Title:
Factors Associated With Senior-Level Students' Integration of Course Content in Online Discussion

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Online Learning Strategies
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References:
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Abstract Summary:
Skillful integration of information is essential in decision making; it may be influenced positively by familiarity with information sources or negatively by selective exposure behaviors. Within online discussions we identified associations between familiarity with authors of discussion posts, selective exposure to posts with similar stances, and quality of information integration.
Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to describe the importance of integrating information in the process of decision making	essential skills and processes involved in effective decision making
The learner will be able to explain the potential negative influence of selective exposure behaviors	Background about the influence of selective exposure behaviors on various outcomes
The learner will be able to discuss relationships that exist between familiarity with sources of information, preconceptions about likely usefulness of information, selective exposure behaviors, and quality of information integration	Prior and current research findings

Abstract Text:

Background, problem, and review of the literature: Asynchronous online discussions (AOD) are extensively used in fully online and blended courses to share ideas, explore course content, and establish communities of learning. Participation in online discussions exposes students to diverse perspectives which is expected to enable students to make associations among different dimensions of the content in a course. Making associations between dimensions of a topic, known as information integration, enables creation of well-reasoned conclusions (Gruenfeld & Hollingshead, 1993). This exposure is believed to help students identify a broad range of pertinent factors, integrate relevant information, and arrive at well-reasoned conclusions about content-related, professional issues. Information integration is an essential skill for students in professional nursing programs to make decisions based on diverse information available from multiple sources and present a coherent case for one's decisions and recommendations.

Despite availability and easy access to diverse information and the potential value of online learning, students frequently fail to demonstrate high cognitive ability in online discussions. Students demonstrate increases in cognitive skills over time in online courses with an instructors' purposeful use of various strategies (Novotny, Stapleton, & Hardy, 2016), however even the studies that report the best results indicate 20% to 40% of students do not display the higher level cognitive skills within discussions regardless of the strategy used (Richardson & Ice, 2010). Student related factors and behaviors can lead to errors in decision making. Unfortunately these have not been well-explored within nursing.

An individual's tendency to attend to and process information that conforms to one's current stance—known as selective exposure—is has been identified as persistent obstacle to critically thinking through an issue, integrating information, and making effective decisions (Fischer, Hardt, & Frey, 2008; Fischer & Greitemeyer, 2010) in a variety of settings and domains outside of nursing. Thompson and Stapley's (2011) review of educational interventions designed to help nurses make effective clinical decisions highlights the need for well-designed and reported studies to inform this field of inquiry.

Reading peer posts in online discussions is known to help predict student learning in general (Goggins & Xing, 2016); however, factors influencing student choices about which posts are read and how these factors influence information integration are only beginning to be understood. In this study we examined the role of a student's familiarity with the source of information and peer preconceptions about the usefulness of information that individual peers share in discussions, posts that peers read in a discussion, and selective exposure with the quality of information elaboration.

Prior studies indicate familiarity with the source of information influences cognitive processes in groups. Familiar groups share information more effectively while unfamiliar groups integrate information more effectively (Gruenfeld, Mannix, Williams, & Neale, 1996). Therefore, familiarity of the source is expected to impact individual's choice about which information they pay attention to and process (i.e., selective exposure). Additionally, studies indicate that, for information integration to occur, individuals need to positively evaluate information that is shared by group members (Sussman, & Siegal, 2003). In this way, perceived information usefulness enables information integration. One study revealed that perception of utility influences the online information a student attends to, and given certain conditions, this supersedes selective exposure behaviors (Knobloch-Westerwick, & Kleinman, 2012). In nursing education and decision making by nurses

We tested a framework based upon our prior work (Javadi & Novotny, 2016) that extends to exploration of student-related factors that influence integration of information, a necessary component of decision making. Within the context of nursing education, we examined associations between student-related factors that we posited influence the quality of a student's integration of course content in AOD within a nursing course. The factors examined were student's familiarity with peer discussants, expectations about usefulness of information shared by peers, choices about which posts are read, and the tendency to pay attention to information confirming the student's current opinion (selective exposure). Finally, relationships between selective exposure and posts read with the quality of information integration were examined.

We hypothesized that student-to-peer familiarity and student perceptions about the usefulness of information posted by peers in online discussions would influence student to read posts and demonstration of selective exposure behavior in the discussions. Further, we hypothesized selective exposure behaviors would have a negative impact, while number of posts read would have a positive influence upon the quality of information integration in the latter posts within a discussion.

Methods:

Nursing students in one blended undergraduate leadership course in the last semester of the prelicensure program were asked to participate in an IRB approved, descriptive, comparative study. Data were obtained from two sources. Questionnaires were administered near the beginning and end of semester to capture degree of familiarity with each peer in the class, and their perceptions concerning which class peers typically share the most useful information in discussions. In two separate discussions, each focused upon a major topic in the course, participants first posted an initial argument supporting agreement or disagreement with the topic-related statement posed in the discussion. Students titled each post with their current stance (strongly agree, agree, disagree, or strongly disagree). Students were required to read a minimum of one peer's initial post and the next week post an extended analysis which was to integrate relevant information and elaborate upon the his or her current opinion. Participants' initial and final stances were abstracted and their de-identified posts were downloaded. The investigator who was not teaching the course and had experience using the modified Integrative Complexity Measure (Baker-Brown et al, 1992) scored the level of information integration for each post. Scores could range

from *1,* exhibiting only *a* superficial argument with emphasis on value statements/personal opinion, to *5,* which provided evidence of understanding both sides of argument and an analysis with strong justifications for rejection of one side and support other.

The level familiarity with the post's author and perceived usefulness of information shared by the peer of all posts each participant read were recorded. Participants recorded self-reports of which posts were read; the validity of these data was confirmed by reports obtained using learning management system queries. Selective exposure was scored as either no selective exposure, a tendency for selective exposure in which the stance of > 50% of posts read matched one's own initial stance, or complete selective exposure where the stance of 100% of posts read were the same as ones' own initial stance. This approach to measurement enhanced validity and sensitivity to the level of variability in exposure effects (Clay, Barber, & Shook, 2013).

Results: The sample included 78% (18/23) of students in the class, including 13 females and 5 males. Two participants only completed the first questionnaire. Familiarity with peers increased over the semester by an average of 0.3 points on a scale ranging from *1=not at all familiar* to *5 = very familiar*. Participants read a mean of 4.1 (SD=4.8) peer posts in the first discussion and 3.3 (SD=1.6) in the second discussion. In both discussions 17% read only opposite stance posts. A tendency for selective exposure was identified for 58% of participants in first discussion and 39% in second discussion, whereas 22% of participants demonstrated complete selective exposure in first discussion and 17% in the second. Familiarity with a peer was associated with the tendency for selective exposure (p=.03) and engagement in complete selective exposure (p=.02) behaviors. There was a trend to read posts of more familiar students (p=.07). Quality of integration was similar between initial and final posts in the first discussion, whereas there was significant improvement in the quality of the second discussion posts (p=.05) with a mean of 3.4 (SD=1.0) for the initial posts and 4.1 (SD=1.2) for the final posts. The average quality of information integration score was consistently lower in students with selective exposure behaviors. For a tendency it was 0.2 points lower in both discussions and for complete selective exposure it was 1.0 point lower in the first discussion and 0.5 points lower in second discussion.

Conclusions: Most expected relationships between variables in our proposed model were confirmed. Familiarity with the source of information increased selective exposure behaviors and indicated a trend to read posts of familiar peers. Preconceptions of usefulness of a peer's information shared in discussion was related to number of posts read but did not influence selective exposure behavior. In the presence of selective exposure, the quality of information integration was consistently lower in the final posts. The number of posts read was not related to the quality of subsequent information integration.

This study allowed us to pilot the familiarity scale and instructions provided to students, use of modified information integration scale, and measurement of nursing students' selective exposure behaviors exhibited in online discussions. This field experiment supports plans to use a larger sample to test a modified model.

In today's social and professional environments, professional nurses need to learn to consider diverse perspectives and integrate all relevant information to arrive at the most effective and appropriate professional decisions. Study findings are valuable to educators who design teaching/learning strategies that will be useful in helping students practice effective decision-making skills.