

A Study on the Difference of Information Acquisition Ability among Students in Higher Vocational Colleges

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Abstract

The explosive growth of all kinds of online information brought by mobile Internet has brought challenges to the information acquisition ability of students in higher education institutions. In order to explore the differences, influencing factors and ways to improve the information acquisition of college students in higher education institutions, 306 questionnaires from students in five higher vocational colleges were collected and analyzed. It was found that there was no significant difference in the information acquisition ability of students by gender. However, the majors of higher vocational college students have a significant impact on their information acquisition ability. It was suggested to taking comprehensive measures to improve the information acquisition ability of students in higher vocational colleges according to their characteristics.

Keywords

Students of Higher Vocational Colleges, Information Accessibility, Enhancement Suggestions

1. Introduction

Students in higher education institutions generally have a relatively weak knowledge base and insufficient learning ability, and the explosive growth of all kinds of online information brought by mobile Internet has brought challenges to the information acquisition ability of students in higher education institutions. Therefore, in order to achieve more efficient and effective access to online information, students in higher education institutions not only need to learn various in-

formation skills and study skills to improve their access to information, but also need to make further use of the vast information resources through teamwork.

However, there is a great lack of corresponding research on the mechanism of online information acquisition based on student groups in higher education institutions in the existing studies. What are the different characteristics of different information resources? And what are the different degrees of influence of these different information characteristics on the information access of higher education institutions? What are the different information characteristics and the different emphasis on the different information abilities of students in higher education institutions? What are the barriers to information access caused by these different characteristics? And what are the ways to overcome these barriers? These questions have not been well answered in existing studies, so this study tries to address them through questionnaires and statistical analysis.

Li mentioned in their study that the information quality of college students includes traditional quality, media quality, computer quality and network quality [1]. Traditional quality refers to basic cultural quality and basic daily life skills such as listening, reading, writing and thinking, which are also needed in the age of traditional print media; media quality is the understanding and knowledge of traditional print media and modern network media; while computer quality is the hardware skill that determines whether students can go online to find information, and network quality is the evaluation, judgment and selective access to network information, etc. The “software” skills are the evaluation, judgment, and selective access to online information. Chen proposes that the information literacy of college students consists of four parts: information awareness, information knowledge, information ability and information morality in the context of the intensified information explosion of mobile Internet [2].

Information awareness is the subjective response to information, sensitivity and insight to all kinds of information, without information awareness, it is difficult for students to actively search for information, and the information sensitivity is different for different information, so it is necessary to cultivate students' sensitivity to useful and valuable information instead of chasing entertainment information. Information knowledge includes not only the basic explicit cultural knowledge in language and mathematics needed to use information, but also the implicit knowledge of acquiring and processing information skills, etc. Without the relevant accumulation of information knowledge, it is difficult to deal with the huge amount of complicated and complicated information. Information competence is the ability to analyze, process and use information, the mastery of technical means and tools, and the understanding and application of information processing methods and principles. Information ethics, on the other hand, is the principles and ethics of the information world, and is the guideline for regulating information generation, information dissemination and information use, such as recognition and respect for the fruits of other people's information labor, resistance to plagiarism of other people's information labor fruits,

and legal and compliant use of other people's information labor fruits.

Foreign scholars Bowler *et al.* specifically divided information acquisition skills into eight modules: 1) developing a research strategy, 2) selecting a finding tool, 3) searching, 4) using finding tool functions, 5) retrieving sources, 6) evaluating sources, 7) documenting sources, 8) understanding relevant economic, legal, and social issues [3]. Bohannon argued that acquisition process consists of six main stages: a) identifying information types, b) keyword searches, subject search, c) identifying online libraries, d) differentiating information sources, e) integrating information, f) evaluating information [4]. Bartol considered students' information acquisition as four specific learning skills and techniques of information need identification, information access, information evaluation and information use [5].

In summary, the existing domestic and international studies on information acquisition differ greatly in terms of the division of information acquisition dimensions [6]-[11]. Based on the above research results, this study subdivides information acquisition ability into five dimensions: independent learning ability, innovative learning ability, continuous learning ability, teamwork ability and systematic thinking ability.

2. Data Sources and Methods

2.1. Questionnaire Distributions

In this study, we took college students studying in higher vocational colleges as the research subjects, and considering the difficulty of the experiment, we only selected five higher vocational colleges in Hefei, Anhui Province, namely Anhui Vocational and Technical College, Anhui University of Finance and Economics, Anhui Changjiang Vocational College, Anhui Professional College of Art, and Anhui Vocational and Technical College of Forestry. The five selected colleges had high reputation and teaching quality in the local area.

The questionnaires were distributed in two ways: offline and online. The offline research was mainly conducted by going to five colleges during the weekend, 150 questionnaires were filled out; the online research was mainly conducted by using Questionnaire Star to generate web links and invite students at random and ask them to forward them to their friends' circle, 300 questionnaires were distributed. A total of 450 questionnaires were distributed among the research process, and 306 valid questionnaires were obtained after eliminating invalid questionnaires, with a valid rate of 68%.

There were 202 female respondents, accounting for 66.0%. Other details about characteristics of the respondents, including age, annual family income and majors, were all shown in **Table 1**.

2.2. Variable Selection

The questionnaire involved in this study included 17 variables: information acquisition behavior, self-directed learning ability, innovative learning ability,

Table 1. Demographic characteristics of survey respondents.

| Items | Characteristics | Sample frequency | Percentage |
|---------------------------|------------------------|------------------|------------|
| Gender | Male | 104 | 34.0% |
| | Famale | 202 | 66.0% |
| Age | ≤18 | 65 | 21.2% |
| | 19 | 69 | 22.5% |
| | 20 | 75 | 24.5% |
| | 21 | 67 | 22.0% |
| | ≥22 | 30 | 9.8% |
| Annual family income | Low income | 58 | 19.0% |
| | Lower middle income | 96 | 31.4% |
| | Moderate income | 91 | 29.7% |
| | Upper middle income | 42 | 13.7% |
| | High income | 19 | 6.2% |
| Discipline specialization | Tourism | 25 | 8.2% |
| | Finance and Economics | 52 | 17.0% |
| | Culture and Education | 34 | 11.1% |
| | Art and Design Media | 35 | 11.4% |
| | Public Utilities | 25 | 8.2% |
| | Materials and Energy | 20 | 6.5% |
| | Biochemical drugs | 26 | 8.5% |
| | Electronic Information | 31 | 10.1% |
| | Manufacture | 29 | 9.5% |
| | Civil Construction | 26 | 18.3% |
| Others | 3 | 0.9% | |

continuous learning ability, teamwork ability, systematic thinking ability, low self-efficacy, anxiety, lack of curiosity, weak problem awareness, insufficient innovation motivation, poor self-monitoring ability, poor self-regulation ability, insufficient team awareness, team slacking behavior, poor information criticism ability, and poor information thinking ability. These variables were measured using a Likerts-5 point scale. In the questionnaire, “1” stands for “Very Inconsistent”, “2” stands for “Inconsistent”, “3” stands for “Not Sure”, “4” stands for “Consistent”, and “5” stands for “Very Consistent”.

3. Results and Analysis

3.1. Reliability and Validity Analysis

The CITC values of all items in the questionnaire were greater than the minimum standard value of 0.3 and the Cronbach’s Alpha coefficient values were

greater than the minimum acceptable value of 0.7, which indicates a high level of consistency and stability among the items, an excellent level of reliability. In addition, the values of “alpha coefficients of deleted items” were not significantly different from the values of alpha coefficients, indicating that all items should be retained and that the reliability level of the study data is high and can be used for further analysis.

The validity test was to test the degree of validity of the questionnaire, and the indicator adopted by most of the current literature was construct validity, which was mainly divided into convergent validity and differential validity. The SFL (Standardized Factor Loading) values, AVE (Average Variance Extracted) values and CR (composite reliability) values of 17 variables of this study were greater than 0.5, indicating that the sample had good convergent validity.

3.2. Analysis of Differences in Gender

In this study, gender, age, household income, and profession were selected as control variables for this paper, and the first step was to conduct a general demographic variable analysis of the study population. In this paper, we only considered the differences in the five indicators of information acquisition ability, namely, independent learning ability, innovative learning ability, continuous learning ability, teamwork ability, and systematic thinking ability, and did not further develop the group differences in low self-efficacy, anxiety, lack of curiosity, and so on. On the one hand, a large amount of data about these factors was difficult to analyze; on the other hand, other factors all impact college students' information acquisition ability by influencing the above five variables. So it was enough to analyze the above 5 variables for this research.

The differences between the five variables in terms of gender were analyzed. Means, Standard Deviations, F-values, T-values and P-values for different genders were listed in **Table 2**. No significant differences emerged between genders in self-directed learning ability, innovative learning ability, continuous learning ability, teamwork ability, and systematic thinking ability.

3.3. Analysis of the Differences in Majors

Since there were too many majors involved in the questionnaire survey, here we just divided them into two major categories: natural science and social science. The differences of the five variables between the 2 majors were analyzed. Means, Standard Deviations, F-values, T-values and P-values for different majors were listed in **Table 3**. According to the results, we could find that there were no significant difference on continuous learning ability and teamwork ability between the 2 majors, while independent learning ability, innovative learning ability and systematic thinking ability show significant differences. Students' perceptions of innovative learning ability in natural science were greater than those students of social science, and students' perceptions of independent learning ability and

Table 2. Analysis of the differences between the five variables in terms of gender.

| Variables | Gender | Mean | SD | F | T | P |
|------------------------------|--------|------|-------|-------|--------|-------|
| Independent Learning Ability | Male | 3.32 | 0.671 | 0.411 | 1.506 | 0.135 |
| | Female | 3.17 | 0.663 | | 1.494 | 0.138 |
| Innovative Learning Ability | Male | 3.18 | 0.616 | 0.702 | 2.646 | 0.108 |
| | Female | 2.74 | 0.632 | | 2.662 | 0.107 |
| Continuous Learning Ability | Male | 2.84 | 0.621 | 0.461 | 0.348 | 0.727 |
| | Female | 2.92 | 0.532 | | 0.331 | 0.744 |
| Teamwork Ability | Male | 2.79 | 0.577 | 2.411 | 2.326 | 0.125 |
| | Female | 2.73 | 0.455 | | 2.158 | 0.235 |
| Systematic Thinking Ability | Male | 2.59 | 0.731 | 2.025 | -1.096 | 0.271 |
| | Female | 2.81 | 0.618 | | -1.037 | 0.303 |

Table 3. Analysis of the differences between natural science and social science.

| Variables | Major | Mean | SD | F Value | T Value | P |
|------------------------------|-----------------|------|-------|---------|---------|-------|
| Independent Learning Ability | Natural Science | 3.01 | 0.682 | 1.743 | 3.656 | 0.000 |
| | Social Science | 3.38 | 0.672 | | 3.961 | 0.000 |
| Innovative Learning Ability | Natural Science | 3.11 | 0.627 | 4.264 | 2.980 | 0.003 |
| | Social Science | 2.84 | 0.620 | | 3.182 | 0.002 |
| Continuous Learning Ability | Natural Science | 2.93 | 0.630 | 0.798 | 0.336 | 0.738 |
| | Social Science | 2.92 | 0.541 | | 0.353 | 0.724 |
| Teamwork Ability | Natural Science | 2.77 | 0.568 | 6.209 | 1.242 | 0.216 |
| | Social Science | 2.65 | 0.446 | | 1.457 | 0.147 |
| Systematic Thinking Ability | Natural Science | 2.43 | 0.720 | 3.621 | -1.895 | 0.059 |
| | Social Science | 2.62 | 0.627 | | -2.252 | 0.026 |

systematic learning ability in social science were greater than students of natural science.

3.4. Path Analysis

Table 4 shows the relationship between these 17 variables, where latent variables, non-standardized values, standard deviation and standardized values were listed. First, the five dimensions of ability including independent learning ability, innovative learning ability, continuous learning ability, teamwork ability, and systematic thinking ability are all important influences on information acquisition. Similarly, the p-value significance also indicates that self-directed learning ability can be explained by three dimensions: low desire for knowledge, low self-efficacy and excessive anxiety, the barriers to innovative ability are insufficient problem awareness and insufficient motivation to innovate, the main barriers to continuous learning behavior are their poor self-monitoring ability and self-regulation. The

Table 4. Path coefficients.

| Observed Variables | Latent variables | Non-standardized values | Sd | Standardized values |
|----------------------------------|-------------------------------------|-------------------------|-------|---------------------|
| Information acquisition behavior | Self-directed learning ability | 1.346 | 0.103 | 0.67 |
| Information acquisition behavior | Innovative learning ability | 0.962 | 0.098 | 0.765 |
| Information acquisition behavior | Continuous learning ability | 0.998 | 0.111 | 0.753 |
| Information acquisition behavior | Teamwork ability | 1.269 | 0.096 | 0.85 |
| Information acquisition behavior | Systematic thinking ability | 1.179 | 0.109 | 0.621 |
| Self-directed learning ability | Low self-efficacy | -0.358 | 0.101 | -0.167 |
| Self-directed learning ability | Anxiety | -0.509 | 0.091 | -0.353 |
| Self-directed learning ability | Lack of curiosity | -0.425 | 0.084 | -0.258 |
| Innovative learning ability | Weak awareness of problems | -0.564 | 0.079 | -0.413 |
| Innovative learning ability | Insufficient motivation to innovate | -0.364 | 0.08 | -0.236 |
| Continuous learning ability | Poor self-monitoring ability | -0.673 | 0.091 | -0.587 |
| Continuous learning ability | Poor self-regulation | -0.568 | 0.079 | -0.289 |
| Teamwork ability | Inadequate team awareness | -0.453 | 0.087 | -0.356 |
| Teamwork ability | Team slack behavior | -0.616 | 0.056 | -0.399 |
| Systematic thinking ability | Poor information criticism | -0.593 | 0.078 | -0.413 |
| Systematic thinking ability | Poor information criticism | -0.348 | 0.076 | -0.208 |

main influencing factors of teamwork ability are weak team awareness and team slacking, and the main influencing factors of systematic thinking ability are poor information criticism and information thinking ability.

4. Discussion

In this study, the reliability and validity of 306 questionnaires from students in five vocational colleges was analyzed. It was found that the reliability and validity of the questionnaires reached a high level and was suitable for in-depth analysis. There were no significant differences emerged between genders in self-directed learning ability, innovative learning ability, continuous learning ability, teamwork ability, and systematic thinking ability. However, the majors of vocational college students have a significant impact on their information acquisition ability. The five dimensions of ability including independent learning ability, innovative learning ability, continuous learning ability, teamwork ability, and systematic thinking ability were all important influences on information acquisition.

Based on the above findings, comprehensive measures were recommended to improve the information acquisition ability of college students in higher education institutions.

4.1. Strengthening the Teaching Application of New Media

The hardware foundation of the school is crucial to the information ability of college students. Based on the development of the times, the school uses micro-media technology VR technology and other technologies as a more ideal form of teaching, giving full play to the good immersion and interactivity of these technologies to effectively increase students' interest in learning computers and make students build up their own interest in learning. By combining traditional cultural knowledge instillation with advanced technology, and combining new media technology to evaluate and match each student's ability and needs, we can enrich the way of education for students, expand the way of inputting information sources for students, and change the traditional passive teaching of "filling the classroom" to new media teaching that gives full play to students' initiative.

4.2. Deepen Non-Teaching Applications Such as Lectures and Projects

First of all, a large and sufficient number of professional lectures are beneficial to greatly broaden students' interest in various knowledge, and only by enhancing their interest will students have sufficient motivation to learn and explore on their own. Secondly, more industrial projects can be carried out with enterprises and social organizations, which not only help students to improve their understanding of practice and society, but also help them to develop their problem-solving ability, but the school needs to make more efforts to strictly control the relevant projects to avoid being formal, etc. Third, schools can cooperate more with other schools to promote more communication between student teams.

4.3. Focus on Students Themselves and Help Them Define Their Careers

High school is a crucial step for students to enter the society, and it is also a key step for students to say goodbye to their youth and realize their growth. Students at this stage are usually confused about their future. Therefore, schools must be concerned with the direction of students' lives rather than their academic performance, which is the original purpose of school education. On the other hand, they can also regularly invite students who have graduated earlier to speak for the current students and help them understand their future better by giving speeches about their own understanding of society and work. Secondly, for higher vocational institutions, they can contact more units and enterprises to enrich students' learning experience and practical experience, so as to increase their understanding of work and career, only in this way will students know what kind of person they will be, what kind of occupation they will engage in and what kind of career development they will have in the future, which will help students determine their career goals, and then determine the current learn-

ing goals and This will help students determine their career goals, and then determine their current learning goals and knowledge learning content, which is the inner motivation to effectively increase students' initiative to search for information, explore knowledge and learn knowledge.

4.4. Reform the Evaluation System and Break the Score-Based Orientation

Higher schools' evaluation system has an important impact on teachers' teaching and students' growth. Score-only undoubtedly constrains creativity, but in practice schools are still centered on the score system because it is the simplest method to operate, while quality-based evaluation means more resources would be invested. On the one hand, the solution to this dilemma requires the initiative of teachers to improve their creative teaching performance; on the other hand, higher schools need take the lead in promoting professional dialogue and knowledge co-construction between teachers and external professionals can be used as an alternative.

5. Conclusion

There was no significant difference in the information acquisition ability of students in higher vocational colleges by gender. But students' perceptions of innovative learning ability in natural science were greater than those students of social science, and students' perceptions of independent learning ability and systematic learning ability in social science were greater than students of natural science. The five dimensions of ability were all important influences of information acquisition ability. Different comprehensive measures for students of different majors in higher vocational colleges would help them to improve their information acquisition ability effectively.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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