



Relationship between information-seeking behavior and innovative behavior in Chinese nursing students



Zhuqing Zhong^{a,d}, Dehua Hu^b, Feng Zheng^c, Siqing Ding^a, Aijing Luo^{d,*}

^a Department of Nursing, Third Xiangya Hospital, Central South University, Changsha, Hunan Province, China

^b Department of Medical Information, Xiangya Medical School, Central South University, Changsha, Hunan Province, China

^c Department of Coronary Care Unit, Third Xiangya Hospital, Central South University, Changsha, Hunan Province, China

^d Key Laboratory of Medical Information Research, College of Hunan Province, Central South University, Changsha, Hunan Province, China

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ABSTRACT

Background: In the information-based economy, information literacy has become the foundation of scientific literacy, and provides the basis for innovative growth. Exploring the relationship between information-seeking behaviors and innovative behaviors of nursing students could help guide the development of information literacy education and training for nursing students. The relationship between information-seeking behavior and innovative behavior in nursing students has received little attention, however.

Objective: This study aims to explore the relationship between information-seeking behavior and innovative behavior of nursing students.

Methods: Nursing students in Xiangya Medical School, Central South University and Medical School of Hunan Normal University in the Chinese Province of Hunan were surveyed with an information-seeking behavior scale and an innovative behavior scale.

Results: A total of 1247 nursing students were included in the final analysis. The results showed that both information-seeking behavior and innovative behavior were significantly better in undergraduates than in junior college nursing students ($P < .01$), and in postgraduates than in undergraduates ($P < .01$). The overall level of nursing students' information-seeking behavior was positively related to innovative behavior ($r = 0.63$, $P < .01$), and the 7 dimensions of information-seeking behavior were also correlated with innovative behavior in varying degrees. Furthermore, information utilization was proved to be the strongest predictor of innovative behavior.

Conclusion: Information-seeking behavior is positively associated with innovative behavior among nursing students. There is a need to integrate information literacy education with information retrieval courses, especially in the aspects of information utilization, retrieval, and assessment.

1. Introduction

Information retrieval skill is a crucial part of information literacy, which plays a critical role in research projects. Studies on time distribution in research showed that reading and information retrieving took about 51% of the researcher's time, experiment and investigation 32%, reporting 9%, and designing 8%. It shows that it is of great significance to enhance information literacy education including information retrieval training and some other skills training for nursing students in order to better conduct research projects.

1.1. Information-seeking Behavior

Information-seeking behavior is the purposive seeking for information as a consequence of a need to satisfy a goal (Wilson, 2000). Researches on this topic have attracted wide attention.

Biaz et al. (2014) investigated information-seeking behavior of doctoral students from different disciplines, and found that they widely use the Internet for academic research, and have a preference for the most direct access to information. Lasserre et al. (2011) reported that medical students favor print resources over electronic in their information-seeking process and they value accessing resources on a one-stop basis. Khosrowjerdi and Iranshahi (2011) reported positive and strong relationship between information-seeking behavior and

* Corresponding author.

E-mail address: qyh89903811@163.com (A. Luo).

prior knowledge of graduate (MA and PhD) students, which suggests that prior knowledge is correlated with easier (faster and more related) searching. Dimensions of prior knowledge like expertise, the past experience, familiarity are confirmed significantly related to dimensions of information-seeking behavior. Currie et al. (2010) pointed out that most of college students did not identify major keywords or connect key concepts with Boolean search tools (“and,” “or,” “not”). When poor results were achieved, they would reconstruct and adjust the search strategy to produce an increase in relevant hits.

Botha (2011) confirmed the relationship between epistemological beliefs and information-seeking behaviour, which manifested itself that epistemological beliefs affected topic selection, the use of supervisors, search techniques, the evaluation of information encountered during the search process as well as the ability to recognize authority.

Many studies focused on whether discipline plays a vital role in information-seeking behavior. Korobili et al. (2011) surveyed the information-seeking behavior of graduate students of the faculties of Philosophy and Engineering, and found that discipline did not seem to critically affect information-seeking behavior.

Sheeja (2010) examined the information-seeking behavior of science and social science research scholars, including service effectiveness, satisfaction with different type of sources, and the methods used for keeping up to date. There were similarities in their information-seeking behavior that they all depended on e-journals for keeping up to date with their research.

Meanwhile, gender difference in students' information-seeking behavior has gradually become another hotspot in this field (Halder et al., 2010).

1.2. Innovative Behavior

Innovative behavior refers to an individual's capability to cause original and potentially useful ideas to be generated, including the process of applying those new ideas into practice (Birdi et al., 2016).

According to Zhao et al. (2011), the basic innovative quality of individuals are thinking and figuring out problems in study process, generating new ideas with creativity, and then seeking for support and validation, finally applying them into practice. For students, professional knowledge, understanding of current scientific research results and critical thinking is necessary to support their ability of creativity.

Babalís et al. (2012) reported no significant differences between undergraduate men and women in the innovative-creative thinking. However, significant differences were observed in research attitude.

More researchers discussed innovative behavior from a group perspective. Vinarski-Peretz et al. (2011) pointed out that employees were highly engaged in innovative tasks in the workplace, directly and indirectly through strong affective commitment to the organization, a sense of psychological availability, and creative self-efficacy beliefs.

There were various determinants of innovations: outcome expectation, leadership, problem-solving style, group relation, and organizational (Cingöz and Akdoğan, 2011; Jafri, 2010).

Martín et al. (2015) reported that individual innovation is positively connected with previous innovation behaviors as freshmen, current levels of autonomy and cognitive demands among university students.

Information-seeking behavior may affect students' school work, research, and innovation.

There were several empirical observations on different groups of information-seeking behaviors (Weaver III et al., 2011, Dougan, 2012, Athukorala et al., 2013), and the relationship between information literacy and innovative ability has been studied (Dan-Qing, 2012, Raeis et al., 2013, Yan et al., 2013).

These studies suggested that information literacy seeking behavior could serve as a motivation for innovation and could change the way that people think, expand ideas, stimulate innovation interest, and improve innovation qualities.

The relationship between information-seeking behavior and

innovative behavior has not been reported in nursing students. We therefore attempted to address this issue, with the focus on nursing students, which are of profound significance to innovative consciousness cultivation, innovative ability promotion, and in turn to the quality of patient care. Therefore, exploring the relationship between retrieval behaviors and innovative behaviors of nursing students could help guild the development of information literacy education and training for nursing students.

2. Methods

2.1. Participants

This study was carried out in the Chinese province of Hunan in 2014, and we obtained approval from Third Xiangya Hospital, Central South University research ethics board before the commencement of the study. Nursing students from Xiangya Medical School of Central South University and Medical School of Hunan Normal University Medical School at all levels (junior college nursing students, undergraduates, post-graduates) were invited to participate in the study. The participants had taken literature retrieval courses before the survey. Written consent was obtained from students because the research questionnaire was distributed to them for completion.

A total of 1141 valid responses were collected, representing an effective recovery rate of 91.5%.

The sample size was adequate for data analysis with wide coverage and good representations.

2.2. Study Design and Questionnaires

2.2.1. Information-seeking Behavior Scale

The college students' information-seeking behavior scale was developed by the research team, which consists of seven dimensions (46 items): information need, information source, information evaluation, information retrieval, information management, information utilization, and information ethics. Five grades were employed in the scoring to indicate the frequency of a behavior: 5 = always, 4 = often, 3 = sometimes, 2 = seldom, and 1 = never. The quotient of dividing the total score of items by the item numbers was taken as the result of every subscale. In a validation study, we found the Cronbach's α coefficient was 0.93 for this scale, indicating good reliability, validity, popularity and discrimination (Dehua and Dan, 2012). The average score for information-seeking behavior was calculated by dividing the total score of 46 items by the item numbers.

2.2.2. Innovative Behavior Scale

The innovative behavior scale was revised from the scientific and technological talent innovative behavior rating scale by Zhang (2010). This scale includes 15 items, with good internal consistency (Cronbach's α coefficient = 0.89).

2.3. Data Analysis

Data were analyzed using SPSS/Win 7.0 (SPSS 23.0, China), and the level of significance was set at 0.05 in a two-tailed test for all tests. Means, standard deviations (SDs), and percentages were calculated for information retrieval behavior and innovative behavior. Analysis of variance (ANOVA) was used to determine if there was a significant difference in the variance of three samples, and if yes, Post hoc tests were used to determine whether the means of two groups were statistically different from each other. Pearson correlation coefficient was employed to measure the degree of correlation between information-seeking behavior and innovative behavior.

Finally, stepwise multiple regression analysis was conducted to analyze independent association of the seven dimensions of information-seeking behavior with innovative behavior.

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