The Right Kind Of Telling:
An Analysis of Feedback and Learning in a Journalism Epistemic Game

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ABSTRACT

Epistemic network analysis provides a useful method for measuring the development of meaningful skills and ways of thinking for participants in epistemic games. This study compares the development of an epistemic frame in a journalism epistemic game, science.net, a role-playing game modeled on authentic journalism practice in which students take on the role of journalists and interact with fellow students and mentors, with a professional journalism practicum. Analyzing the discourse produced by both the game and the practicum through epistemic network analysis (ENA) shows how the virtual internship produced the same type of mentor feedback as the professional practicum on which it was modeled. Players also were able to learn different aspects of journalistic professional expertise as a result of playing the game, and these learning gains continued to be present months after the game was over. Participants in both the simulation and practicum demonstrated significant increases in journalism performance as measured through ENA. Epistemic games, like science.net, have the potential to reproduce key training practices of professional experiences and develop the components of epistemic frames of particular communities. ENA is a valuable tool for assessing the ability of epistemic games to produce these results.

Keywords: Educational Assessment, Epistemic Frame Theory, Epistemic Network Analysis, Journalism Practicum, Simulation Learning

THE CHALLENGE OF LEARNING AND ASSESSING 21ST-CENTURY SKILLS

The unprecedented pace of technological change and information production in the 21st century presents numerous challenges. Meaningful participation at work and in the community increasingly demands interdependent skills in critical thinking, information literacy, complex problem solving, and other competencies. Though long considered important, these abilities are now often termed *21st century skills*. There is growing concern that 20th-century theories of learning and cognition, which often focused on the acquisition of basic facts and skills, are leaving increasing numbers of young people unprepared for the future (Shaffer et al., 2005; Gee & Shaffer, 2010; Dede, 2007; Silva, 2008; Partnership, 2010).

This study examines a 21st-century theory of learning and cognition that considers not only the possession of basic knowledge and skills but also the connections among knowledge, skills, values, and the ways that people make decisions and justify actions in the context of complex, real-world problem solving. Epistemic frame theory (EFT) (Shaffer, 2006, 2007) suggests that expertise, such as the kind involved in complex thinking and problem solving, fundamentally involves connections among different forms of knowing (Broudy, 1977), being, and acting, and these connections are informed by the norms and principles of a particular community of practice (Lave & Wenger, 1991), a group of people with a common approach to framing, investigating, and solving problems.

For example, EFT suggests that "thinking as a journalist" means more than simply possessing knowledge and skills from the journalism domain. It involves acting as a journalist, understanding what matters to journalists, and understanding journalism content and practices. These skills, values, and understandings are made possible by looking at the world in a particular way—by making decisions and justifying actions as a journalist does. The same is true for other domains, but with a different way of thinking. If a community of practice is a group with a local culture—what Gee (1989) describes as a Discourse, "[a] way of being in the world…forms of life which integrate words, acts, values, beliefs, attitudes and social identities" (p. 6-7)—then the epistemic frame of the community is the grammar of that culture (Shaffer, 2010). In other words, an epistemic frame is a shared perspective that individuals internalize as they become enculturated into a community of practice.

EFT proposes that the characteristics of journalists' thinking are denoted by specific patterns of connections among the knowledge, skills, values, identity, and ways of making decisions (the epistemic frame elements) that characterize authentic journalism practice. In other words, realistic journalism practice is characterized not by a collection of isolated elements but by a network of them, an epistemic frame, that makes the individual elements meaningful, actionable, and persistent. The associations that a person makes among elements in an epistemic frame can be modeled with epistemic network analysis (ENA) (Nash & Shaffer, 2013; Rupp et al, 2010; Rupp, Sweet, & Choi, 2010; Shaffer, 2014; Shaffer et al, 2009; Shaffer & Gee, 2012) a psychometric tool that can assess evidence from student participation in virtual internships to characterize how they think while solving a complex design problem. ENA creates a network model in which the nodes of the network represent the key components from a domain. The links between these nodes quantify how often a person has made connections between these elements at some point in time. In this way, ENA models the development over time of an individual's epistemic frame and, in turn, quantifies and assesses their ability to think and work like professionals.

This study investigates the use of ENA for assessing epistemic frame development in student game players. The context for this investigation is *science.net*, a computer-supported role-playing game in which young people assume the role of reporters-in-training, and educational researchers assume the role of mentor editors in a simulated professional journalism practicum. In the game, players engage in story production stages modeled on professional practice—from pitching ideas to interviewing experts and writing stories to being published on the game's website. Mentor editors also engage in activity modeled on the practicum, providing copyediting feedback and helping students reflect on what works (and what does not) and why in players' stories. Through iterative cycles of this player and mentor activity, the game is designed to help players begin to think like professional journalists.

This context is ideal for examining whether ENA can characterize and measure the development of an epistemic frame. This study uses ENA to:

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