



Evidence Summary

Situated Cognition Principles Increase Students' Likelihood of Knowledge Transfer in an Online Information Literacy Course

A Review of:

Catalano, A. (2015). The effect of a situated learning environment in a distance education information literacy course. *The Journal of Academic Librarianship*, 41(5), 653-659.
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Abstract

Objective – To assess the efficacy of the application of situated cognition principles in education students' transfer of knowledge to practice in an online information literacy course. "Situation cognition" refers to a theory in which expert behaviour-modeling, authentic activity and apprenticeship, and learning environment are integral in learning.

Design – A randomized controlled trial.

Setting – A small private university in New York State.

Subjects – 85 education college students in 7 sections of a 1-credit online course titled

Introduction to Library Research and Technology.

Methods – Each course section was randomly assigned via cluster sampling to "situated cognition" treatment ($n = 48$) or control conditions ($n = 37$). The treatment sections provided students with expert modeling, scaffolding, authentic activity, and problem-based assessments according to the principles of situated learning and teaching for transfer; while the control sections provided students with traditional instruction of lectures and handouts.

A pretest and posttest were given to students in order to assess improvement in knowledge of the five categories for evaluating resources: currency, relevance, authority, credibility, and

audience. The pretest was a survey administered during the first week of the course, and the posttest questions were included in the final exam. The researcher also used a final assignment to evaluate students' improvement on the far transfer task (i.e., their ability to transfer a skill learned in one context for use and applicability in other contexts). The task was to create a resolution for one of three concerns raised to a School Board, to write a statement addressing the received concern, and to articulate a recommended solution. Two raters independently graded tasks on a scale using a rubric based on information literacy principles, including incorporating some corroborating sources, evaluating of source information, and determining a solution based on source credibility.

Main Results – The researcher compared the impact of the situated cognition teaching on retention using the posttest and on far transfer task of the 85 students in both treatment and control groups using multivariate analysis of variance (MANCOVA). The MANCOVA analysis found no significant difference between scores based on belonging to treatment or control groups. However, because far transfer occurred in 59 cases based on scoring of the tests, the researchers performed a logistic regression analysis and found the group variable (i.e., belonging to the situated cognition treatment group or control group) provided a significant prediction of transfer ($p < .05$), when controlling for engagement, self-regulation, and motivation. Potential confounding due to variation in motivation, self-regulation, and engagement were ruled out by using the Motivated Strategy for Learning Questionnaire (MSLQ) and by recording of participation in weekly assignments. Furthermore, presence in the treatment group increased the odds for the incidence of far transfer by a factor of 2.90.

Conclusion – When testing the use of principles of situated learning (e.g., problem-based learning and cognitive apprenticeship in library instruction), the study results indicated an increase in the likelihood of students being able to practise knowledge in various situations and apply what they have learned in

real-life examples. While the majority of students in both treatment and control groups demonstrated the skills of far transfer, the study provides evidence to support situated cognition, an understudied set of principles, and the study also utilizes quantitative methods to further strengthen this support.

Commentary

The article largely pioneers the concept of integrating situated learning in library instruction. Nichols (2009) discussed the teaching of information literacy behaviours through situated cognition strategies and identified themes in students' transitions from action to cognition and participation in which actions (e.g., searching and taking notes) progress to cognition direction (i.e., becoming more knowledgeable about a subject) and leading to participation in the academic community and engaging in successful scholarly communication. This article furthers the aims of the proposed model Nichols (2009) presented because it provides more concrete evidence due to research design moving from case studies to a randomized controlled trial.

Strengths of the study include its detailed background and investigation into current research and practice around implementation of situated cognition principles. The author's use of concepts from problem-based learning and cognitive apprenticeship reveal the ability to integrate various models in order to establish an intervention meaningful for the population being studied. In addition, the use of all sections of a course prevents bias due to self-selection, which often occurs when students choose whether to participate in a research activity. A limitation of the study is that it has limited generalizability due to its occurring within one course and with a smaller sample size.

Furthermore, data collection, analysis, and coding methods were clearly defined. The author also provides the details of the assignment to allow for replication. The logic behind the assignment, its coding, and the analysis tools being used were well described, and evidence documenting the support for

these practices was included; however, data loss is a possibility when the assignment submissions were coded into binomial scores. Confounding variables, including engagement assessed by weekly participation and motivation assessed using the MSLQ, were accounted for, strengthening the validity of the outcome. Based upon calculations from the EBL critical appraisal checklist (Glynn, 2006), validity overall and for each section was over 85%, clearly meeting the established 75% threshold for validity in study methods and reporting.

The study contributes to evidence supporting situated learning and problem-based learning as effective methods for teaching information literacy skills in education students. One outcome of the research is that it provides new methods for developing curriculum for librarians who teach information literacy. The

study also presents several effective strategies for providing students with skills applicable for work within their disciplines and the ability to build upon these skills using methods taught by frameworks and models arising out of the field of education. Most evident is the clear need for continued research in this realm.

References

- Glynn, L. (2006). A critical appraisal tool for library and information research. *Library Hi Tech*, 24(3), 387-399. <http://dx.doi.org/10.1108/07378830610692154>
- Nichols, J. T. (2009). The 3 Directions: Situated information literacy. *College & Research Libraries*, 70(6), 515-530. <http://dx.doi.org/10.5860/crl.70.6.515>