

The Relationship between Information Literacy and Innovative Ability of College Students: Basis for Enhancing Teaching Strategies on Information Literacy

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Abstract: This study explores the relationship between information literacy and innovative ability among college students. Through a questionnaire survey of 500 college students from five universities in Henan Province, the research reveals a significant positive correlation between the two constructs. The findings indicate that enhancing information literacy can significantly boost students' innovative abilities, providing a critical foundation for optimizing university teaching strategies.

Keywords: Information Literacy, Innovative Ability, College Students, Teaching Strategies, Educational Technology.

1. Introduction

In the contemporary era of information explosion, information literacy has emerged as a core competency for college students to adapt to society and realize personal value. Beyond influencing academic and research capabilities, information literacy is intrinsically linked to innovative ability. As highlighted by Adeoye and Ibrahim (2024), information literacy empowers students to navigate the digital landscape effectively, enhancing their capacity for lifelong learning and critical thinking. Similarly, Ankor (2024) underscores the pivotal role of information literacy programs in fostering student success, not merely in academic pursuits but in developing the cognitive tools necessary for innovation. Innovative ability, a driving force behind advancements in both academia and industry, has become a pivotal metric for assessing the overall quality of college students. This study aims to uncover the relationship between information literacy and innovative ability through empirical analysis, offering scientific insights for refining university teaching strategies. By understanding this relationship, educators can better design curricula and teaching methods that foster both information literacy and innovative thinking, preparing students for the challenges and opportunities of the modern world.

2. Research Design

This study will employ a quantitative research design aimed at exploring the relationship between information literacy and innovative ability among college students. The focus of this study is primarily on the interplay between various dimensions of information literacy and innovative ability. This encompasses the assessment of college students' self-reported levels of information literacy, which centers around factors such as information awareness, information acquisition ability, information processing and utilization ability, and information security and ethics. Additionally, this study investigates the self-assessment of college students regarding their innovative ability, encompassing aspects like creativity, method innovation, application innovation, and idea networking.

The study is descriptive-comparative-correlational research which provided a detailed analysis on the relationship between information literacy and innovative ability.

Target of an investigation

This research study employed structured surveys and quantitative analysis to gather and compare data. The study was conducted during the 2023-2024 academic year among 500 college students from five universities in Henan Province, China.

Table 1. Frequency Distribution of Respondents' Profile

	Frequency	Percentage
Sex		
Male	198	39.6%
Female	302	60.4%
Total	500	100%
Age		
Under 18	17	3.4%
19-20 years old	278	55.6%
21-22 years old	189	37.8%
More than 22 years old	16	3.2%
Total	500	100%
Year Level		
Year 1	196	39.2%
Year 2	126	25.2%
Year 3	130	26.0%
Year 4	48	9.6%
Total	500	100%
School		
1	100	20.0%
2	100	20.0%
3	100	20.0%
4	100	20.0%
5	100	20.0%
Total	500	100%

3. Research Instrument

For the purpose of this study, the researcher administered the questionnaire online to a randomly selected sample of 500 college students to guarantee the precision and completeness of responses. The questionnaire comprised three sections: the first capturing demographic details of student respondents,

such as gender, age, and grade; the second focusing on assessing their perception of information literacy, which includes information awareness, information acquisition ability, information processing and utilization ability, and information security and ethics; and the third exploring their self-assessment of innovative ability, encompassing various aspects of their innovative experience such as creativity, method innovation, application innovation, and idea networking.

To ensure the questionnaire's reliability and validity, rigorous validation procedures were implemented. Content validation was conducted by experts in the research field, and their suggestions were incorporated into the final instrument. Face validation was also performed with at least five experts to ensure clarity and comprehension of the questionnaire items. A four-point scale was utilized, especially for assessing the professional attributes of school administrators, to allow for a nuanced and comprehensive evaluation.

A pilot test was conducted to measure the questionnaire's

reliability, utilizing Cronbach's Alpha through the Statistical Package for Social Sciences (SPSS). The researcher welcomed expert feedback and made revisions to enhance the instrument's validity. The resulting overall reliability of the questionnaire, with a Cronbach's Alpha of 0.918 and 0.947, demonstrates a high degree of internal consistency and reliability across all items, underscoring the statistical reliability of the research instrument.

Analysis And Interpretation Of Data

Relationship Between the Assessment of the Student Respondents of their Information Literacy and their Self-Assessment Of Their Innovation Ability

Table 2 presents the relationship between the assessment of the student respondents of their information literacy in terms of information awareness, information acquisition ability, information analysis and utilization ability, and information security and ethics, and their self-assessment of their innovative ability in terms of creativity, method innovation, application innovation, and idea networking.

Table 2. Relationship Between the Assessment of the Student Respondents of their Information Literacy and their Self-Assessment Of Their Innovation Ability

Information Literacy	Innovation Ability	Computed r	Sig	Decision on Ho	Interpretation
1.Information Awareness	1.Creativity	.792	.000	Rejected	Significant
	2.Method Innovation	.774	.000	Rejected	Significant
	3.Application Innovation	.782	.000	Rejected	Significant
	4.Idea Networking	.770	.000	Rejected	Significant
	Average	.812	.000	Rejected	Significant
2.Information Acquisition Ability	1.Creativity	.816	.000	Rejected	Significant
	2.Method Innovation	.814	.000	Rejected	Significant
	3.Application Innovation	.820	.000	Rejected	Significant
	4.Idea Networking	.803	.000	Rejected	Significant
	Average	.848	.000	Rejected	Significant
3.Information Analysis and Utilization Ability	1.Creativity	.861	.000	Rejected	Significant
	2.Method Innovation	.864	.000	Rejected	Significant
	3.Application Innovation	.869	.000	Rejected	Significant
	4.Idea Networking	.856	.000	Rejected	Significant
	Average	.899	.000	Rejected	Significant
4.Information Security and Ethics	1.Creativity	.828	.000	Rejected	Significant
	2.Method Innovation	.823	.000	Rejected	Significant
	3.Application Innovation	.783	.000	Rejected	Significant
	4.Idea Networking	.812	.000	Rejected	Significant
	Average	.845	.000	Rejected	Significant
Over-all Team Cohesion	Over-all Athlete Well-Being	.909	.000	Rejected	Significant

As shown in Table 2, the assessment of information literacy components and their relationship with innovative ability reveals valuable insights into the dynamics between information skills and innovative outcomes.

Information awareness exhibits a significant correlation with innovative ability, with an average r-value of 0.812 and a significance level of 0.000. This suggests that students who are more aware of information tend to perceive themselves as more innovative. Information awareness reflects the ability to recognize the need for information and its relevance in various contexts, fostering a sense of curiosity and inquiry that drives innovative thinking.

Information acquisition ability also demonstrates a significant correlation with innovative ability, with an average r-value of 0.848 and a significance level of 0.000. This indicates that students who can efficiently acquire information are more likely to rate themselves higher in innovation abilities. The capacity to quickly and accurately gather diverse information sources provides the raw material necessary for generating novel ideas and solutions.

Information analysis and utilization ability shows the strongest correlation with innovative ability, with an average r-value of 0.899 and a significance level of 0.000. This implies that students who can effectively analyze and utilize information tend to have a higher self-assessment of their innovation capabilities. The ability to process information critically and apply it to solve complex problems is a cornerstone of innovative thinking and problem-solving.

Information security and ethics exhibit a significant correlation with innovative ability, with an average r-value of 0.845 and a significance level of 0.000. This suggests that students who are more conscious of information security and ethics also tend to perceive themselves as more innovative. A strong foundation in information security and ethics ensures responsible and reliable innovation, balancing technical feasibility with social responsibility.

Overall, the computed correlation coefficient between overall information literacy and overall innovative ability is 0.909, with a significance level of 0.000, indicating a strong and significant relationship between these constructs. This

suggests that comprehensive information skills significantly contribute to students' self-assessment of their innovative abilities. These findings underscore the importance of developing information literacy as a key factor in enhancing students' innovative capabilities and overall academic and professional success.

4. Conclusion

Based on the data analysis and results of this study, the following recommendations are suggested: Integrate information literacy into curriculum design using contextual teaching and project-based learning to enhance students' information skills and stimulate innovation. Strengthen teachers' information literacy through regular training and encourage the use of advanced educational technologies. Provide access to rich learning resources and practical opportunities like innovation competitions and research projects to apply knowledge in real-world scenarios. Promote collaboration among schools to share resources and innovative concepts, creating a broader learning platform. Address gender differences with tailored teaching strategies to meet specific student needs. Enhance awareness of information security and ethics through dedicated curriculum components. Cultivate cross-disciplinary innovation by encouraging participation in interdisciplinary courses and projects. These strategies foster holistic student development, supporting their success in an innovation-driven society.

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