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Article

Development Model of Enhancing Personnel Competencies for Information Technology Centre Officers in Guilin University of Technology

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Abstract

This study aimed to develop a model for enhancing competencies among officers at the Information Technology Centre of Guilin University of Technology. The objective was to identify key elements necessary for improving personnel competencies based on identified needs and to validate the model's effectiveness in achieving this goal.**:** The research employed both qualitative and quantitative methods to identify competency enhancement elements and conduct a comprehensive needs assessment. A competency enhancement model was then established and reviewed by experts. Following this, the model was implemented at the centre and its effectiveness was evaluated through satisfaction surveys. Data analysis involved statistical techniques, including percentages, means, and standard deviations. The identified competency needs of the officers included data management knowledge, information technology application skills, and a proactive service orientation. The proposed model incorporates five components: principles, concepts, objectives, model content, effectiveness of use, assessment, and conditions for success. Evaluation results demonstrated that the model is both effective and feasible, with post-implementation assessments showing a notable improvement in competency outcomes. The study's data collection and analysis may be subject to biases, and the findings may not be generalizable beyond the specific context and sample. The exploratory nature of this research suggests a need for further systematic validation of the model's applicability and long-term effectiveness. The competency enhancement model developed for the personnel at the Information Technology Centre of Guilin University of Technology offers a novel perspective and empirical foundation for advancing human resource development in this domain.

Keywords

Competencies Enhancement, Information Technology Centre, Model Development, Effectiveness Validation, Needs Assessment.

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The advancement of the internet, big data, and artificial intelligence has fundamentally transformed traditional educational and teaching methods (Airaj, 2024). We are now in an era characterized by intelligence and information that diverges significantly from previous times. As societal conditions evolve, education and teaching must align with contemporary trends. Consequently, nations and governments are increasingly cognizant of the profound changes confronting education and are actively engaging in the development of educational policies to drive reform. This awareness allows for the adaptation of personnel training mechanisms and teaching models to better fit the current educational landscape.

The degree of informatization at universities represents a critical aspect of educational informatization and holds the potential to set benchmarks and lead national advancements in this field (Khan, Soroya, & Mahmood, 2024). The competence of personnel within university information departments is a key indicator of the operational effectiveness of university informatization. The COVID-19 pandemic of 2020 accelerated the development and implementation of information technology across global universities (Huselid, 2018). In the digital age, the prominence of information technology departments in universities has surged, positioning them as pivotal drivers of educational modernization. Information technology has not only revolutionized teaching methods but has also transformed educational management. The integration of big data, cloud computing, and artificial intelligence (Chen, Chen, & Lin, 2020; Li, 2021; Mustopa et al., 2024; Pavlik, 2023; Ray & Saeed, 2018; Yang & Jia, 2012) has endowed university IT departments with crucial responsibilities, including the development of intelligent campus environments, enhancement of educational quality, and optimization of management processes.

In this context, the information technology department has become an essential core support unit within colleges and universities, significantly contributing to educational innovation and enhancing management efficiency (Boudreau, 2014). Despite its crucial role, there remain challenges regarding the competency levels of personnel within these departments, including deficiencies in intelligent management capabilities. Traditional governance and management skills are increasingly inadequate for addressing contemporary needs, highlighting the necessity for upgrading the competencies of university IT staff to better support student education and institutional objectives.

In terms of competency requirements for personnel in university information technology departments, recent references to key directives from the Chinese Ministry of Education over the past decade highlight several critical areas. These include acquiring expertise in information system management (Aldosari, 2023), data resource services, and video resource development. Additionally, there is an emphasis on fostering self-directed and lifelong learning capabilities. The role of university IT departments is shifting from merely offering technical support to delivering comprehensive information technology services, with a focus on meeting personalized service requirements.

The core competencies required of personnel in university information technology departments encompass technical expertise, innovative thinking, collaboration, communication, and lifelong learning abilities (Cohen, 2015). These individuals must not only possess proficiency in current information technologies but also have the foresight to anticipate future technological trends that will support the modernization and informatization of education. IT department personnel play a pivotal role in facilitating the sharing of educational resources, enhancing teaching efficiency, and optimizing administrative processes. By leveraging information technology effectively, they contribute to the improvement of educational quality and research capabilities, ultimately bolstering the overall competitiveness and academic reputation of universities.

For personnel in university information technology departments, the required skill set is multidimensional, encompassing knowledge, skills, and attitude, which together form their overall competency. A core competency for IT personnel is expertise in data management (Harrison, 2015), which includes knowledge of data collection, storage, processing, analysis, and protection. Mastery of data management enables IT staff to extract valuable insights from large datasets and provide data-driven support for university decision-making. Additionally, IT personnel must be proficient in using various technological tools and platforms, such as learning management systems, enterprise resource planning systems, and customer relationship management systems (Misra & Khurana, 2017). Beyond technical skills, a user-oriented service mindset is essential; IT personnel should proactively understand the needs of faculty and students, delivering timely and effective technical support (Geier & Hasager, 2020). In the context of a rapidly evolving technological landscape, maintaining an open attitude, embracing new knowledge, and continuously learning and adapting are crucial for long-term success.

In summary, the information technology department of universities holds a central role in the modern education system, with the competencies of its personnel directly influencing the development of university informatization and overall educational quality. Thus, enhancing the skill sets of IT department staff, particularly in areas such as data management, information technology application, and fostering positive service attitudes, is crucial for promoting sustainable development and innovation in higher education. To address this need, the researchers developed and implemented a competency enhancement model for the staff of the Information Technology Centre at Guilin University of Technology, providing valuable insights and guidance for improving personnel competencies.

Literature Review

Data Management Knowledge is an Important Knowledge That the Officers of IT Centres in Universities Need to Master

In higher education, data management has become a core competency for information technology departments (Nolan, 1973; Zalmansyah et al., 2023). As educational informatization advances, universities increasingly rely on data, making data management a critical skill for IT personnel (Davenport, 2000; Muthuswamy & Hu, 2023). Nolan's stage theory highlights the importance of the data management phase in achieving information strategy goals. Effective data management not only enhances decision support systems but also optimizes resource allocation and improves teaching and research quality. Strengthening IT personnel's expertise in data management is essential for supporting the long-term development and efficient management of universities.

The Importance of Information Technology Application Skills in Colleges and Universities

Information technology (IT) application skills are essential competencies for personnel in university IT departments, playing a pivotal role in improving both educational quality and management efficiency. In the context of educational informatization, IT has facilitated the integration and effective utilization of educational resources, while also supporting decision-making, management, and services, thereby advancing the modernization of educational governance. Despite these benefits, universities still face challenges in developing IT application capabilities. Local normal universities, for instance, encounter obstacles such as vague training objectives and incomplete curriculum structures when cultivating IT application skills among teacher trainees (Caldwell, 2008; Suparman, Kumar, & Osman, 2023). To overcome these issues, several actions are required, including defining clear training goals, establishing a comprehensive training system, enhancing key course development, improving teachers' IT skills, strengthening the training environment, and refining the evaluation system.

Under the "Internet + Education" paradigm, university teachers must develop competencies in IT-based instructional design, the application of digital educational resources, and human-computer collaborative teaching to meet the demands of educational informatization. Enhancing teachers' IT skills can be achieved by modernizing teaching philosophies, promoting new educational infrastructure, building collaborative training systems across departments, implementing tiered and categorized professional development plans, leveraging teaching evaluation mechanisms, and establishing innovative classroom teaching models (Gbedemah, Harrison-Afful, & Frimpong, 2022; Leask, 2009; Mamani et al., 2022).

The Importance of a Proactive Service Mind Among IT Department officers in Universities

In higher education institutions, the essential competencies of IT department personnel encompass not only technical expertise but also a proactive service attitude, which is critical for improving educational quality and management efficiency. Digital advancements in educational management not only enhance teachers' information literacy but also facilitate intelligent university governance. Evidence from international studies supports the significance of service attitude in relation to user satisfaction. A positive service orientation helps build user trust and encourages the effective utilization of information technology. Furthermore, cross-cultural research indicates that the service mindset of IT staff is vital for both individual career development and the overall progress of universities. As Davenport (2000) asserts, acknowledging and fostering a proactive service attitude among IT personnel can significantly improve institutional service delivery and competitiveness. Moreover, a positive service attitude enhances communication between IT staff, faculty, and students, thereby improving service quality. Thus, a proactive service attitude should be considered a core skill for university IT

personnel. By providing targeted training and promoting performance, universities can cultivate service awareness among their IT staff, ultimately advancing educational informatization (Galea & Ramos, 2023; Larbi & Fu, 2017; Yongliang & Sharon, 2022).

Competency Enhancing Model Development

The development of competency-enhancing models is a pivotal area of focus in educational and psychological development research, aimed at identifying and cultivating the competencies required to achieve specific career objectives. Keeves' model marked a significant advancement in this field by proposing a multi-level competency framework, encompassing core, skill-based, and higher-order competencies. The model employed in this study integrates Keeves' competency theory, the concept of professional learning communities, and the PDCA (Plan-Do-Check-Act) cycle. This competency-enhancing model systematically identifies the essential competencies for individuals aspiring to enter or progress within a particular field. While Keeves' framework emphasizes the hierarchical nature of competency development, the professional learning community's theory highlights the importance of knowledge exchange and collective growth within a community.

Model Components: The elements of a competency-enhancing model extend beyond skills, knowledge, and attitudes, encompassing practical engagement, meaning construction, and the sense of community outlined in the theory of professional learning communities.

Model Effectiveness: Implementing the competency-enhancing model within professional learning communities significantly enhances individual professional practices and collective team understanding. This model's effectiveness is continuously refined through the PDCA cycle, ensuring ongoing improvement.

Model Evaluation: The PDCA cycle is integral to assessing the competency-enhancing model, maintaining its adaptability and effectiveness. Key evaluation activities include defining the assessment objectives, gathering and analysing data, establishing assessment criteria, developing a structured evaluation process, and revising the model based on feedback.

Conditions for Successful Model Construction: Successful construction of a competency-enhancing model requires consideration of the organization's culture, strategic objectives, workflows, and collaboration levels within professional learning communities. The model must align with the organization's knowledge requirements, industry characteristics, and operational processes to ensure its relevance and applicability (Ayad & Aliane, 2022; Farndale, Paauwe, & Boselie, 2010).

The development of the competency-enhancing model is an iterative process that evolves in response to individual cognitive growth and changes within the field. The integration of the competency-enhancing model with the PDCA cycle assessment mechanism facilitates positive improvements in both individual and team performance, thereby fostering opportunities for development. Figure 1 illustrates the KSA (Knowledge, Skills, and Abilities) competency-enhancing model specifically designed for the personnel at the Information Technology Centre of Guilin University of Technology.

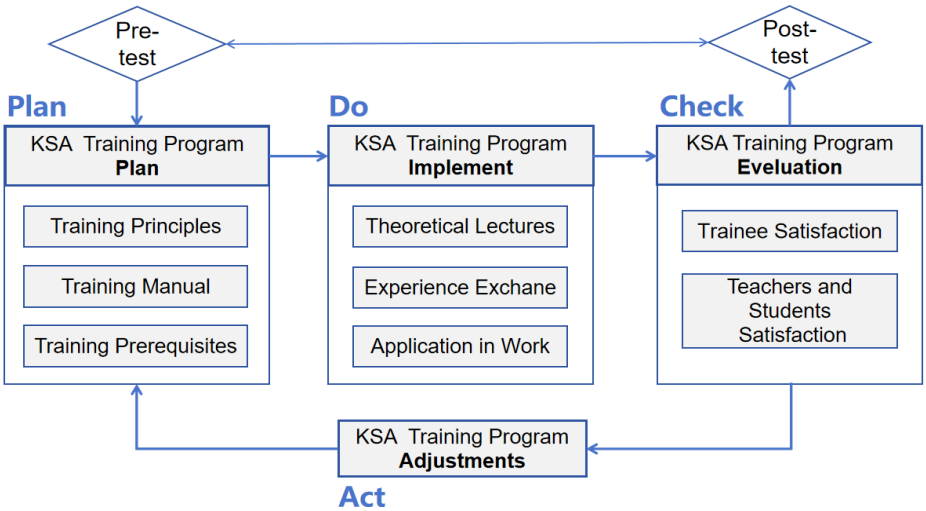

Figure 1: *KSA-Competency Enhancing Model for Officers of Information Technology Centre in Guilin University of Technology.*

Methodology

The researcher developed a model to enhance staff competence at the Information Technology Centre of Guilin University of Technology. Data were collected through questionnaires, focus groups, and semi-structured interviews with experts. An interview form was created and reviewed by experts to ensure accuracy. The model's quality was validated using PDCA and PLC concepts. The evaluation considered the model's feasibility, relevance, accuracy, scope, and utility. Quantitative analysis, including mean and standard deviation, was used to confirm the model's effectiveness and generalizability.

Questionnaire Design and Model Evaluation

Respondents completed self-administered questionnaires, which were developed from established research and comprised multiple items. The questionnaire evaluated three key areas: data management understanding, practical IT application skills, and proactive service attitudes, with a total of 37 questions. Before distribution, the questionnaire was validated for Index of Objective Congruence (IOC) by five experts in education, achieving an IOC value of 0.8-1.0. The study targeted all 32 members of the Information Technology Centre Department at Guilin University of Technology. To analyse the model's effectiveness, T-tests were employed for statistical analysis. Additionally, a satisfaction survey was conducted with all participants of the practical training program. All questionnaires used a 5-point Likert scale.

Results and Discussion

Quality Assessment of the Model: The researcher engaged nine experts to assess the model's quality across five dimensions: feasibility, appropriateness, accuracy, comprehensiveness, and utility. The results of the expert evaluation are detailed in Table 1. Moreover, Table 1 shows that the overall quality assessment of the model is high (mean = 4.36), with the following breakdown: feasibility (mean = 4.22), applicant competency (mean = 4.31), validity (mean = 4.73), and model coverage (mean = 4.37). Evaluation effectiveness received the lowest rating (mean = 4.15), but it remains high. These results indicate that the model's development quality is robust, and its usability is confirmed.

Table 1: *Overall Evaluation of the Model Quality.*

Evaluation List	$\overline{X}$	SD	Level
1. Possibility	4.22	0.34	High
2. Suitability	4.37	0.33	High
3. Accuracy	4.73	0.26	Highest
4. Comprehensiveness	4.37	0.41	High
5. Usefulness	4.15	0.65	High
Total	**4.36**	**0.40**	**High**

Table 2: *Quality Assessment of the Model's Possibility.*

Possibility	$\overline{X}$	SD	Level
1. The development of this model meets the needs of improving the competency of information technology personnel in universities.	4.22	0.44	High
2. The model has conditions for implementation.	4.11	0.33	High
3. This model can track and evaluate the improvement of personnel competency of information technology departments in universities.	3.78	0.44	High
4. The implementation process of this model is consistent with the goal of enhancing the competency of information technology department personnel.	4.67	0.50	High
5. This model has reference value for enhancing the competency of information technology centre personnel in other universities and can be promoted.	4.33	0.71	High
Total	**4.22**	**0.34**	High

Table 2 presents the evaluation results for the model's feasibility. The indicator with the highest average score (mean = 4.67) and ranking was, "The implementation process of this model aligns with the goal of enhancing the competency of information technology department personnel." The indicator with the lowest ranking, "The model has conditions for implementation," received a score of 4.11, yet remained high. Overall, the other indicators scored even higher, demonstrating that the model's feasibility is both valid and practical.

Table 3: *Quality Assessment of the Model's Suitability.*

Suitability	$\overline{X}$	SD	Level
1. This model is suitable for improving the knowledge, skills and attitudes of information technology department personnel in universities.	4.00	0.71	High
2. Each element of this model fits university informatization.	4.56	0.53	High
3. The model's principles and goals are suitable.	4.56	0.53	High
4. The development process and methods of the model are reasonable.	4.67	0.50	High
5. The implementation period of this model is reasonable.	4.22	0.67	High
6. Activities of the model are well-organized.	4.11	0.60	High
7. The methods and instrument of the model's tracking and evaluation are suitable.	4.00	0.87	High
8. The user manual of the model is applicable.	4.33	0.50	High
Total	**4.31**	**0.33**	High

Table 3 displays the evaluation results for the model's suitability. Overall, the model was assessed as highly suitable. The indicator with the highest average score (mean = 4.67) was "The development process and methods of this model are reasonable." Although "This model is suitable for developing the knowledge, skills, and attitudes of information technology personnel in universities" had a slightly lower average value (mean = 4.00), it still received a high rating. Other indicators also achieved high scores, suggesting that the model is well-suited for enhancing the competencies of personnel at the Information Technology Centre of Guilin University of Technology.

Table 4: *Quality Assessment of the Model's Accuracy.*

Accuracy	$\overline{X}$	SD	Level
1. The model's concept is clear and unambiguous.	4.89	0.33	Highest
2. The model's objectives are distinct and well-defined.	4.67	0.50	Highest
3. The conditions for implementing the model are clearly specified.	4.89	0.33	Highest
4. The model's development process is lucid and unequivocal.	4.89	0.33	Highest
5. The model's evaluation instruments and methods are precise.	4.78	0.44	Highest
6. Assessment criteria for the model's implementation activities are clear.	4.44	0.73	Highest
7. Post-training follow-up evaluation standards for the model are well-defined.	4.56	0.53	Highest
Total	**4.73**	**0.26**	Highest

Table 4 reveals that the evaluation results for model accuracy were exceptionally high. The model's accuracy was rated highest, with "The concept of this model is clear and unambiguous" (mean = 4.89), "The conditions for implementing the model are clearly specified" (mean = 4.89), and "The model's development process is lucid and unequivocal" (mean = 4.89) receiving the top ratings. Although "Assessment criteria for the model's implementation activities are clear" (mean = 4.44) had the lowest rating, it still scored high. These results indicate that the model is scientifically accurate and well-defined.

Table 5: *Quality Assessment of the Model's Comprehensiveness.*

Comprehensiveness	$\overline{X}$	SD	Level
1. The model's developmental philosophy and objectives are comprehensive.	4.33	0.50	High
2. The model's user guide and training manuals are complete.	4.67	0.50	Highest
3. The overall quality of the model is sound.	4.44	0.53	High
4. The model's implementation phase includes a holistic assessment of IT personnel competencies.	4.11	0.91	High
5. The methods for achieving the model's objectives are exhaustive.	4.44	0.53	High
6. The model's tracking and evaluation methods are comprehensive.	4.22	0.67	High
Total	**4.37**	**0.41**	High

Table 5 shows that the model's comprehensive evaluation results were highly rated. The overall assessment of the model's comprehensiveness was positive, with "The model's user guide and training manuals are complete" (mean = 4.67) receiving the highest ranking. Although "The model's implementation phase includes a holistic assessment of IT personnel competencies" (mean = 4.11) was rated the lowest among the indicators, it still achieved a high rating. These findings suggest that the model is thorough and well-rounded.

Table 6: *Quality Assessment of the model's Usefulness.*

Usefulness	$\overline{X}$	SD	Level
1. The model contributes to the enhancement of knowledge among IT department personnel in university.	4.11	0.60	High
2. The model contributes to the improvement of skills among IT department personnel in university.	4.33	0.71	High
3. The model contributes to the augmentation of positive attitudes among IT department personnel in university.	4.00	0.87	High
Total	**4.15**	**0.65**	High

Table 6 reveals that the evaluation results for the model's usefulness were consistently high. Overall, the model was deemed highly useful. The indicator "The model contributes to the improvement of skills among IT department personnel in universities" (mean = 4.33) received the highest rating. Although "The model contributes to the augmentation of positive attitudes among IT department personnel in universities" (mean = 4.00) was rated the lowest among the indicators, it still achieved a high rating. These results suggest that the model is effective in enhancing the competencies of staff at the Information Technology Centre of Guilin University of Technology.

Evaluation Results of the Use of the Model: The researcher implemented a training program based on the developed competency-enhancing model, targeting 32 staff members from the Information Technology Centre at Guilin University of Technology.

Table 7: *Overall Evaluation Results Before and After Using the Personnel Competency Improvement Model of Guilin University Information Technology Centre (T-Test).*

Evaluation	Pre-Test		Post-Test		t.	Sig.
	$\overline{X}$	SD	$\overline{X}$	SD		
1. Data Management Knowledge	3.52	0.78	3.98	0.52	3.89*	<0.0005
2. Information Technology Application Skills	3.57	0.85	3.94	0.58	5.53*	<0.0005
3. Proactive Information Technology Service Mind	4.05	0.54	4.35	0.42	5.26*	<0.0005
Total	**3.73**	**0.62**	**4.09**	**0.41**	**5.34***	**<0.0005**

**Statistically significant at the .05 level.*

Table 7 indicates that there was a statistically significant difference at the 0.05 level in the overall performance outcomes of the Information Technology Centre staff at Guilin University of Technology before

and after participating in the model-based training program. Furthermore, each training module also showed statistically significant differences at the 0.05 level.

Officers' Satisfaction Results from the Practicing Program*:* The researchers conducted a satisfaction survey involving 32 officers from the Information Technology Centre at Guilin University of Technology, who participated in the model-based training program. The results are detailed in Table 8.

Table 8: *Overall Satisfaction of Guilin University Information Technology Centre Officers with the Practicing Program.*

Evaluation List	$\overline{X}$	SD	Level	Rank
1. Training Content	4.63	0.44	Highest	2
2. Training Management	4.57	0.50	Highest	4
3. Training Lecturers	4.89	0.30	Highest	1
4. Training Activities	4.55	0.47	Highest	5
5. Training Results	4.58	0.54	Highest	3
Total	**4.65**	**0.40**	Highest	

Tables 8 and 9 illustrate the overall satisfaction levels of the Information Technology Centre officers at Guilin University of Technology who participated in the model-based training program. The overall satisfaction was notably high (M = 4.65), with all aspects of the program also receiving high satisfaction ratings. Specifically, the highest satisfaction was reported for the "Training Lecturers" (M = 4.89), while "Training Activities" received the lowest satisfaction score (M = 4.58), though it still ranked highly. To gain further insights into the officers' experiences, the researcher conducted interviews with six key management officers from the Information Technology Centre at Guilin University of Technology.

Table 9: *Officers' Satisfaction Interview Form.*

Satisfaction of the Practicing Program	Frequency
1. Training Content Meets the Needs of Increasing the Capabilities of Personnel.	6
2. Contents of Data Management Knowledge	6
3. Contents of Information Technology Application Skills	4
4. Contents of Proactive Service Mind	2
5. Training Duration	1
6. Training Organization	1
7. Notification of Training	3
8. The Lecturer's Teaching Ability	6
9. The Lecturer can Mobilize Students' Desire to Learn	3
10. The Lecturer is Well Prepared	6
11. The Lecturers can Explain Very Clearly	6
12. The Training Atmosphere is Good.	4
13. Good Training Environment and Conditions	1
14. Good Media Materials are Used for the Training	4

Overall feedback indicated a high level of satisfaction among officers with the training content, the quality of the lecturers, and the professionalism of their preparations. However, suggestions for improvement included adjusting the duration of the training, enhancing its organization, and improving the training environment. This feedback is invaluable for refining future training programs and underscores the significance of incorporating officers' perspectives into the research process. The research outcomes align with existing literature on competency development in educational technology. For instance, Nolan's stage theory highlights the importance of data management in achieving information systems' strategic goals, which resonates with the focus on data management knowledge in this study. Similarly, Davenport's (2000) emphasis on continuous learning and professional development for IT personnel is reflected in the model's approach to competency building. The model's incorporation of theories from professional learning communities and the PDCA cycle

demonstrates that competency development should be both systematic and incremental, reinforcing the need for a structured approach to enhancing IT skills in higher education.

The study highlights the significant impact of a proactive service attitude on IT personnel performance, showing that such an attitude is crucial and actionable rather than merely aspirational. The Competency Enhancement Model employed at the Information Technology Centre of Guilin University of Technology proved highly effective due to several factors. First, the model successfully integrated organized training with practical application, addressing specific needs in data management, IT application skills, and proactive service awareness, which directly improved officers' work performance. Second, the use of diversified training methods, including case analysis, scenario simulations, group discussions, and interactive teaching, created a dynamic learning environment that enhanced engagement and satisfaction, with particularly positive feedback on training lecturers. Third, the model's robust evaluation and feedback mechanisms, involving pre- and post-training assessments and satisfaction surveys, provided clear insights into progress and areas for improvement, fostering continuous learning and development. These elements combined to ensure the model's success in enhancing IT personnel competencies.

The study developed and implemented a Competency Enhancement Model at the Information Technology Centre of Guilin University of Technology, specifically designed to address identified needs for competency improvement. The model underwent rigorous testing for feasibility and viability, utilizing data collection, analysis, and expert evaluations. Results indicated that the model effectively enhanced the competencies of IT personnel, offering novel strategies for competency development and personnel advancement within university IT departments.

Research Findings

The model was developed using both quantitative and preliminary needs assessments. Expert consultations affirmed that the implementation protocols at the centre were feasible, relevant, valid, comprehensive, and useful. The analysis indicated moderate levels of competencies in knowledge, skills, and attitudes, with potential for higher competencies in ideal scenarios. This suggests that although there are areas needing improvement, there is substantial potential for growth. The study employed the PDCA cycle to evaluate the model's applicability and effectiveness throughout its implementation. The evaluation results were overwhelmingly positive, confirming the model's effectiveness post-implementation. To assess the validity of the model, a training program aligned with the model's framework was developed and executed for 32 officers at the Information Technology Centre. Quantitative analysis using two-sample t-tests of pre- and post-training assessments demonstrated statistically significant improvements in participants' knowledge of data management, competencies in information technology application, and proactive service orientation.

Conclusion

This research successfully developed and validated a competency enhancement model for officers at the Information Technology Center of Guilin University of Technology. The model addresses key competencies, including data management knowledge, IT application skills, and proactive service attitudes. It underscores the importance of reassessing and refining training processes and educational approaches in higher education institutions. While the model has proven effective within this specific context, its broader applicability and long-term effectiveness warrant further investigation. This study highlights the significance of competency development and calls for additional research to validate and adapt the model across various institutions and over time.

Implications of the Study

The findings of this study validate the effectiveness of the Competency Enhancement Model in improving IT personnel competencies within higher education contexts. The model's integrated principles enhance its uniqueness, efficacy, and clarity, resulting in high respondent satisfaction. This underscores the importance of implementing a relevant, high-quality training regime that supports both learning and career development. The Competency Enhancement Model serves as a valuable reference for institutions seeking to

develop the professional competencies of their IT staff. Its adaptability allows for adjustments to meet the evolving needs of educational technology, reflecting the dynamic nature of the digital era. Future research should explore the long-term impacts and effectiveness of such models across diverse learning environments. Overall, this study indicates that improvements to competency enhancement models can significantly benefit university IT personnel and advance professional development in alignment with contemporary digital demands and educational service quality.

Limitations and Future Research

This study presents both strengths and limitations that must be acknowledged when interpreting the results. The collected data may be subject to bias, and the conclusions drawn are applicable only to the specific contexts and participants involved. It is essential to verify the validity and sustainability of the proposed model due to the exploratory nature of the research. Further refinement and testing of the model in diverse settings with larger participant samples are necessary. Additionally, there is a clear need for systematic, longitudinal research to assess the model's medium- and long-term impacts and its adaptability across various educational contexts.

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