Analysis on the Construction and Promotion of the Quality and Ability of College Counselors Based on Numerical Intelligence

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Abstract. The modernization of ideological and political education is a vital component in advancing the modernization of education and building a powerful nation in education. As the backbone of ideological and political education for college students and key practitioners of the new digitalized educational paradigm, university counselors play a pivotal bridging role in fulfilling the fundamental task of fostering virtue through education. Consequently, enhancing the digital literacy and competence of university counselors holds significant and far-reaching implications for the innovative development of ideological and political education in higher education institutions. Rooted in the era of digital intelligence, this paper analyzes the competency requirements for vocational college counselors and the dilemmas they face in upgrading their qualifications. It further delves into feasible avenues for enhancing the competencies of vocational college counselors, encompassing aspects such as work consciousness, training mechanisms, work methodologies, optimization mechanisms, and interdisciplinary collaboration.

Keywords: The age of number intelligence; Counselor; Quality and Ability; Promotion Strategy

1 Introduction

General Secretary Xi Jinping has pointed out that "Accelerating the construction of Digital China is to adapt to the new historical juncture of China's development, comprehensively implement the new development concept, foster new drivers of growth through informatization, use these new drivers to promote new development, and create new glories through new development." As the backbone force in conducting ideological and political education for college students, counselors play a vital role in the development of universities and the cultivation of talents. In the context of the digital era, enhancing counselors' digital and intelligent professional qualities and capabilities presents unprecedented opportunities and challenges for the high-quality

development of the counselor team, substantial improvement in educational effectiveness, and the overall high-quality development of higher education institutions.

2   Competency Requirements for Counselors in Higher Vocational Colleges under the Digital and Intelligent Context

2.1   Information Literacy: Achieving the Leap from Cognition to Practice

Information literacy is one of the fundamental qualities essential for citizens in the digital age. Compared to other groups of students, those in higher vocational colleges demonstrate a stronger reliance on, greater participation in, and higher utilization of cyberspace. For counselors in higher vocational colleges, information literacy constitutes an indispensable part of their professional competence. In the context of digitalization and intellectualization, counselors must possess the abilities to efficiently acquire, screen, integrate, evaluate, and utilize information to address the complex and ever-changing scenarios in student affairs. This necessitates not only proficiency in basic computer operation skills and internet search techniques but also a profound understanding of the operational rules of the information society, enabling them to keenly discern useful information closely related to their student work.

Furthermore, counselors must translate information literacy into actionable forces in practical work, leveraging information technology to innovate working methods and approaches. For instance, they can leverage social media, online platforms, and other channels to enhance communication with students, promptly grasp their ideological trends, and effectively prevent and intervene in potential psychological crises. Simultaneously, counselors should maintain a heightened awareness of information security, safeguarding students' personal privacy and preventing the occurrence of security issues such as information leakage.

2.2   Data-driven Decision-making Capability: The Cornerstone for Precise Policy Implementation

In the era of digital intelligence, data has emerged as a crucial cornerstone for decision-making. Counselors in higher vocational colleges should master the utilization of big data analysis tools to conduct in-depth mining and analysis of data encompassing students' studies, lives, psychology, and other aspects. This enables them to grasp the characteristics and needs of student groups more precisely, thereby providing robust support for formulating scientific and rational strategies for educational management and services.

Specifically, counselors can create student personas to gain a profound understanding of individual differences in students' interests, academic achievements, behavioral habits, and so forth, subsequently implementing more personalized educational guidance. Simultaneously, leveraging data analysis outcomes, they can anticipate potential issues and challenges that students may face, preemptively devising corresponding countermeasures to effectively mitigate potential risks. Furthermore, counselors

should actively participate in the construction and improvement of the school's data governance system, promoting data sharing and openness, ultimately facilitating the optimal allocation of educational resources.

2.3 Intelligent Management Capability: Achieving Dual Enhancement in Efficiency and Quality

The adoption of intelligent management has emerged as a pivotal trend in the work of counselors in vocational colleges amidst the era of digital intelligence. By embracing advanced intelligent management systems and tools, such as student information management systems and psychological crisis early warning systems, counselors can implement more refined student management strategies, thereby significantly elevating both work efficiency and quality.

Intelligent management not only facilitates counselors in swiftly completing tedious tasks like data entry, statistics, and analysis, thereby alleviating their workload; it also optimizes resource allocation through algorithms to achieve precise allocation of educational resources. For instance, it enables the intelligent matching and recommendation of courses or activities based on students' academic performance and interests. Additionally, it can predict and intervene in potential psychological crises through intelligent analysis of students' behavioral data. Furthermore, intelligent management fosters effective interaction and feedback mechanisms between counselors and students, enhancing students' sense of participation and satisfaction.

2.4 Lifelong Learning Capability: The Key to Adapting to Future Educational Transformations

Amidst the rapid educational transformations of the digital-intelligence era, counselors in vocational colleges must possess the awareness and capability for lifelong learning to keep pace with the advancements of the times. Lifelong learning capability encompasses not only the ability to continuously acquire new knowledge and skills but also, at a deeper level, the capacity to proactively adapt to environmental changes, engage in continuous self-reflection, and make adjustments accordingly.

In the context of digitization and intelligence, counselors should pay close attention to the latest developments and trends in educational technology, actively participate in various training and exchange activities to continually broaden their knowledge horizons and expand their thinking boundaries. Furthermore, counselors must emphasize integrating the acquired knowledge with practical work, daring to experiment with new working methods and tools, and continuously summing up experiences and lessons in practice to enhance their professional expertise and comprehensive abilities. Only by doing so can they maintain competitiveness and adaptability in the rapidly evolving educational environment, contributing effectively to the all-round development of students.

3   Current Dilemmas in Enhancing the Competence of Counselors in Vocational Colleges

3.1   Technical Application Barriers, Heightening the Difficulty of Ideological and Political Education

In the new era, post-00s university students constitute the primary user group of new media and tools. As student ideological and political education evolves, various work platforms such as E-class, official accounts, forums, and information groups continue to emerge. Students can autonomously access the knowledge they need through these platforms. Counselors must consider how to extract effective information from these platforms and leverage them to conduct online ideological and political education. While the development of new media technology has transformed the working mode of college counselors and created new opportunities for ideological and political education, some counselors lack proficiency in modern information technology and struggle to proficiently utilize digital tools for their work. This not only impedes work efficiency but also constrains the delivery of personalized educational services, further intensifying the challenges faced by counselors in ideological and political education.

3.2   Weak Data Awareness, New Demands on Counselors' Knowledge Structure

Against the backdrop of rapid digital and intelligent technology development, traditional working concepts and modes of vocational college counselors hinder them from fostering a new media mindset in the ideological and political education of students. The knowledge and technical skills they possess fail to provide robust support for interacting and communicating with students using new media technologies. Some counselors lack sufficient understanding of the importance of data and possess insufficient awareness and ability in data collection, analysis, and application. This leads to difficulties in implementing precise policies during decision-making, compromising educational effectiveness. Consequently, counselors encounter obstacles in their work, urgently needing to proactively adjust and optimize educational philosophies, update teaching methods, and effectively expand and refine their knowledge structures in response to the changing work environment of the new media era, thereby enhancing the effectiveness of ideological and political education.

3.3   Enhanced Student Autonomy, Challenging Counselors' Authority

In the new media era, students' information acquisition capabilities have improved significantly, altering their cognitive processes. They now have broader channels to access information and analyze and judge the information conveyed by counselors against the backdrop of information gathered online, sometimes even voicing their unique perspectives. While this learning approach can enrich students' information intake, the characteristics of vocational college students pose challenges: firstly, their

ability to discern the authenticity of information is limited; secondly, they have a strong sense of self-recognition and being recognized. The heightened individual consciousness and independence of students pose new challenges to the authority of counselors' educational management to a certain extent.

3.4 Lagging Update of Professional Knowledge and Skills, Difficulties in Enhancing Counselors' Comprehensive Competence

Due to hectic daily work schedules and limited learning resources, some counselors lag behind in updating their professional knowledge and skills, which affects their ability to effectively address and guide student issues. However, the wide scope and heavy workload of counseling tasks make it challenging to comprehensively enhance their overall competence within limited time. Especially in the face of new requirements for digital and intelligent education, counselors are required to further improve their network application skills, information mining capabilities, data management abilities, among others, which many counselors find overwhelming.

4 Paths to Enhance the Digital and Intelligent Ideological and Political Education Competence of Vocational College Counselors

4.1 Adjust Work Methods and Enhance Awareness of Digital and Intelligent Ideological and Political Education

In the face of the wave of the information age, vocational college counselors must first shift their mindset and establish a sense of digital and intelligent ideological and political education. This requires counselors to deeply understand the opportunities and challenges that digitization and intellectualization bring to ideological and political work, recognizing the importance of leveraging modern information technology tools such as big data, cloud computing, and artificial intelligence to optimize work processes and enhance educational effectiveness. Specifically, counselors should proactively embrace digital tools, using systems like "Xuetong" for course management, "E-Class" as an instant communication platform with students, and data analysis techniques to accurately identify students' ideological trends and changing needs. By actively utilizing student-preferred learning and communication software, counselors can engage with students on the same platform, sharing topics and promptly grasping their ideological dynamics and activity trends. In Hunan Automotive Engineering Vocational University, online service system and self-service hall has been built, teachers and students through one-stop, mobile application, has realized one thing at a time. The big data monitoring platform can accurately monitor the real-time operation of six quality subjects, namely schools, majors, courses, teachers, students and projects, and boost school management and student development to a higher level. Furthermore, leveraging smart platforms to precisely analyze students' ideological trends and behavioral patterns enables personalized and differentiated ideological and

political education. Additionally, counselors should innovate educational and teaching methods by introducing online interaction and virtual reality experiences, breaking time and space constraints to make ideological and political education more engaging and effective, thereby enhancing student participation and sense of achievement. Simultaneously, fostering data sensitivity and information filtering capabilities ensures the selection of valuable content from the vast amount of information for ideological and political education. Based on the acquired information, counselors can further standardize work requirements, update work methods, and improve efficiency, ultimately achieving personalized and precise educational guidance.

4.2   Strengthen Training and Education to Enhance Counselors' Digital and Intelligent Ideological and Political Education Capabilities

To effectively implement digital and intelligent ideological and political education, vocational colleges should establish a systematic training system to comprehensively enhance counselors' digital literacy and professional competence. Firstly, a comprehensive training system should be constructed, covering information technology basics, big data analysis, artificial intelligence applications, online public opinion monitoring and response, and new media operations. Regular seminars, workshops, and symposiums should be held both online and offline to provide counselors with continuous learning opportunities. Secondly, emphasis should be placed on integrating theory with practice. Training should not only focus on theoretical knowledge but also emphasize practical operations and case analysis. Through simulations, project collaborations, and other means, counselors can experience the entire process of digital and intelligent ideological and political education firsthand, learning to apply new technologies to solve practical problems. Additionally, counselors should be encouraged to participate in research projects, transforming research outcomes into teaching practices to continuously enhance their innovative capabilities in digital and intelligent ideological and political education. Thirdly, external high-quality resources should be introduced. Colleges should actively collaborate with technology enterprises, research institutions, and social organizations to introduce external resources, providing counselors with cutting-edge technical support, professional consulting services, and abundant educational resources. Through joint training programs and the establishment of training bases, counselors' horizons can be broadened, and their professional quality enhanced. Furthermore, an evaluation mechanism for counselors' digital and intelligent ideological and political education capabilities should be established, using assessment and incentive mechanisms to motivate counselors to self-improve. A scientific evaluation system should be implemented, utilizing student feedback, peer review, and expert evaluation to comprehensively assess counselors' capabilities, fostering continuous progress.

4.3   Improve Work Methods to Enhance Professional Competence in Ideological and Political Leadership

Under the digital and intelligent background, counselors must continuously explore innovative work methods to conduct ideological and political work more efficiently and flexibly. Firstly, a combined online and offline ideological and political education system should be established. Online, counselors can leverage platforms like Xuetong, Xueyin Online, MOOCs, and E-Class to break time and space constraints, offering remote ideological and political education courses that allow students to access rich learning resources anytime, anywhere. Live streaming, recorded replays, and online Q&A sessions can enhance teacher-student interaction and promote intellectual exchanges. Online business processing and office services should be improved to promptly and accurately address students' needs. Online psychological counseling rooms can be set up, utilizing AI-assisted technology for initial mental health screening and intervention, providing timely and professional psychological support to students. Offline, counselors should focus on organizing various practical activities, such as thematic class meetings, social practices, and cultural salons, enabling students to deepen their understanding of ideological and political theories through personal experience, enhancing their sense of social responsibility and mission. The combination of online and offline approaches ensures the broad coverage and deep penetration of ideological and political education while improving student participation and satisfaction. Secondly, a precise ideological and political strategy should be implemented to enhance the relevance and effectiveness of ideological and political work. Counselors should leverage modern information technology tools such as artificial intelligence, including the Apriori algorithm, to conduct comprehensive and meticulous analyses of students' ideological trends and behavioral trajectories, thereby uncovering potential educational needs and issues. Based on the outcomes of data analysis, personalized ideological and political education plans should be formulated, targeting differentiated educational activities for specific groups (e.g., students with academic difficulties, psychological issues, or financial hardships), aiming to achieve individualized teaching and precise policy implementation. This approach of precise ideological and political education not only helps address students' practical difficulties but also stimulates their intrinsic motivation, fostering their comprehensive development.

The Apriori algorithm operates by identifying k-itemsets from (k-1)-itemsets, repeatedly performing pruning and joining steps until the iteration process concludes when the largest frequent itemset becomes empty. Therefore, it can be employed to identify correlations among compensating parameters, yielding the largest frequent itemset. The core algorithm for discovering frequent itemsets using the Apriori algorithm is outlined as follows:

Input: Student behavior database (DataBase) and the minimum support threshold (min_sup).

Output: The Largest Frequent Itemset L in DataBase

$$L_1 = \text{find\_} frequent\_1 - itemsets(DataBase)$$

$$\text{for}(k = 2; L_{k-1} \neq f; k++)$$

$$C_k = apriori\_gen(L_{k-1}, \min\_sup)$$

for each transaction $t \in$ DataBase do$\{$

$$C_t = subset(C_k, t);$$

for each candidate $c \in C_t$

$c.count + +;\}$

$$L_k = \{c \in C_k \mid c.count >= \min\_sup\}$$

re*turn* $L = U_k L_k;$

Thirdly, it is essential to enhance the effectiveness of ideological and political guidance. Counselors should deeply integrate digital and intelligent methods into every aspect of thematic education, social practice, volunteer services, etc. By leveraging data tracking and effect evaluation mechanisms, they can grasp the implementation status and effectiveness of educational activities in real-time. Furthermore, utilizing AI algorithm analysis tools to conduct deep mining and analysis of collected data can help identify the highlights and shortcomings in the educational process, thereby facilitating timely adjustments and optimizations to educational content and forms. The specific algorithm can be outlined as follows:

```
import pandas as pd
from sklearn.preprocessing import StandardScaler
from sklearn.model_selection import train_test_split
# data loading
data = pd.read_csv('student_psychology_data.csv')
# Data conversion: Converts classified data to numeric data
data['Gender'] = data['Gender'].map({'male': 0, 'female': 1})
# feature selection
features = data
[['Age', 'GPA', 'Social_Activity',
'Stress_Level']]
labels = data['Mental_Health_State']
# data normalization
scaler = StandardScaler()
features_scaled = scaler.fit_transform(features)
# Divide the training set and test set
X_train, X_test, y_train, y_test = train_test_split
(features_scaled, labels, test_size=0.2, random_state=42)
# training model
clf = RandomForestClassifier(random_state=42)
clf.fit(X_train, y_train)
# forecast
y_pred = clf.predict(X_test)
# performance evaluation
print(classification_report(y_test, y_pred))
# visualization
```

```
sns.heatmap (pd.crosstab (y_test, y_pred, rownames=
['Actual'], colnames=['Predicted']), annot=True, fmt='d')
plt.show()
```

4.4   Some Common Mistakes

Establishing a sound work mechanism compatible with the digital and intelligent era is the prerequisite for enhancing counselors' quality and competence. Firstly, vocational colleges must deeply understand the profound impact of digitization and intellectualization on counselors' work, proactively taking action to reassess and comprehensively optimize counselors' work processes and responsibilities. This entails breaking free from traditional work modes and deeply integrating digital and intelligent technologies into counselors' daily work, such as using big data to analyze students' ideological trends and precisely push personalized educational resources, leveraging AI to assist in mental health screening for early intervention and prevention, and expanding educational boundaries through remote ideological and political education via online platforms. These measures aim to enable counselors to perform their duties more efficiently and precisely, enhancing the relevance and effectiveness of ideological and political education. Secondly, constructing a scientific, comprehensive, and operable evaluation and incentive system for counselors is crucial. This system should fully consider the characteristics and requirements of digital and intelligent ideological and political education, evaluating counselors' exploration and practical achievements in areas such as digital platform development, intelligent tool application, online-offline integrated teaching, and ideological and political research innovation. Meanwhile, through incentives like special awards, favorable policies for professional title evaluation, and broader career development paths, counselors' internal motivation and creativity should be fully stimulated, encouraging them to explore boldly and innovate continuously, pushing digital and intelligent ideological and political work to higher levels. To promote the continuous improvement of counselors' overall quality and competence, vocational colleges should actively establish diverse learning and exchange platforms. Regular digital and intelligent ideological and political education competitions can not only review counselors' digital skills but also stimulate their learning enthusiasm and enhance their professional competence. Additionally, special research funds should be established to support counselors' in-depth research on digital and intelligent ideological and political education, exploring new theories, methods, and paths, contributing wisdom and strength to the innovative development of ideological and political education. Furthermore, through organizing online seminars, workshops, and experience-sharing sessions, counselors can showcase themselves and share experiences, fostering the dissemination and sharing of best practices, creating a positive atmosphere of mutual learning and progress.

4.5   Promote Interdisciplinary Cooperation and Exchange to Enhance Counselors' Comprehensive Capability Development

The complexity and comprehensiveness of digital and intelligent ideological and political education stem from its inherent integration of digital technologies, intelligent tools, and ideological and political education content, requiring counselors to not only master the basic theories and methods of ideological and political education but also possess extensive interdisciplinary knowledge and forward-looking perspectives. In the rapidly changing digital era, counselors must deeply understand the development trends of information technology and grasp the application of cutting-edge technologies such as big data analysis, artificial intelligence, and cloud computing in education to more effectively utilize these tools to innovate ideological and political education models and enhance educational outcomes.

To tackle this challenge, vocational colleges should emerge as pioneers in promoting interdisciplinary learning and collaboration among counselors. Specifically, the colleges can organize regular interdisciplinary seminars and workshops, inviting experts and scholars from fields such as information technology, psychology, sociology, among others, to engage in face-to-face exchanges with counselors, sharing the latest research findings and practical experiences within their respective domains. Through joint teaching sessions, counselors can directly assess the challenges and opportunities of ideological and political education (IPE) from different disciplinary perspectives, fostering diversity and innovation in teaching content and methodologies. Project collaboration represents a more profound form of cooperation, allowing counselors to jointly apply for research topics with teachers from other disciplines, conducting empirical studies centered on pressing issues and difficulties in digital-intelligence-driven IPE, ultimately yielding a series of innovative and practical research outcomes.

Furthermore, vocational colleges should actively establish international exchange platforms for counselors, encouraging and supporting their participation in high-level academic conferences, seminars, and training programs both domestically and internationally. These activities will not only broaden counselors' international horizons, acquainting them with the latest concepts and technological trends in digital-intelligence-driven IPE globally, but also facilitate connections with international peers to jointly explore new avenues in this field. By aligning with international standards, counselors can introduce more internationalized educational resources and models, enhancing the international competitiveness and influence of IPE.

Interdisciplinary cooperation and exchange play an irreplaceable role in elevating counselors' overall quality and competence. It not only strengthens their academic literacy and professional skills but also sparks their innovative thinking and creativity. In the practice of digital-intelligence-driven IPE, counselors can leverage interdisciplinary knowledge and methodologies to devise educational content and formats that better cater to students' needs and are more engaging. Simultaneously, interdisciplinary collaboration promotes the integration and sharing of educational resources, forming a cohesive force that drives digital-intelligence-driven IPE towards higher levels and broader scopes.

5   Research Conclusion and Prospect

The enhancement of the quality and capabilities of counselors in higher vocational colleges against the backdrop of digital intelligence is a systematic project that necessitates concerted efforts from schools, counselors themselves, as well as all sectors of society. By reinforcing technical training, fostering a strong sense of data utilization, refining the continuing education system, optimizing working mechanisms, and promoting interdisciplinary collaboration, we can effectively address the current difficulties and challenges. In the future, with the continuous development and application of digital intelligence technologies, the quality and capabilities of counselors in higher vocational colleges will continue to improve, thereby contributing to the cultivation of a greater number of high-quality, technically skilled talents.

Acknowledgment

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