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Research on the Current Situation and Influencing Factors of Autonomous Learning Ability of Vocational Nursing Students

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Abstract

Objective To investigate the current situation of self-learning ability of vocational nursing students in Shanghai and analyze its influencing factors. **Method** From October 2022 to December 2022, a random sampling method was used to select 1515 senior vocational nursing students from 6 universities in Shanghai as the research subjects. A survey was conducted using a general information questionnaire, a college student self-directed learning ability scale, and a questionnaire on the influencing factors of students' self-directed learning ability. **Results** The results showed that there was a statistically significant difference in the scores of different age groups, academic performance, and student cadres ($P<0.05$). According to the correlation analysis results, there was a significant correlation between self-learning ability and personal factors, school factors, and teacher factors. Multiple linear regression analysis showed that age groups, academic performance rankings, individual factors, school factors, and teacher factors. **Conclusions** The self-learning ability of vocational nursing students needs to be further strengthened, and corresponding intervention measures should be formulated based on their influencing factors.

Key words

Vocational nursing students, autonomous learning, influence factor.

The ability to learn independently is an essential skill for innovative talents. In July 2010, the Ministry of Education officially issued the "National Medium- and Long-Term Education Reform and Development Plan Outline (2010-2020)," which pointed out that education "should focus on cultivating students' ability to learn independently, be self-reliant, and adapt to society, with students as the main body and teachers as the guides, fully leveraging students' subjective initiative to promote every student's love for learning and ability to learn. [1]" Schools need to cultivate innovative talents with independent learning abilities and carry out research and reform on innovative talent training models. In 2021, General Secretary Xi Jinping made important instructions on vocational education work, emphasizing the acceleration of building a modern vocational education system and training more high-quality technical and skilled talents, including skilled craftsmen and great national craftsmen[2]. As a programmatic document for promoting the construction of a strong educational country in the new era, "China's Education Modernization 2035" establishes the construction of a lifelong learning system serving the entire population as one of the key strategic tasks for educational modernization[3]. The ability to learn independently is a fundamental skill for innovative talents and lifelong learners, and the educational concept of cultivating students' independent learning has become an important research topic in the education sector. To adapt to the development of new theories and technologies in the nursing discipline and to become high-quality, versatile nursing talents in the 21st century, nursing students must possess independent learning abilities. Researching how to improve the independent learning abilities

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of higher vocational nursing students is beneficial for cultivating high-quality nursing skilled talents and advancing the grand goal of building a healthy China[4]. However, existing research lacks relevant large-sample surveys. This article aims to analyze the status and influencing factors of independent learning abilities among higher vocational nursing students through a large-sample survey questionnaire and propose targeted strategies to effectively enhance nursing students' independent learning abilities.

1. Objects and Methods

1.1. Research subjects

From October 2022 to December 2022, a random cluster sampling method was used to select 1,515 vocational nursing students from 6 institutions in Shanghai as the research subjects.

1.2. method

1. Using the questionnaire survey method: (1) General information survey form: self-designed, including students' gender, ethnicity, grade level, academic performance, student leadership roles, and parents' education level. (2) College students' self-directed learning ability scale: using the scale designed by Song Siqi et al. in 2020, which includes four parts: metacognitive ability, learning motivation, learning strategies, and learning willpower, totaling 25 questions. The scales referenced in this study have been applied in research, and their practicality and scientific validity have been verified. (3) Questionnaire on factors influencing college students' self-directed learning ability: investigating the factors affecting college students' self-directed learning ability from three aspects: school, teachers, and individuals, with a total of 18 questions designed.

2. Data collection method: The investigator used a standardized survey language, which was carefully filled out item by item by the respondents. If students had any questions, explanations were provided on the spot. A total of 1560 questionnaires were distributed, all of which were returned. Among the returned questionnaires, 45 were invalid, resulting in 1515 valid questionnaires.

3. Statistical methods: Data were analyzed using SPSS 24.0 statistical software. Categorical data were expressed as frequency and percentage (%), and normally distributed continuous data were expressed as mean ± standard deviation (x±s). The t-test was used for intergroup comparisons. Multiple linear regression analysis was conducted for factor analysis. $P < 0.05$ was considered statistically significant.

2. Results

1. The research subjects are nursing students from higher vocational colleges in Shanghai, with a total of 1515 valid questionnaires obtained. The scores for autonomous learning ability and its various dimensions are shown in Table 1 below.

Table 1: Self-directed Learning Ability and Scores of Each Dimension (x±s)

Project	Number of entries	Score/(points, x±s)	Item average/(mean, x±s)
Self-directed learning ability	25	84.88±13.90	3.39±0.56
Metacognitive ability	4	13.62±3.11	3.41±0.78
Learning motivation	8	23.56±4.95	2.95±0.62
Learning strategies	9	30.90±6.36	3.43±0.71
Willpower in Learning	4	13.25±2.92	3.31±0.73

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2. Analysis of Differences in Autonomous Learning Ability: See Table 2 for the statistical significance of differences in comparison among different grade levels, academic performance, and student leader scores ($P < 0.05$).

Table 2: Analysis Results of Differences in Autonomous Learning Ability

Variable	Number of people	Self-directed learning ability score	t/F	p
Gender			-1.775	0.076
Male	332	83.680±16.890		
Female	1183	85.210±12.932		
Ethnicity			0.524	0.718
Han nationality	1426	84.810±13.988		
Mongolian ethnic group	11	86.910±12.518		
Uyghur	8	90.750±13.477		
Tibetan	14	83.430±14.716		
Other	56	85.800±11.914		
Grade level			4.264	0.014
Freshman	702	83.570±14.456		
Sophomore	525	85.240±13.620		
Junior year	288	86.380±13.396		
Academic performance			27.532	<0.001
Prostate	142	89.940±17.316		
Middle and upper	321	88.000±12.099		
Medium	816	84.660±13.087		
Middle and lower	182	80.250±13.311		
Posterior row	54	71.830±15.062		
Student leader			2.109	0.035
Yes	485	85.970±14.623		
No	1030	84.360±13.529		
Father's education level			2.039	0.107
Undergraduate (Associate Degree) and above	424	85.060±14.828		
High school (vocational school)	518	85.610±14.248		
junior high school	467	84.520±13.080		
Elementary school and below	106	82.080±11.477		
Mother's education level			1.977	0.115
Undergraduate (Associate Degree) and above	381	85.570±16.075		
High school (vocational school)	504	84.980±12.931		
junior high school	503	84.940±13.296		
Elementary school and below	127	82.130±12.758		

3. Analysis of the correlation between individual factors, teacher factors, school factors, and autonomous learning ability: see Table 3

Table 3: Analysis of the Correlation between Individual Factors, Teacher Factors, School Factors, and Autonomous Learning Ability

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Dimension	Autonomous Learning Ability (R)	P
1. Autonomous Learning Time	0.123	<0.01
2. Online Course Learning Situation	0.152	<0.01
3. Utilization of Library Learning Situations	0.137	<0.01
4. Discussion in class	0.236	<0.01
5. The situation of discussions outside of class	0.226	<0.01
6. The situation of active feedback from teachers	0.203	<0.01
7. The situation of teachers helping to formulate study plans	0.139	<0.01
8. Teacher InstructionThe situation of learning methods	0.165	<0.01
9. The situation of teachers encouraging active learning	0.106	<0.01
10. The situation of the teacher's evaluation summary	0.170	<0.01
11. Assignment Difficulty	-0.045	<0.05
12. Proportion of regular grades	-0.023	0.15
13.The difficulty of changing majors	-0.129	<0.01
14. Self-Directed Learning Lecture Situation	0.114	<0.01
15. Situation of Autonomous Learning Spaces (Locations)	0.154	<0.01
16. Library Resource Situation	0.126	<0.01
17. Campus network speed situation	0.148	<0.01

4. According to the results of the difference analysis, there are significant differences in the scores of autonomous learning ability among students of different grades, academic performance, and whether they are student leaders; based on the results of the correlation analysis, autonomous learning ability has significant correlations with personal factors, school factors, and teacher factors. Further, multiple linear regression analysis was used to analyze the influencing factors of autonomous learning ability, taking the factors significantly associated with autonomous learning ability from the difference analysis and correlation analysis as independent variables, and the scores of autonomous learning ability as the dependent variable, employing a stepwise hierarchical regression analysis method to obtain the final regression analysis results. From the analysis results, it can be seen that among personal factors, classroom discussion and online course learning have a significant positive impact on autonomous learning ability ($\beta1=0.135$, $p<0.001$; $\beta2<0.067$, $p=0.01$); among school factors, the difficulty of changing majors has a significant negative impact on autonomous learning ability ($\beta3=-0.118$, $p<0.001$), while the speed of the campus network has a significant

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positive impact on autonomous learning ability (β4=0.059, p=0.022); regarding teacher factors, the situation of teachers imparting learning methods has a significant positive impact on autonomous learning ability (β5=0.073, p=0.008), while the difficulty of assignments has a significant negative impact on autonomous learning ability (β6=-0.06, p=0.017). See Table 4.

Table 4: Regression Analysis of Factors Influencing Autonomous Learning Ability

Variable	Non-standardized coefficient	Standard Error	Standardized coefficient	t	p
(constant)	88.42	3.105		28.478	<0.001
Grade level	-0.978	0.458	-0.054	-2.137	0.033
Academic performance ranking	-3.293	0.396	-0.213	-8.323	<0.001
Individual factors - situation discussed in class	2.678	0.567	0.135	4.72	<0.001
Individual Factors - Online Course Learning Situation	1.132	0.44	0.067	2.574	0.01
School Factors - Difficulty of Changing Majors	-2.598	0.542	-0.118	-4.797	<0.001
School Factors_Campus Network Speed Situation	1.084	0.473	0.059	2.293	0.022
Teacher factors_Teacher instructionThe situation of learning methods	1.378	0.517	0.073	2.667	0.008
Teacher factors - Assignment difficulty	-1.359	0.568	-0.060	-2.392	0.017
R2=0.128 ; F=28.849					

3. Discussion on the Current Status and Analysis of Autonomous Learning Ability Levels of Vocational Nursing Students.

The results of this study show that the autonomous learning ability of this group of nursing students is at a moderate level, higher than the findings of Zhang Xiaoli et al., but lower than those of Zhang Weixin et al [5-6]. The reason may be related to the different regional distribution of students and the varying learning environments in those regions. The dimensions with the lowest average scores in this study are learning motivation and willpower, which may be related to the fact that some students, in the context of the pandemic, have taken a laissez-faire approach to online learning and have not fully valued their studies.

Factors Influencing the Autonomous Learning Ability of Vocational College Nursing Students. (1) Grade Level The impact on lower-grade students is more significant than that on higher-grade students, possibly because lower-grade college students are newly exposed to higher education and have more enthusiasm for online learning. Compared to higher-grade students, enhancing their intrinsic motivation for learning can more effectively improve their autonomous learning ability. The significant impact on lower-grade students and the insignificant impact on higher-grade students may be related to the employment pressure faced by higher-grade students, where enhancing their sense of competence does not improve their level of learning motivation. (2) Academic Performance Ranking Students with higher academic performance rankings have stronger autonomous learning abilities, which is related to their correct learning motivation and mastery of appropriate learning strategies. (3) Individual Factors Class discussion and online course participation have a significant positive impact on autonomous learning ability. The more actively students participate in online courses and class

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discussions, the clearer their learning motivation and the stronger their autonomous learning ability. This is consistent with the research of L N Rufaidah et al., which indicates that autonomous learning requires systematic training in metacognition and learning habits. It can be encouraged through teaching activities that create a conducive environment for students to play an active role in their learning process, such as understanding their learning needs, setting clear teaching goals, providing learning resources, and implementing appropriate learning strategies [7]. (4) School Factors The difficulty of changing majors has a significant negative impact on autonomous learning ability. It is difficult for students to switch to their preferred majors upon entering school, which can affect their learning willpower and negatively impact their autonomous learning ability. This is consistent with the research of Wang et al., which indicates that autonomous learning ability is constrained by external factors such as the learning environment and educational system. For example, a good campus network speed facilitates students' access to information, which is beneficial for their autonomous learning motivation [8]. (5) Teacher Factors The extent to which teachers impart learning methods is beneficial for cultivating learning enthusiasm. For instance, teaching analysis methods for objective questions and study schedules aligns with the research of domestic scholars, emphasizing that "teaching a person to fish is better than giving them a fish. [9]" If teachers assign homework of moderate difficulty, students' learning enthusiasm is high. However, if too much or overly difficult homework is assigned, it can negatively affect students' learning willpower, which is detrimental to the cultivation of autonomous learning ability.

4. Suggestions for Cultivating the Autonomous Learning Ability of Nursing Students

4.1. The school should create a good educational environment, strengthen campus cultural construction, and establish a teaching management model suitable for nursing students' autonomous teaching abilities.

Schools can enhance college students' self-directed learning willpower by optimizing the environment for autonomous learning [10]. Schools need to strengthen the construction of campus cultural environments, create an educational atmosphere that fosters the self-learning abilities of nursing students, pay attention to the development of information-based nursing training bases, libraries, and networks, enhance course optimization, implement a people-centered ideological and political education in the curriculum, and establish suitable teaching management models for nursing students, fully providing platforms for self-directed learning. Schools should provide a good self-directed learning environment for students from multiple aspects, carry out social practice activities, and enrich students' extracurricular lives, so that students can learn actively and fully unleash their creativity.

4.2. Method Teachers actively guide and cultivate students' interest in learning, stimulating students' motivation to learn

Research shows that learners with strong learning motivation possess a powerful drive for learning and clearer learning goals, enabling them to complete learning tasks more effectively [11]. To enhance the autonomous learning ability of vocational nursing students, it is essential to further stimulate students' learning motivation and increase their learning enthusiasm. Studies indicate that self-efficacy can significantly enhance students' autonomous learning abilities [12]. A good teacher-student relationship is conducive to promoting students' self-efficacy and self-learning capabilities. Therefore, teachers should establish a "people-oriented" concept of humanistic care, implement a "student-centered" dynamic classroom, fully respect and care for students, thereby stimulating their learning enthusiasm, cultivating their passion

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for learning, and helping students clarify the meaning of learning and their developmental goals, thus enhancing their autonomous learning abilities.

4.3. Students improve their learning strategies through their own efforts, correct their learning attitudes, and build their confidence in learning

Rational learning strategies can have a positive guiding effect on students' autonomous learning. Learning strategies refer to the methods and steps that students adopt, which can enhance the efficiency and effectiveness of knowledge acquisition [13]. To improve students' autonomous learning abilities, the key lies in enabling students to engage in learning activities under the guidance of appropriate learning strategies [14-15]. Encouraging students to read classic works of traditional culture, learning the spirit of perseverance and hard work from great sages and leaders, thereby clarifying life goals, correcting learning attitudes, and establishing cultural confidence.

5. Summary

In summary, the factors affecting autonomous learning ability include grade level, academic performance ranking, individual factors, school factors, and teacher factors. In future research, it is essential to fully consider individual factors and the learning environment in the educational practice process, to find suitable teaching strategies for students, to stimulate their interest in learning, and to focus on cultivating their abilities in self-management, monitoring, and evaluating the learning process, enabling them to gradually achieve learning autonomy, thereby providing theoretical references for effective classroom teaching.

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References:

[1] Cui Can, Zhang Weiyu, Chen Qiongli, et al. Research on the Current Situation and Influencing Factors of Medical Students' Online Autonomous Learning Ability During the COVID-19 Pandemic [J]. Chinese Higher Medical Education, 2022 (2): 26-27.

[2] Yun Yu, Liyuan Zhang, Jinrong Huang, et al. Research Progress on the Autonomous Learning Ability of Undergraduate Nursing Students in the Information Age[J]. Innovation and Practice in Teaching Methods, 2021, 4(3):64.

ISSN: 3008-1769

[3] Li Xueqin, Lei Li. Research on the Current Situation and Countermeasures of College Students' Autonomous Learning under the Blended Teaching Model [J]. Industry and Technology Forum, 2022, 21(20): 184-186.

[4] Liu Dun, Song Jihong, Gao Ju. Analysis of the Status and Correlation of Autonomous Learning and Critical Thinking Ability of Undergraduate Nursing Students under Traditional Teaching Models [J]. Chinese Higher Medical Education, 2020, Issue 11, Pages 44-45, 2021.

[5] Zhang Xiaoli, Liu Peijun. Analysis of the Current Situation and Influencing Factors of Autonomous Learning Ability of Vocational Nursing Students [J]. Contemporary Nurse: Mid-Monthly Journal, 2023, 30(8):136-140.

[6] Zhang Weixin, Cong Zhiqiang. Analysis of the Current Situation and Correlation of Autonomous Learning Ability and Learning Strategies among Nursing Major College Students[J]. China Medical Herald, 2016, 13(6):6.

[7] Wong, T., Xie, H., Zou, D. et al. How to facilitate self-regulated learning: A case study on open educational resources[J]. Comput Educ, 2020, 7: 51–77.

[8] Guoqiao Wang.On the Strategies to Cultivate College Students' Autonomous English Learning Ability in the New Era[J].English Language Teaching,2020（13）:94-99.

[9] Ye Yu, Song Yang. Research on the Correlation between Motivation Regulation Strategies and Autonomous Learning Ability of Medical Major College Students [J]. Health Vocational Education, 2022, 40(4):32-33.

[10] Zhao Chunhua. The Cultivation of College Students' Autonomous English Learning Ability in English Course Teaching—A Review of "Curricular Factors Affecting College Students' Autonomous English Learning" [J]. Chinese Journal of Education, 2021(9):1.

[11] Zhou Liqiu, Wu Ling. The Autonomous Learning Ability of College Students in Ideological and Political Theory: Evaluation Ideas and Evaluation Dimensions. Journal of School Party Building and Ideological Education, 2024, (02): 21-23.

[12] Cao Wei, Yan Li, Wang Hongxi, et al. Cultivation of Autonomous Learning Ability of College Students Based on the Law of Knowledge Flow: A Case Study of Mechanical Engineering at Xi'an University of Technology [J]. Research on Higher Engineering Education, 2022(5):5.

[13] Wang Junming, Wang Hui, Cui Ying, et al. Exploration and Practice of Teaching Model in Traditional Chinese Medicine to Promote the Autonomous Learning Ability of Undergraduate Students in Chinese Medicine [J]. Shizhen Guoyi Guoyao, 2024, 35(09): 2214-2215.

[14] Cheng Jianfeng. Empirical Study on the Influencing Factors of College Students' Online Autonomous English Learning Ability [J]. China Educational Technology, 2023, (09): 123-131.

[15] Ma Chunrong, Yu Liyan, Zhang Yuntang. Reflections on the Cultivation of College Students' Autonomous Learning Ability in the Digital Age: A Perspective of Self-Determination Theory [J]. Heilongjiang Education (Higher Education Research and Evaluation), 2024, (11): 52-55.