

Interaction in Distance Learning

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INTRODUCTION

Interaction refers to the exchange of information between and among individuals in a distance learning (DL) environment, encompassing exchanges for students, instructors, and technology staff. Research has begun to distinguish between interactivity (provided by technology) and interaction (the behaviors among the humans), with the former making the latter possible (Roblyer & Ekhaml, 2000). One assumption about interactivity is that it is beneficial to learning (Sims, 2003) although its impact is complex due to variable factors such as maturity of the technology, learning curve for the technology, response time to messages or exchanges, group composition, and so forth. In fact, it is suggested that high levels of interactivity may create cognitive stress for some students (van Merriënboer & Ayres, 2005).

BACKGROUND

Identifying interaction within a DL course, Bouhnik and Marcus (2006) suggested the main areas of interaction with content, with student peers, with instructor, and with the learning system itself (for example, an Internet interface such as a learning management system). Another model is to distinguish interaction by type: academic, collaborative, and social (Jung, Choi, Lim, & Leem, 2002). Increasingly, we see blending across these types, such as in gathering spaces like Second Life, a virtual environment in which participants are represented by avatars (computer representations of themselves). A common dichotomous model is based on time of interaction: synchronous (same time) and asynchronous (different time). Little agreement exists on how best to categorize interaction although a growing trend is to recognize the learner's need for time and training for interaction with the technology as distinguished from learner interaction with the course's content knowledge.

As DL has proliferated at all levels of education, terminology has developed with some typical language appearing in applied research. As noted in the Introduction, some distinction is made between interaction and interactivity, and so sample terms are presented here. Across technologies and institutions, many terms are used to describe both.

Interaction

Interaction is best described by function of exchange. As these terms suggest, the language is highly related to pedagogy:

- Discussion
- Collaboration
- Cooperative exchange
- Peer-to-peer learning
- Interdependence
- Learning cell
- Dialogue
- Group work
- Peer review
- Feedback
- Teaming
- Mentoring

Interactivity

Interactivity is best described as methods for exchange. The common terminology is specific to the technology or the electronic medium. As such, we can expect to see an evolution in the terms as new technologies develop.

- Threaded discussion
- Public discussion board
- Chat (synchronous, live)
- Instant messaging (IM)
- One-on-one electronic mail (e-mail)
- One-to-one texting
- One-to-many computer and phone texting

- Private message in learning environment
- Group message in learning environment
- Social software (wiki, blog, etc.)
- Social networking (web, video, file exchange)
- Really Simple Syndication (RSS)
- Virtual environment chat/talk
- Desktop videoconferencing
- Web conferencing

INTERACTION AS ELEMENT OF DISTANCE LEARNING

State of Research

Interaction is routinely cited as a requirement for quality and effectiveness in distance learning (DL) (Cooper, 2003; Gunawardena & Zittle, 1997; Meyer, 2003; Moore, 1989; Whatley & Bell, 2003), but it is defined variously and is not often measured. Without consensual meaning and standard metrics, interaction nevertheless has become a primary consideration for review by accrediting bodies (Eaton, 2002) as well as course and program evaluators. General acceptance of the importance of interaction is reflected by best practices and evaluation standards articulated by Quality Matters (2005) and the Sloan Consortium (Moore, 2005) in the U.S. and in broader application of quality assurance standards by organizations such as the European Association of Distance Teaching Universities.

Documentation of interaction is slowly building (Roblyer & Ekhaml, 2000; Sunal, Sunal, Odell, & Sundberg, 2003), in part due to evidence countering long-standing assumptions that computer-mediated communication could not achieve the level of interaction and rapport that is typical of face-to-face communication. Recognition of social presence (ability to take part in an online community) as a predictor of learner satisfaction is one factor reported in the research (Anderson, Rourke, Garrison, & Archer, 2001) along with more cautious support that indicates not enough is known about how perceptions of interaction and learning relate to performance (Picciano, 2002).

Strategy to promote interaction has emerged as a dominant theme in research. Foundational activity such as instructor and student self-introductions (Gunawardena & Zittle, 1997; Roblyer & Ekhaml, 2000; Roblyer & Wiencke, 2003) stimulate interaction as do more content-related activity such as discussion

of extended materials (beyond course readings), new issues, student-generated questions for class consideration, and facilitation by the instructor (Muirhead, 2000). In addition to student interactions with others, the availability of additional support resources increases student satisfaction in distance learning (Atan, Rahman, & Idrus, 2004).

Instructor-Student Interaction

Instructor-student interaction enhances the effectiveness of online learning more than does student-to-student interaction (Marks, Sibley, & Arabaugh, 2005; Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2005) and also increases student satisfaction (Northrup, 2002; Wise, Change, & Duffy, 2004). Interaction between student and instructor is highly valued by students and is typically identified by them as the most important factor for learning (Fredericksen, Pickett, Pelz, Swan, & Shea, 2000). Further research supports the link between teacher-student interaction and students' perception of both learning and satisfaction (Shea, Fredericksen, Pickett, Pelz, & Swan, 2001; Shea, Swan, Fredericksen, & Pickett, 2002). When the instructor has high presence, higher level learning is achieved (Garrison & Cleveland-Innes, 2005). But the setting of a course may be important: instructors' summarizing of online discussions may not produce effective learning in constructivist settings (Burge, Laroque, & Boak, 2000). Type of interaction and type of educational context may be crucial to understanding what produces best results in DL.

Anecdotal reports on distance learning identify direct contact with the instructor as students' preferred method for clarifying course assignments. This purpose of interaction is the most tedious for instructors and one of the first tasks to be unbundled to assistants or technology staff. Unbundling, the process by which DL instructors hand off certain tasks to support personnel such as teaching assistants, is a growing trend in DL (Howell, Williams, & Lindsay, 2003) but may have negative outcomes in terms of student satisfaction. Interaction between student and assistant is valued by some students, but ranks below interaction with instructor. Interaction about course logistics may be key to student satisfaction in DL and have an indirect effect on student learning. Research into exchanges of this type may help sort out the multiple factors that

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