoption of innovative courses across different dimensions. The observations can be summarized and discussed as follows:

1. **Teaching Dimension**: The results underscore the importance of accelerating the training of teachers in information technology, constructing robust information platforms, and enhancing efforts to reform teachers, textbooks, and teaching methodologies. These strategies are highlighted as the most effective methods for advancing innovative courses.
2. **Organizational Dimension**: Emphasizing standardization in teaching and revising curriculum standards in line with specific criteria can significantly foster the adoption of innovative courses. These organizational measures contribute to a more structured and coherent educational environment.

3. **Knowledge Dimension**: This aspect calls for breaking away from rigid thought patterns and tailoring the integration of knowledge to the unique learning needs of vocational college students. An adaptive approach to knowledge dissemination may lead to more engaging and relevant learning experiences.
4. **Innovation Dimension**: In the realm of innovation, there is a necessity for the timely updating of textbooks and the adoption of diverse evaluation methods to refresh information platforms. These actions can inject vitality into the educational process, encouraging a culture of continuous improvement and adaptability.
5. **Social Dimension**: Crafting innovative courses based on specific majors, aligned with the job requirements of sectors such as high-speed rail and rail transit talents, ensures the practical relevance of education. This alignment with industry needs fosters a more responsive and dynamic educational ecosystem.

   Drawing from these five perspectives, the article posits a comprehensive approach to enhancing innovative education. It emphasizes the roles of increasing school support, adopting progressive curriculum strategies, nurturing a specialized teaching staff, devising a distinctive information platform, integrating the professional development of innovative courses, and cultivating an ecological cultural atmosphere conducive to innovative education. These suggestions not only reflect a nuanced understanding of the various dimensions influencing innovative education but also chart a practical path forward in the ongoing evolution of teaching and learning.

CONCLUSION

The study's findings elucidate the multifaceted influences on the adoption of innovative courses, identifying significant impact from teaching, knowledge, and innovation dimensions. In contrast, the organizational and social factors were found to exert a relatively weaker influence, with the knowledge and innovation dimensions emerging as paramount.

Specifically, the case of Hunan High Speed Railway Vocational and Technical College provides insight into the tangible successes and lingering challenges in the field of innovative course construction. Xiong et al. (2022) employed a questionnaire, constructed based on existing literature and theory, titled "higher vocational college students majoring in preschool education practice satisfaction and influencing factors questionnaire." The goal of the study by (Lehinger et al., 2022) was to explore how sleep quality moderates the connection between PTS and

substance usage among college students, with particular attention to any variations based on assigned sex. (Qian et al., 2022) investigated the impact of art design courses at higher vocational colleges, using a c-steam approach, with the participation of 45 art design students. In a study by (Wang et al., 2022), in-depth interviews were conducted with 12 vocational marine navigation college graduates, and grounded theory was employed to interpret the collected data. (Ayón et al., 2022) focused on examining mental health help-seeking practices among Latina/o/x undocumented college students. While noteworthy accomplishments have been achieved, there remain substantial gaps in course adoption. These shortcomings manifest in various dimensions:

1. **Teaching Dimension**: The continuous advancement of information technology has led to a proliferation of teaching platforms and an unprecedented escalation in the reform of teachers, textbooks, and teaching methods. The high complexity in promoting the "Three Education Reform" at Hunan High Speed Railway Vocational and Technical College indicates the need for further support and alignment with contemporary educational technologies.
2. **Organizational Dimension**: The lack of standardized teaching for innovative courses, coupled with inadequate curriculum standards and insufficient specialization of courses, presents organizational challenges that need to be addressed.
3. **Knowledge Dimension**: Shortcomings in the initial course construction process have hindered the deepening of innovative courses. These deficiencies point to the necessity for a more meticulous and considered approach to curriculum development.
4. **Innovation Dimension**: Issues such as the untimely updating of textbooks, the singularity of evaluation methods, and the lackluster construction and updating of information platforms emphasize the need for more agile and responsive innovation practices.
5. **Social Dimension**: The evolving requirements for high-speed rail and rail transit talents render some previous innovative courses obsolete, calling for continual alignment with industry needs and societal demands.

Both internal and external factors contribute to these challenges, reflecting a complex interplay of institutional, pedagogical, technological, and societal influences.

The adoption of innovative courses is a multifaceted and dynamic process, heavily influenced by teaching, knowledge, and innovation dimensions. Addressing the identified challenges requires a concerted effort across all these dimensions, with particular focus on fostering standardized teaching, curriculum specialization, timely innovation, and

alignment with social and industry needs. The study's findings present a valuable roadmap for educational institutions like Hunan High Speed Railway Vocational and Technical College, guiding them in their ongoing quest to cultivate a vibrant and responsive innovative education landscape.

Managerial Implication

Based on the findings of this study on the factors influencing the adoption of innovative curriculum at Hunan High-speed Railway Vocational and Technical College, the following managerial implications can be drawn:

1. Institutional Support: The study highlights the importance of institutional backing for the successful adoption of innovative courses. College administrators and policymakers should prioritize providing the necessary resources, training, and support to teachers and staff involved in curriculum development and implementation.
2. Teacher Training: The research emphasizes the role of teacher training in ensuring the effective integration of innovative courses. The college should invest in professional development programs to equip teachers with the skills and knowledge needed to deliver these courses effectively.
3. Information Platform Development: To enhance the adoption of innovative courses, the college should focus on developing a robust and dynamic information platform. This platform can facilitate the dissemination of updated course content, resources, and evaluation methods to keep the curriculum relevant and engaging.
4. Industry Collaboration: Given the rapidly changing demands of industries like high-speed rail, the college should foster stronger collaborations with industry partners. This collaboration can provide valuable insights into industry requirements, ensuring that the curriculum aligns with the latest trends and developments.
5. Monitoring and Evaluation: Regular monitoring and evaluation of the innovative curriculum's effectiveness are crucial. The college should collect feedback from students, teachers, and industry partners to identify areas of improvement and make necessary adjustments to enhance the curriculum's impact.
6. Continuous Improvement: The study underscores the need for continuous improvement in curriculum development. College administrators should adopt a proactive approach to identify shortcomings and implement innovative strategies to refine and enrich the curriculum continually.
7. Dissemination of Best Practices: The college should establish a mechanism for sharing best practices in innovative curriculum

adoption. This can involve organizing workshops, seminars, or conferences to allow teachers and staff to exchange ideas and experiences, fostering a culture of continuous learning and improvement.

8. Student Engagement: To increase student adoption of innovative courses, the college should focus on student engagement strategies. Incorporating interactive and practical learning methods can enhance student interest and motivation in these courses.
9. Collaboration with Peers: The study emphasizes the significance of collaboration among vocational colleges. Hunan High-speed Railway Vocational and Technical College can collaborate with other institutions to share experiences and learn from each other's successes and challenges in adopting innovative curricula.

   Overall, by implementing these managerial implications, Hunan High-speed Railway Vocational and Technical College can enhance the adoption and effectiveness of its innovative curriculum, equipping students with the skills and knowledge needed to excel in the high-speed rail industry and meet the demands of the modern information society.

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