Cognitive Apprenticeship in an Online Research Lab for Graduate Students in Psychology

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ABSTRACT

In this paper, the authors present a qualitative study of student perceptions of a cognitive apprenticeship in an Online Research Lab (Lab). The Lab’s purpose was to provide psychology graduate students in an online university with hands-on experience in the full trajectory of a research project. Interview data were analyzed using the four categories of the Cognitive Apprenticeship theoretical framework: Content, Method, Sequencing, and Sociology. When discussing their content of the course, students focused on the challenges of tasks that went beyond their previous coursework and knowledge of statistics. Methodologically, students focused on the multiple ways course members communicated with one another. The sequence of the course, both internally as a research project and externally as part of the graduate program, were both important aspects of the experience. From a sociological perspective, social loafing, or non-responsiveness from colleagues, had a negative impact. Instructors seeking to develop online research opportunities for students must consider multiple modes of communication, provide ongoing narratives of the study context, and encourage students to use each other as well as the instructor for support.

Keywords: Asynchronous Learning, Cognitive Apprenticeship, Graduate Research Training, Online Communication, Online Education

INTRODUCTION

Increasing numbers of institutions of higher learning are utilizing asynchronous and web-based instructional technologies, either as the sole educational platform or as a complement to face-to-face instruction (Allen & Seaman, 2004). At the same time, the role of research in training professional psychologists has experienced a lively and sustained debate (Kahn, 2001; Kahn & Gelso, 1997; Le Juez, Read, Gollan & Zvolensky, 2001; Mallinckrodt & Gelso, 2002; Schlosser & Gelso, 2001). Psychology graduate students in traditional (brick and mortar)
settings often seek out apprenticeship-style research experiences prior to engaging in the research requirements of dissertations (Cotner, Intrator, Kelemen, & Sato, 2000). In this way, a faculty member supervises the student in early phases of her development as a researcher and scholar. Although online professional psychology programs often require courses in statistics and research design, there are few opportunities for online students to conduct research alongside a faculty mentor. Of these online programs in psychology, Walden University, Capella University and Fielding provide limited opportunities; Fielding is the only online program with a formal research requirement (personal communication, Fielding University Registrar).

What do online research apprenticeship experiences look like? How do they help graduate students in psychology transition into scholar-practitioners (Gelso, 1993)? There are currently very few ways for graduate students in online programs in professional psychology to participate in faculty research as graduate assistants. Initiated by the first author, then a faculty member at Walden University, the goal of the Online Research Lab was to implement a hands-on research experience utilizing the principles of Cognitive Apprenticeship Theory. The unique characteristics of a cognitive apprenticeship in an asynchronous, online learning environment are reflected both in the implementation of the Lab and in student perceptions of the learning experience.

**THE COGNITIVE APPRENTICESHIP MODEL**

Cognitive apprenticeship was the guiding theoretical framework used to evaluate the Lab design and pedagogy, as well as analysis of student outcomes (Collins, Brown & Newman, 1989). Apprenticeships, in the traditional sense, are an opportunity for the novice to acquire a skill by working alongside an expert in his or her work environment. Apprenticeships have occurred in many domains, ranging from apprentices in building trades, to interns in law firms, to artisans (Williams, 1992). In traditional apprenticeships, the expert models a skill, not in a formal classroom but within his or her own workplace, office, or laboratory. What each apprenticeship has in common is the “real world” context, or situated learning, in which the skill is developed (Brown, Collins, & Duguid, 1989). Cognitive apprenticeship is an effort to combine the best of the classroom experience with the hands-on learning opportunities of apprenticeship (Collins et al., 1989).

Collins et al. (1989) established the framework of cognitive apprenticeship using four components: a) Content (domain knowledge and heuristics); b) Method (pedagogy); c) Sequence (how activities are ordered); and d) Sociology (community of practice, collaboration, and motivation). Each of these components contributes to the efficacy of a cognitive apprenticeship. It should be noted, however, that components are often interrelated. For example, the content of instruction (how to conduct a statistical test or develop a research question) affects how the instructor provides guidance (by walking students through the steps or proposing questions and asking for critique) and the sequencing of material (research questions are usually formed before running statistical analysis). Further discussion of each of these components is provided below.

**Content**

Within the cognitive apprenticeship model, “Content” refers to the domain knowledge and decision making heuristics shared between the mentor and the student (Collins et al., 1989). As a result, course content consists not only of facts and figures, but also of the decision-making strategies used in professional practice (Collins et al., 1989). This is particularly relevant to students learning research skills that will later be used as part of their role as a psychologist. Domain knowledge provides the building blocks for later independent practice. Once the student has an understanding of the facts and typical tools that experts use for handling different...
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