Dialogue: a theoretical framework for distance education instructional systems

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Abstract

This paper presents a theoretical framework for viewing elements that comprise distance education instructional systems in terms of dialogue. It is assumed that learning is mediated by intrapersonal dialogue and facilitated by interpersonal dialogue. Every resource in a distance education instructional system (eg, instructor availability, asynchronous communication networks, self-instruction texts, etc) is analysed in terms of the dialogue mode it supports. The framework offers three advantages: (1) a unified, simple, and coherent description of the mechanisms at play in distance education systems, (2) clear-cut operational definitions, and (3) hypotheses that may be investigated empirically.

Introduction

The importance of theory to a discipline can hardly be overemphasised. Garrison (2000, p. 1) wrote: "Theoretical frameworks and models are essential to the long-term credibility and viability of a field of practice." Perraton (2000, p. 10) wrote: "...unless research is grounded in theory, it cannot be much more than data gathering." The existence of theory, or a theoretical framework, makes it possible to explain phenomena, to generate hypotheses, to frame questions, and to test them empirically. The goal of educational theory may be to increase understanding of human behaviour and/or to enhance practice. Regarding the latter goal, Lewin (1951, p. 169) pointed out: "There is nothing so practical as a good theory."

This paper presents a theoretical framework for viewing elements of distance education instructional systems in terms of dialogue. Every element is viewed as a dialogue or as

a resource that supports dialogue. The key element is *learning*—not teaching, not the learner, not the instructor, and not the physical or temporal distance separating them.

Part I presents the theoretical framework—its underlying assumptions, a schematic overview, and definitions of basic constructs and the relations amongst them. Along with the desire to achieve rigour and parsimony, examples are included to enhance clarity. Part II is commentary. Here, three issues are discussed: (1) the centrality of dialogue in the teaching/learning process, (2) the perspective afforded by the framework, and (3) its usefulness, especially in terms of research agenda.

Part I: the theoretical framework
Assumptions
Five basic assumptions underlie the framework:
1. Learning is an individual activity characterised by internal mental processes.
2. Learning is *mediated* by intrapersonal dialogue.
3. Learning is *facilitated* by interpersonal dialogue.
4. Dialogue is enabled by structural and human resources.
5. Dialogue and learning outcomes are correlated.

Schematic overview
Figure 1 presents the framework's basic constructs and the relations amongst them.
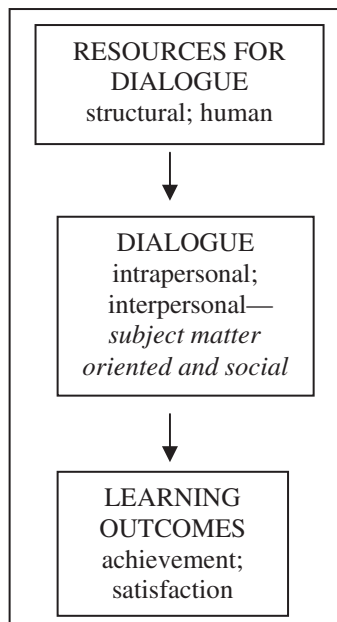

Figure 1: A theoretical framework of dialogue for distance education systems

Basic constructs: definitions and relationships
Dialogue
The framework recognises two categories of dialogue: intrapersonal and interpersonal. In addition, two subcategories of interpersonal dialogue are defined: social and subject matter oriented.

1. Learning is mediated by intrapersonal dialogue; this dialogue type is an all-inclusive term for the mental processes engaged in by students as they purposefully try to learn. In other words, when students read self-instruction texts, listen to lectures or audio tapes, view educational films, solve problems, manipulate computer simulations, they are said to be engaged in intrapersonal dialogue. Furthermore, the physical presence of instructional materials is not a prerequisite condition for such dialogue to occur; for example, a student walking alone or jogging *and* thinking about subject matter is engaged in intrapersonal dialogue.

    The mental processes of intrapersonal dialogue have been described in many ways. Some examples are: "assimilation" and "accommodation" (Piaget, 1970), "accretion," "structuring," and "tuning" (Rumelhart & Norman, 1978), "intra-psychological processes" (Vygotsky, 1978), or an "an internal didactic conversation" (Holmberg, 1989). Whatever the labels attached to these processes, they are relevant to the framework at hand only in so far as they contribute to the design of structural and human resources.

    The most significant element of intrapersonal dialogue is the individual learner, not the structural resources described below. Each learner, at any given time, is characterised by a constellation of variables that include, amongst others, his or her goals for the course, prior knowledge, motivation, intelligence, and anxiety. These variables determine the extent of intrapersonal dialogue that occurs and, to a large degree, its quality and effectiveness.

2. Interpersonal dialogue, both social and subject matter oriented, *facilitates* learning (Bruner, 1966; Buber, 1965; Dewey, 1916; Freire, 1972; Rogers, 1969; Vygotsky, 1978). We begin with a structural definition of interpersonal dialogue:
    • Dialogue is a message loop; it may be instructor–student–instructor *or* student–instructor–student *or* student A–student B–student A.
    • Dialogue has two distinct classes of outputs: social and subject matter oriented.
    • Messages in a dialogue are mutually coherent.

Dialogue may be face-to-face or mediated by communications media; if mediated by media, it may be synchronous or asynchronous.

a. *Interpersonal social dialogue* is defined as a discursive relationship in which participants project themselves socially and emotionally. Every interaction that meets the structural criteria of dialogue cited above is, first and foremost, social dialogue. Garrison and Anderson (2003) have pointed out that social presence, created by social dialogue, is essential to a community of inquiry that, in turn, is central to a higher education learning experience. Social dialogue may be investigated through qualitative and quantitative research procedures.

Interpersonal *subject-matter oriented* dialogue, discussed below, is a subset of interpersonal *social* dialogue. That is, all subject-matter oriented dialogue is social; however, not all social dialogue is subject-matter oriented.

b. *Interpersonal subject-matter oriented dialogue* is defined as a discursive relationship between two participants characterised by thought-provoking activities, such as hypothesising, questioning, interpreting, explaining, evaluating, and rethinking issues or problems at hand. Subject-matter oriented dialogue is said to have occurred if one or more of the activities listed above is manifested in an interaction. This is a judgment based on analysis of qualitative data from sources such as observations, interviews and questionnaires.

Interpersonal subject-matter oriented dialogue is not a monolithic variable. Burbules (1993) cited four different kinds of dialogical engagement: inquiry, conversation, instruction, and debate. These dialogue forms do not provide an exhaustive typology; other typologies may use different distinction criteria. One further point is very noteworthy: Dialogue may be directed *intentionally* towards achieving various instructional goals (eg, increasing learner understanding or sharpening learners' analytical skills or for evaluation purposes), *or* dialogue may have no specific instructional intent; that is, although subject matter oriented, neither participant presumes to "instruct" the other. Whatever the form and intent of subject-matter oriented dialogue, its impact on learning outcomes may be investigated empirically by qualitative and quantitative research procedures.

Resources for dialogue

Two categories of resources—structural and human—support dialogue and make it possible.

1. Structural resources for intrapersonal dialogue include all instructional materials that students may learn from. Examples include self-instruction texts, television and radio programs, web-based instructional systems, lectures presented through audio and video cassettes, computer-based simulations, and tutorials.

Three structural resources support interpersonal dialogue and have a significant effect upon it: instructional design (Anderson & Garrison, 1995; Clark, 1983; Draper *et al*, 1994), group size (Caspi, Gorsky & Chajut, 2003; Chen & Willits, 1998), and accessibility of students and instructors (Chen, 2001a,b; Gorsky, Caspi & Tuvi-Arad, 2004; Gorsky, Caspi & Trumper, 2004). The cumulative effect of these resources is to determine a potential, an upper limit of interpersonal dialogue that may occur in a distance education system. This cumulative effect is defined as the variable "*potential dialogue*". At present, it may be estimated prior to the start of a programme or course; eventually, through empirical research, it may be quantified to higher degrees of precision. Other structural resources may influence potential dialogue; however, so far as known, their impact, if any, is minimal or yet to be studied.

Two values of potential dialogue, one for each dialogue type (instructor–student, student–student), may be estimated or measured for any given instructional system. To illustrate the impact of these variables on potential dialogue, Table 1 presents some extreme examples.

Table 1: Effect of structural resources on interpersonal potential dialogue

Instructor–student potential dialogue		
Structural resource	*Low potential*	*High potential*
instructional design	recorded lecture	"live" Q&A and discussion
group size	500 students/group	5 students/group
instructor accessibility	1 hour per month	24 hours/day; 7 days/week
Student–student potential dialogue		
Structural resource	*Low potential*	*High potential*
instructional design	individual assignments	collaborative Problem Based Learning
group size	5 students/group	500 students/group
student accessibility	students' email addresses and phone numbers are not available; no web-based media of any kind	students' email addresses and phone numbers are given, plus web-based synchronous and asynchronous forums

2. Instructors and students are the human resources that initiate and sustain inter-personal dialogue. They act within constraints imposed by the structural resources. Instructors, characterised by personality traits and facilitation skills, play a critical role in creating and maintaining dialogue, both in traditional and in distance education programs (eg, Bruner, 1966; Moore, 1993; Rogers, 1969). The student, characterised primarily by the need to overcome some specific conceptual difficulty or to solve a specific problem or exercise (Gorsky, Caspi & Tuvi-Arad, 2004; Gorsky, Caspi & Trumper, 2004) and by "autonomy" (Moore, 1993) will participate in interpersonal dialogue to greater or lesser degrees.

Learning outcomes
Two learning outcomes—achievement and satisfaction—are included in the framework. It is hypothesised that dialogue correlates in a significant and meaningful way with these outcomes. Sometimes the use of dialogue increases student understanding and/or satisfaction, other times not. Burbules (1993) has shown that although some dialogues may serve educational purposes, others have deleterious and anti-educational effects. The relationship between "dialogue" and "learning outcomes" may be investigated empirically.

Part II: commentary
On dialogue
Since Socrates, dialogue has generally been assigned a fundamental position in western views of education. It has been viewed from both philosophical and pedagogical approaches. Philosophical approaches to interpersonal instructional dialogue tend to emphasise either its epistemological advantages in the pursuit of knowledge and understanding (Socrates and Plato), or its moral and political foundations based on egalitarianism and mutual respect (Bruner, 1966; Buber, 1965; Dewey, 1916; Freire, 1972;

Rogers, 1969). For example, regarding the moral aspects of educational dialogue, Martin Buber (1965) wrote: "…the basic movement of genuine dialogue, and thus of education itself, is a truly reciprocal conversation in which teacher and students are full partners" (p. 184). According to Buber, the relationship between teacher and students is based on honesty, equality, openness and mutual respect. Genuine dialogue is not located *within* any one of the participants, but rather is found in their "betweeness," in what Buber calls the reality of the "interhuman" (p. 184). Jerome Bruner and Carl Rogers also emphasise the importance and necessity of dialogue between teacher and student. Bruner (1966) wrote that instructor and student should engage in an active dialogue (ie, Socratic learning). He contended that the task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding. Rogers (1969) discussed the centrality of the interpersonal relationship in the facilitation of learning alongside the need to provide freedom in educational environments.

The problem with such philosophical approaches to dialogue, however, is that they are highly idealised and prescriptive. They tell us how people *should* relate to each other and what outcomes *should* result from dialogue. They tell us little about what real dialogues look like and how they work, or fail to work, in real situated learning environments. Such philosophical approaches are biased a priori towards an anti-empirical approach to the study of dialogue.

On the other hand, pedagogical viewpoints of interpersonal dialogue, such as proposed in this theoretical framework, tend to emphasise actual discursive practices. That is, different kinds of dialogues are defined, each with its own educational objective grounded in theory. Some dialogues converge towards predetermined answers and conclusions (instructivism) whilst others are open and divergent (constructivism); some are friendly, some antagonistic. All, however, are dialogues and all are generally recognisable as such. They may be investigated empirically and correlated with learning outcomes.

Using the framework to analyse distance education instructional systems
As an analytical tool, elements of distance education systems may be viewed in terms of dialogues and supporting resources. Discursive activities amongst instructors and students are viewed as interpersonal dialogue (subject matter oriented or social) whilst individual study is intrapersonal dialogue. Resources may be viewed as supporting one or both dialogue modes. This compact frame of reference imposes an order on the wide variety of seemingly unrelated variables that comprise distance education systems. Illustrations follow:

1. A student reads a self-instruction text. The text is a structural resource that enables intrapersonal dialogue.
2. Student X seeks help in solving an assigned exercise by posting a message in an asynchronous discussion group. Student Y responds and helps. The discussion group is a structural resource that enables interpersonal dialogue, both subject

matter oriented and social. A subject matter-oriented dialogue occurred between Students X and Y.

3. A student calls another student on the telephone. They discuss the weather and make plans to meet at a pub. Having telephone numbers of fellow students is a structural resource for interpersonal dialogue whilst the fellow student is, of course, a human resource. In this case, they engaged in social dialogue.

4. Assume a face-to-face tutorial session led by an instructor who encouraged discussion and question asking. The tutorial is a structural resource that enables *both* intrapersonal and interpersonal dialogue.
   - Student X attended and listened attentively, but did not actively participate. This student utilised the resource for intrapersonal dialogue only; he chose not to utilise the human resources, instructor and fellow students, for direct interpersonal dialogue.
   - Student Y attended the same tutorial and, in addition to listening attentively, also asked the instructor several questions which were answered to her satisfaction. This student utilised the resource for *both* intrapersonal and interpersonal dialogue.

5. An instructor lectures and there is no accompanying question and answer for discussion. The lecture is a structural resource that enables intrapersonal dialogue. The verbal presentation is equivalent to a video cassette or a written printout of the lecture.

The next step is to seek advantages afforded by this analytical approach. This will be carried out by viewing research agendas and activities.

Using the framework to define a research agenda
Research endeavours in the field of distance education may be grounded in the proposed theoretical framework of dialogue. In other words, the framework enables much of the existing empirical research, as well as future research, to be placed in a unified, simplified, and coherent frame of reference centred on *learning*, mediated and facilitated by dialogue which, in turn, is enabled by structural and human resources. Some typical research questions, framed in the framework's terminology, follow:

- How do different discursive practices, say inquiry, facilitate or retard students' abilities to make conceptual changes?
- When and for whom is a certain interpersonal dialogue type, say debate, effective?
- What kinds of interpersonal dialogue best support instructivist pedagogy?
- How does collaborative problem-based learning (interpersonal subject matter oriented and social dialogue) affect students' perceived satisfaction with the course?
- What kinds of dialogue (inquiry, conversation, instruction, and debate) best support constructivist pedagogy and under what circumstances?
- How does a teacher's background knowledge of content prepare him or her for facilitating dialogue?
- What happens to dialogue when no one apparently leads?
- Assuming that "communities of inquiry" may be identified, what are the ratios between social and subject matter-oriented dialogues?

The research questions are not new; what may be innovative, however, is the theoretical framework which establishes well-defined operational definitions for variables and clear-cut relations amongst them.

One concluding comment

It appears that the framework of dialogue, designed initially to describe distance education instructional systems, may also be useful for investigating traditional, campus-based instructional systems.

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