

Transactional Distance Theory Applied When Designing International Accounting Online Courses

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Abstract

Teaching online is a growing phenomenon. Distance education via online is expected to grow exponentially. Current research indicates a lack of a conceptual framework for accounting via online education. This paper develops and applies a conceptual framework based on transactional theory to the design of online international accounting courses. The factors considered include dialogue, structure, autonomy, learning theory, technology, and pedagogical strategy. Application of the framework to international accounting is discussed. This framework creates an awareness describing varying levels of teacher-student interaction. It serves as a practical foundation for future development and improvement of accounting courses.

Introduction

Research findings suggest that there is no difference in student performance between face-to-face and distance learning (Ryan, 2000). Distance learning has been and still is often referred to as distance education, distributed learning, online learning, e-learning, and/or web-based instruction. The Institute for Higher Education Policy (1999) identified several research areas that require further investigation in this pedagogical approach.

Among the areas that need further examination are differences among students, the different learning styles of students, and the development of a theoretical or conceptual framework (Ibid.). Bryant, Kahle and Schafer (2005) completed a review of distance education literature. They found that “[d]ue to technological advances, growing college populations, shrinking accounting faculty numbers, and changing student profiles, the growth in distance

education is expected to continue,” which resulted in confirmation that there is “... a dearth of both empirical and descriptive accounting-based research” regarding online education.” (p. 256). This article was motivated by this need for accounting-based research.

This article applies the transactional distance theory (TDT) to international accounting courses developed and taught online. Separate from a framework such as TDT, researchers (e.g., Wheaton, Stein, Calvin, Overtoom, and Wanstreet, 2003) concludes that “... regardless of learning orientation or educational philosophy, most students are flexible and appear to eventually adapted well to the online environment” (Ibid.). Research did find that “... structure and adequate interaction do lead to greater learning, and it is structure that is most important.” (Ibid.) This article focuses on this learning structure.

This article applies a structure using a conceptual framework based on TDT for accounting online learning. This article reports results based upon developing international accounting courses using two different learning platforms (i.e., WebCT and eCollege). The article is organized and presented in the following order: the research premise, transactional distance theory, learners’ learning models, and associated technologies.

Research Premise

The research was built on the premise that the good principles for online courses, similar to face-to-face course, should embrace the following (Chickering and Gamson, 1983):

Encourage student-faculty contact,

Encourage cooperation among students,

Encourage active learning,

Give prompt feedback,

Emphasize time on task,

Communicate high expectations, and

Respect diverse talents and ways of learning.

Under this premise, online courses are designed to encourage interactivity between and among students and faculty. Other principles applied include cooperation, active learning, structured assignment deadlines, and flexible

learning styles. Transactional distance theory is discussed next.

Transactional Distance Theory

In order to achieve required interactivity, Moore's (2002) transactional distance theory (TDT) was applied in the development and delivery of these online international accounting courses. Transactional distance pertains to the separation of the teacher and the learner. This physical or geographic separation along with time differences could give rise to differences between the teacher and learner regarding understanding and pedagogical perceptions. The separation is more on the psychological separation related to the gap in understanding and meaning. According to Moore (2002), there are three essential variables when learners and instructors are separated by space and/or by time:

- A. Interaction between learners and teachers (or dialogue),
- B. Structure of instructional programs (or structure),
- C. Self-directedness of the learner (or learner autonomy).

Interaction or dialogue provides motivation, feedback, and dialogue between teacher and student. The interaction offers the opportunity for both the instructor and the learner to express thoughts, feelings or reactions. The structure variable pertains to the interaction between learner and content of the course. These two variables are qualitative. Dialogue is determined by the content of the course, the nature of the communications media being employed, the philosophy and emotional characteristics of teachers, the personalities of learners. Structure, on the other hand, pertains to the design of the course that describes learning objectives, teaching strategies, and evaluation methods. The combination of dialogue and structure produces different transactional distances.

The learner autonomy means the extent to which in the teaching/learning the learner determines the relationship. When the structure of the course content is high, the dialogue in a program decreases and results in a high transaction distance. Since the course content provides detailed, objective guidance, the frequency of dialogue decreases giving rise to a high transaction distance. This necessitates the learner to exercise more autonomy on making judgments and decisions. The autonomy of the learner is low when the transaction distance is low. This happens where there is high dialogue and less course structure. Hence, "if the learner needs more direct instruction, structure and transactional distance both increase." (Saba, 2003, 13).

Moore (2002) argues that the dialogue between learner-instructor inter-action is a crucial component that facilitates the other two and creates an effective learning environment. He also alludes that dialogue can interfere with learning (Ibid.). Unlike face-to-face (Onsite), online communication lacks facial cues. While online instructors are encouraged to provide prompt feedback, the instructor is not certain about the effectiveness of the prompt feedback. To some students, contrary to the good intent of the instructor to stimulate student thinking, a high level of feedback could be interpreted as negative feedback (Dillon and Greene, 2003, 241).

Using Moore's (2002) TDT, learners who have not learned to make effective decisions about their approaches to learning could be presumed to benefit from more structure and more dialogue. Likewise, learners who are autonomous learners will require less structure and less dialogue. How does one capture the student's reaction? Despite the advancement in technology, there is no facility to provide instant feedback one has in a traditional classroom. However, the online classroom or platform does create a record or archive of student reactions. The instructor has the opportunity to review and re-review interaction in discussions to determine possible improvements to the teaching/learning process. The learner-instructor interaction needs to be assessed to determine which learners will thrive or struggle in an online environment. Hence, the learner-instructor interaction should be designed not just to communicate the course content but also to help the learners understand how they learn.

Figure 1
Interrelationship between the Dialogue and Structure Variables

<u>Dialogue</u>	<u>Structure</u>
High	Low
Low	High

As summarized in Figure 1, the structure is relatively low whereas the dialogue is high when promoting active learning. Course content and learning models influence these two variables. Understanding how students learn enhances the quality of dialogue between instructors and learners and structure of the course. The next section will discuss the following theories of learning: constructivist, collaborative, cognitive information processing, and socio-cultural.

Learning Models

Students in online or traditional face-to-face learning fit in different learning models. Four prominent models are presented next. They are as follow: constructivist model, cooperative model, cognitive information

processing model, and socio-cultural model.

Constructivist Model. Under this model, students are assumed to learn better when they are forced to discover things themselves and when they control the pace of learning. Learning is a process of constructing knowledge by the learner. The goals of learning include formation of abstract concepts to represent reality and assigning meaning to events and information. Students must have the experience with “hypothesizing and predicting, manipulating objects, posing questions, and inventing, in order for knowledge construction to occur” (Leidner and Jarvenpaa, 1995, 268). The role of instructor is supportive. The instructor is being the creative mediator of the process for a learner-centered learning.

Collaborative Learning Model. This model assumes learning occurs through interaction of individuals with other individuals. It is communication oriented and involvement is critical to learning. Through discussion and information sharing with peers, students improve reasoning, and communication and listening skills. The instruction is communication oriented and the instructor serves as a questioner and discussion leader.

Cognitive Information-Processing Model. This model proposes that learning is the processing and transfer of new knowledge into long-term memory. This model suggests that individualized instruction is required since learners have different preferred learning styles. Given a learner’s limited information processing capacity, learners have limited selective attention. Direct-attention methods such as topic outlines and learning goals could improve learning. This model also assumes “prior knowledge affects level of instructional support needed” (Ibid. 270). The support from the instructor is inversely related to the “depth of existing knowledge as well as to the effectiveness of the learning’s information processing style (Ibid.).

Socio-cultural Learning Model. This model believes that “knowledge cannot be divorced from the historical and cultural background of the learner” (Ibid. 269). Historical and cultural background of the learner is important to learning. Learning is subjective and individualistic. Learning occurs best in environments where learners are familiar. Advocates of this model assert, “Anglos have distorted knowledge and framed information in their own terms” (Ibid.)

In summary, both constructivism and socio-culturism assume that the learner must be in control of learning. The difference between the two is on the process of learning. Constructivism believes that learning is the creation of

new knowledge and “that the realism of the context for learning needs to be high” (Ibid. p. 271). Socio-culturalism asserts that the interpretation of knowledge by the learner constitutes learning, and that learning “best occurs in the context in which it will be used” (Ibid. 271). Collaborativism extends constructivism by assuming that the peer group should be in control of learning, which is the sharing of knowledge via communication and collaborating. The cognitive information processing differs from constructivism in “emphasizing that learning is the formation of abstract concepts to present reality and the context need not necessarily be high in order for such abstraction to occur” (Ibid. 271).

Structure and Communication Media

“Structure is determined by the actual design of the course, the organization of the instruction, and the use of various media of communications” (Moore, 2002). The structure of the media determines transactional distance. The interactive nature of the communication media is the “major determinant of dialogue in the teaching-learning environment”. A highly structured medium generates no or little dialogue and inputs from learners. On the other hand, less structured medium promotes dialogue and a wide range of alternative responses to students’ questions. The latter increases teacher-learner interactivity. There are various media in today’s advanced technology that are less structured to promote dialogue. Technology establishes the relationship between instructors and students (Gibson, 2003, 155). As technology changes the way students learn, the next section links the learning models with communication media applied in education.

Electronic mail (email). This is a two-way interaction between the learner and the instructor. An increase in this means of dialogue reduces the transactional distance. Learners can communicate to the instructors by sending assignments or asking questions when they arise. This technology is asynchronous, so feedback from the instructor is somewhat delayed. The instructor could also use this communication medium to solicit feedback regarding student comprehension of course material. Hence, this medium promotes the cognitive processing model of learning.

Electronic Bulletin Boards. Similar to email, this medium provides asynchronous communication across geographic distance. Dialogue between instructor and a number of students is enhanced. Instructor can efficiently post discussion questions, policies, announcements, solutions, and clarifications of key concepts to the whole class at one time. To promote dialogue, the questions posted by the instructor could be open-ended that encourage

students to use reasoning. Likewise, students can view discussions posted by peers and feedback from instructors transparently on the bulletin board. This medium promotes the cooperative model of learning in facilitating group discussions and feedback.

Synchronous Chats. Students who are less aggressive in a traditional classroom will benefit most by this medium in not sacrificing the opportunity to participate to the more vocal classmates. Students can communicate with each other simultaneously in a virtual classroom. Unlike email and bulletin boards, there are no delayed responses from the respondents. Like the bulletin board, this medium promotes the cooperative model of learning.

Learning Networks. These networks are comprised of networked computers with links to external or shared databases developed by instructors. Having this medium enables students to construct new knowledge from existing information sources, which comprise of company-specific databases. Examples of real-world data available from commercial providers include Lexis-Nexis, NYSE and AMEX daily returns. Hence, this medium supports the constructivist model of learning as well as the cognitive information-processing model of learning.

Hypermedia provides access to a plethora of information and resources. World Wide Web (WWW) is the most widely known hypermedia tool used by students as well as students for information seeking and analyses. Company data from countries around the world can be retrieved from the company's Internet homepage. This medium promotes the constructivist model and the cognitive information-processing model of learning. In fact, hypermedia has been considered to support active learning, because the learner is responsible for organizing and analyzing information.

Multimedia includes a combination of various media. Most technologies nowadays are multifunctional and are adaptable to different purposes of applications. Interactivity can be developed from the application of video tape, power-point animation instruction modules, spreadsheet analytical modules, note-taking tools, digital audio and video, and voice mail. In addition, real-time satellite programs, instructional television and video conferencing can be used as supplements to enhance learning. This medium is particularly suitable for the socio-cultural model as it provides the flexibility to accommodate participation by students in their own terms, without bias towards the interpretation of reality.

Having linked the communication media to the different learning models of learning enhances the dialogue. Dialogue can be increased by the manipulation of the communications media. Each of the communication media is

supported by “a kind of ‘virtual dialogue’, implemented by the person who in some distant place and time organized a set of information for transmission”(Mueller, 1997).

Application of Transactional Distance to International Accounting

The international accounting course is an online course in which the instructor and students are separated in space and time. Such a separation is bridged by communication technology afforded through the learning/teaching platforms or WebCT or eCollege. International accounting courses are intended to broaden student’s understanding of international accounting issues encountered by United States (US)-based firms operating in foreign counties. This includes US-based multinational companies using financing in global capital markets. The course covers topics such as an overview of international financial accounting standards, current problems of international financial reporting, foreign currency transactions and translation, comparative financial accounting practices, financial reporting and disclosure, transfer pricing risk management, and performance evaluation.

International accounting can be offered to both accounting and business majors in either undergraduate or graduate programs. Students have been oriented to understand that an online course requires them to be more self-motivated. The design of the course is geared towards autonomous students with more concentration on concepts and less on computation. Hence, consistent with the TDT, it is designed to be relatively less structure and more dialog than a traditional face-to-face accounting course. Nevertheless, the varying degrees of student autonomy are resolved by applying constructive teaching strategies. Online pedagogical strategy varies from promoting coaching to problem solving, as shown in Table 1. The next section discusses dialogue in the online learning/teaching platforms.

Dialogue

The WebCT and eCollege platforms facilitate interaction between instructor and students. The communication between the instructor and students includes the following: syllabus, case presentation schedule, lecture notes and slides, feedback, online discussions and email. Bonk and Dennen (2003) suggest that instructors motivate students by asking questions, eliciting reflection, summarizing discussions, offering constructive criticism, pushing to articulate ideas and explore resources, and providing explanations and elaboration where necessary (p. 339). The online-international accounting courses required dialogue among students in structured discussions. Structure is discussed next.

Structure

The course content structure varies to accommodate the varying strategies. The lecture notes with self-tests have a high structure. Most textbooks have online textbook support. This support usually includes online tests that the students can take any day at any time. The feedback is immediate. The online quizzes and exams can impact dialogue depending on how the instructor uses them. A designated discussion area can be set up for each chapter quiz where students can debate or expand on the questions and answers. In this way, dialogue is motivated and enhanced by the online support materials. If the online support does not provide self-grading quizzes or exams, then the instructor can build these into the course.

Whether the classroom is the traditional face-to-face situation or online, the learners will have to be self-motivated to make judgments and taking decisions about study strategies. The face-to-face or online weekly discussion questions can be low or high in structure. Most of the questions are open-ended to allow for a variety of perspectives or positions to be presented. Students are required to apply reasoning on critical thinking type of questions. Guidance needs to be clear about postings adding value and not be short statements of agreeing or disagreeing. The instructor should be expanding and directing the discussion to integrate prior course contents and to prepare the students for what will be covered in the remainder of the course and future courses plus on-the-job experiences. Students should be encouraged to learn from each other as well as the instructor. The design of the course incorporates the underlying principle of respecting diverse talents and ways of learning. Clear policies need to be articulated about online etiquette often referred to as netiquette. The following is a link to one of many web pages on this topic: <http://www.albion.com/netiquette/corerules.html>

Under WebCT and eCollege, all the necessary communication media discussed previously are available. While the course content and media as well as the different learning models of the students determine the dialogue variable, design of learning objectives, teaching strategy, and evaluation affect the structure variable. Special emphasis is placed on the interplay between dialogue and structure on teaching strategy. In essence, teaching strategy in the structure variable is contingent on the learning models and communication media. Table 1 maps the interrelationships among the three components.

Table 1

Mapping Teaching Strategies to Learning Models and Technologies as Used in the International Accounting Courses Developed and Taught Online

Teaching Strategy	Learning Model	Pertinent Technology	Examples of Application
Promote coaching	Cognitive information-Processing	Email, animated module	Response to student questions. Chapter topic outlines
Promote articulation	Collaborative	Electronic Bulletin Board, Synchronous chats	Weekly discussion questions
Promote reflection	Cognitive information-Processing, Constructivist	Learning networks, hypermedia	Research on project and case, individualized problems
Promote collaboration and social negotiation	Collaborative	Electronic Bulletin Board, Synchronous chats	Group project discussions
Promote multiple perspectives	Cognitive information-Processing, socio-cultural	Multimedia, hypermedia	Review of case presentations
Promote exploration	Constructivist	Hypermedia, multimedia	Research on project and case
Promote problem solving	Cognitive information-Processing, Constructivist, socio-cultural	Learning networks, hypermedia, multimedia	Individualized foreign currency translation problems, analyzing annual report

As shown in the table, interaction between instructor and students is effective if the pertinent teaching strategy with matching learning models is being applied in the structure of the course. Not all students will fit exclusively to one learning model. Nevertheless, having this framework constrains the instructor to be cognizant of the appropriate strategy to apply in achieving pedagogical effectiveness. For example, in order to promote collaboration and social negotiation, students are required to work in groups well balanced in ethnicity and GPA on a term project in analyzing a foreign company's annual report. They are forced to share information and workload. Students who enjoy teamwork will benefit most from this teaching strategy. Nevertheless, the instructor will have to solve some culturally based educational problems, as some learners may seize the opportunity to be free riders in such a setting. A special effort should be applied in an online course with respect to the different needs, different purposes, different learning styles, and ethnic diversity of the online audience.

In a nutshell, this course presentation is in two modes: outline form of lecture notes and PowerPoint presentations. It requires students to study the notes, submit weekly response to discussion question, review online case presentations, and work with their designated group on the term project. In addition, to promote active learning, they are required to present a case using PowerPoint to the rest of the class electronically, write a case solution, and solve an individualized foreign currency translation problem. From time to time, instructor will give

bonus questions pertinent to the topics for stimulation of application of concepts to quantitative problems.

To encourage students' time on task, weekly assignments are due on Saturday at midnight. The instructor follows giving prompt feedback by posting their grades by Monday 5 p.m. Case write-up and presentation are graded within a week after being reviewed by the class. To communicate high expectations, instructor provides exemplary online presentations and detailed guidelines for case review. Jargon, ambiguous or cute humor and acronyms are avoided to improve cross-cultural verbal communication.

The instructor serves as a facilitator or moderator asking questions, designing various instructional activities, summarizing discussions, eliciting reflection, motivating students to participate, and providing elaboration and explanation whenever students are not clear in their response. An elaborated clarification and highlight of the previous responses to the weekly discussion is posted at the beginning of the following week of discussion.

The instructor sets office hours, coordinates assignments with due dates, assigns groups and team members, posts weekly grades, and establishes policies for discussion, case evaluations, grading, and teamwork. The instructor needs to monitor the discussions to create a community feeling. Any harsh or unpleasant criticism surfacing during discussions warrants the instructor to intercede and reflect empathy and reestablish a friendly atmosphere. The instructor should refer students to "Netiquette" policies, which can be found on the Internet. However, the instructor may wish to personalize the policies and include them in the learning platform and/or the syllabus.

Conclusion

This study develops a conceptual framework for developing an online course on international accounting. In order to enhance active learning and interactivity, the transactional distance theory is being applied as a conceptual framework. By balancing the interplay between the two variables (i.e., dialogue and structure) of the transactional distance an effective distance education experience is created to fit the course purpose. Having teaching strategy developed after mapping the learning models and associated technology ensures that the pedagogy applied takes into consideration of the diversity of the online audience.

This framework creates an awareness describing varying levels of teacher-student interaction. As more experience is gained from this first online course development, additional frameworks and models may be developed to enhance the effectiveness on distance education. Future research could focus on the design of

assessment and/or evaluation instruments to measure the effectiveness online learning relative to this and other learning theories and/or frameworks.

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