Evidence Based Library and Information Practice

Evidence Summary

Undergraduate Students with Strong Tendencies Towards Critical Thinking Experience Less Library Anxiety

A Review of:
Kwon, Nahyun. "A Mixed-Methods Investigation of the Relationship between Critical Thinking and Library Anxiety among Undergraduate Students in their Information Search Process." College & Research Libraries 69.2 (2008): 117-31.c

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Objective – To investigate the nature of the association between a student's critical thinking disposition and the extent to which they suffer from library anxiety.

Design – Standardized quantitative survey instruments and a qualitative content analysis of student essays.

Setting – A state (publically funded) research university located in the southeast United States.

Subjects – 137 undergraduate students enrolled in the Library and Research Skills course.

Methods – Undergraduate students enrolled in the three-credit course Library and Research Skills during the spring 2006 semester were invited to participate in the study. Of 180 students registered in the course, 137 volunteered to take part. Data collection took place in the first two weeks of the semester.

Participants were asked to complete two standardized survey instruments: the California Critical Thinking Disposition Inventory (CCTDI) and the Library Anxiety Scale (LAS). The purpose of the CCTDI is to "measure a person's disposition to use critical thinking" (119). The instrument consists of seven scales: "truth-seeking"; "open-mindedness"; "analyticity"; "systematicity"; "critical thinking self-confidence"; "inquisitiveness"; and "maturity" (119). "Truth-seeking" is a commitment to seeking answers even if the process proves difficult or reveals information outside of one's belief system, "systematicity" is defined as an organized approach to problem solving, and "maturity" is the ability to make "reflective

decisions when facing ill-structured problem situations" (119). "Analyticity" refers to a subject's ability to anticipate possible outcomes, "open-mindedness" to being open to different points of view, "critical thinking self- confidence" to a belief in one's own critical thinking skills, and "inquisitiveness" to "intellectual curiosity" (119). Participants scored 75 items using a six-point Likert-type scale.

The LAS measures levels of library anxiety by asking students to respond to 43 statements using a five-point point Likert-type scale. The LAS is designed to identify perceived roadblocks to their students' use of the library, including "barriers with staff" or staff who are not helpful, "affective barriers" or a lack of confidence in one's research skills, "comfort with the library," "knowledge of the library," and "mechanical barriers" such as equipment that is difficult to use (119).

In addition, participants were asked to write a 500-1,000 word essay about their "most recent or most memorable experience of using the library and its resources to write a research a paper" (120). Quantitative data collected from the CCTDI and LAS was analyzed using statistical software and the content of the qualitative data generated by the student essays was analyzed to identify common critical thinking and library anxiety themes.

Main Results – Only a small percentage (6%) of participants in the study were freshman (i.e., in their first year of study). The largest group was comprised of third year students or juniors (41.8%), followed by sophomores (27.6%) and seniors (21.6%). The participants ranged in age from 18 to 60, with an average age of 22.9 years. Over 68% percent were female.

Overall, a higher percentage of study participants scored lower on the CCTDI across all seven scales than a normative sample of undergraduate students. A score below 40 on a particular scale is considered by the instrument developers to be an indication of weakness in that particular dimension of critical thinking. The participants' mean score for each of the seven scales fell below this threshold. Areas of particular weakness were truth-seeking (82% of students scored below 40), systematicity (63% scored below 40), and maturity (55% below 40).

The researcher ranked the students by their total CCTDI scores, and then divided the subjects into three equal groups. The 37 students with the highest overall CCTDI scores were labelled the strong critical thinking dispositions (CTD) group. The 37 students with the lowest overall CCTDI scores formed the weak CTD group. The mean LAS scores of participants in each group were then compared. A higher LAS score is indicative of a higher level of library anxiety. Students with strong CTD demonstrated significantly less library anxiety than those with weak critical thinking dispositions (an overall mean score of 93.03 versus 111.13). When it came to the five dimensions of library anxiety, the difference in the mean scores between the two groups was greatest for staff barriers (30.88 for participants with strong CTD versus 38.20 for those weak CTD) and affective barriers (27.24 versus 32.94). The difference in scores for anxiety arising from mechanical barriers was lower (0.83), but still statistically significant ($p<.05$).

According to Kwon, the analysis of the student essays uncovered widespread library anxiety among students regardless of their CCTDI scores, with many reporting that they felt lost when first approaching library research. Particular sources of anxiety were affective barriers (e.g., lack of confidence) and staff barriers. Students also reported that their anxiety made it difficult to think clearly about their search. Students with strong critical thinking dispositions in the areas of systematicity, critical thinking self-confidence, and inquisitiveness were able to mobilize these skills to overcome their library anxiety and move forward with their research. Those who were able to move past their discomfort and activate their critical thinking skills reported a reduction in their overall anxiety. In some cases, the essays of students who had scored low on the CCTDI demonstrated

increasing levels of anxiety as their search progressed and a failure to use critical thinking to overcome the challenges encountered during the research process. The researcher expressed these findings in "The Interactive Model of Critical Thinking and Library Anxiety" (125). In the model, students initiating a research project (Stage 1) move into a state of library anxiety (Stage 2) that impedes their cognitive skills (Stage 3). Stage 4 is the critical juncture at which the student's critical thinking disposition is activated or not. If it is activated, students are able to access their critical thinking skills (Stage 5), lessening their anxiety (Stage 6) and resulting in the successful completion of work relating to their task (Stage 7). If the disposition is not activated, their critical thinking skills remain hampered (Stage 5) and anxiety increases (Stage 6), preventing the successful performance of their task (Stage 7).

Students also reported in their essays that their critical thinking skills improved as they gained more experience with the library research process, and that positive encounters with library staff resulted in lower levels of library anxiety.

Conclusion – The quantitative analysis of the CCTDI and LAS results suggest that there is a negative association between critical thinking dispositions and library anxiety. The qualitative data also seems to imply that those with strong critical thinking dispositions are able to reduce their levels of library anxiety through their ability to work through problems in a persistent and methodical way, although further research is required to validate all the steps in the proposed model.

The evidence also suggests that a student's emotional state plays a key role in his or her ability to think critically and problem solve, and demonstrates the importance information literacy instructors should place on cultivating students' confidence in their own skills when preparing them for research success.

Commentary

The concept of critical thinking dispositions is an interesting addition to the library literature, although it comes late to our field after years of discussion and application in other academic circles. Kwon clearly sees it as pivotal, writing that "it can also be contended that critical thinking disposition is a catalyst that can change the information search process from frustration to hope" (128). The developers of the CCTDI instrument also argue "common sense tells us that a strong overall disposition toward [critical thinking] is integral to insuring the use of CT skills outside the narrow instructional setting" (Facione, Giancarlo, Facione, and Gainen 3). It would be interesting to know how the concept of critical thinking lines up with self-efficacy, which has seen more play among information researchers.

This study builds on Kwon's earlier work that examined critical thinking dispositions and library anxiety among graduate students with similar results (Kwon, Onwuegbuzie, and Alexander). In this current study, Kwon complemented the quantitative data with the voices of students themselves. However, the methodology possesses several weaknesses that may limit the utility of the results. Kwon acknowledges that the Library Anxiety Scale is dated, reflecting a library environment of 1992 rather than one with an increasingly virtual presence. While modified versions of the LAS do exist, Kwon argues that "none of these newly developed scales have demonstrated general applicability yet, while the LAS still is a highly robust, validated scale that can measure library anxiety of the undergraduate students in the United States"(120). Kwon also admits that the sample of students may also be somewhat suspect. High levels of existing library anxiety and low predispositions towards critical thinking may have been what drove those students not required to take the Library and Research Skills to enrol in it as an elective. Kwon writes, "This fact might have skewed the study results" (128). She does not, however, reveal how many students fell into this category, or how their scores may have

compared with those who were required to enrol. The presentation of scores could have also been improved. While providing the standard deviation for the LAS and CCTDI scores is helpful, the median scores for all categories would have provided readers with a clearer picture as mean scores are so sensitive to outliers in small groupings of subjects (Jargowsky and Yang).

Finally, the model constructed by Kwon is not fully corroborated by the evidence collected. The researcher acknowledges that the essay documents student perceptions of their own skills, and as such provides no objective data that the task was successfully completed (Step 7). More information about how the study was presented to the students and the process the author went through in analyzing the essays would have also been useful. For example, did the students receive any sort of compensation for completing the essays? If library anxiety was a "common experience to most students," exactly how many of the essays demonstrated that (Kwon, 123)? Did the researcher know which of the essays were written by the "strong" CTD group when the essays were coded? More information on the methodology or theoretical framework employed in the analysis of the essays would have lent weight to conclusions drawn from the data.

Library anxiety is alive and well among the college populace, at least among the students who formed part of this study. In spite of its limitations, Kwon's work makes a case for considering critical thinking dispositions when seeking solutions to the problem. Academic librarians shouldn't go wrong if they accept Kwon's recommendation to consider the impact of students' affective states in all library staff/student interactions and to build an environment that encourages and supports intellectual curiosity. Kwon clearly acknowledges the link between her findings and the emphasis on affective states in Kuhlthau's existing information-search process model (127). However, Kwon's assumption that library instruction is part of that solution may be premature. Assessing the impact of our work on students' affective and cognitive states remains critical. For example, participants in this study were assessed in the first two weeks of a course explicitly intended to bolster their ability to employ critical thinking in the information search process (Kwon 118). The obvious question is whether or not the course had any impact on either their critical thinking dispositions or library anxiety, so it is surprising that the author does not identify this as an area for future study. In fact, how would one isolate any changes in CTD due to library instruction, when other factors may be at play including the maturation of student minds, instruction received in other venues, and efforts to build critical thinking taking place at an institutional level? Many of the students were in their second or third year of study, but there was no information about how this may have played into their levels of critical thinking or library anxiety. Assessing the efficacy of information literacy instruction in this regard may illuminate areas of weakness, but more research needs to be done before any recommendations can be fully accepted.

Works Cited

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