A Classroom Research Study Concerning the Application of a Framework for Planning and Sequencing E-Learning Student Interactions

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Hirumi’s (2002) framework for planning and sequencing e-learning student interactions has two primary objectives. First, it is intended to help facilitators organize student interactions in an e-learning context and promote learning on identified course objectives. Second, the framework is offered as an instructional management device to limit excessive, unguided, and meaningless interactions. In this article, the authors report on their assessment of the framework and its capacity to accommodate critical student interactions in a graduate leadership curriculum delivered through hybrid e-learning technologies. Although Hirumi’s framework may limit unnecessary interactions, it does not allow for the kind of interactions required in graduate leadership development programs. The framework is also limited in its ability to accommodate certain learning theories such as social constructivism. These shortcomings may be remedied, however, by proposed modifications to the framework.
Whether in an academic or corporate setting, leadership development programs must provide a learning environment that supports attainment of professional competencies. Professional competencies are routinely developed in traditional classroom environments where students directly interact with their colleagues and facilitators. In this context, acquisition of leadership competencies is aided by the ability to observe visual and audio cues exhibited by others. The increasing use of distance or e-learning technologies, however, presents new challenges to leadership development facilitators. In this environment, students must learn without observing subtle behaviors revealed in face to face interaction. Although this challenge can sometimes be mitigated by explicit direction, a facilitator using e-learning technologies may end up on the horns of a dilemma.

If the instructor provides too much direction in a learning activity, students may not engage in significant social interaction because the “answer” can be cognitively discerned or deduced from the instructional resources. On the other hand, if too little direction is offered, two significant problems may arise. First, students may engage in pointless e-learning interactions delaying attainment of identified competencies. Second, the lack of direction may preclude learners from building on their past experience and developing new knowledge structures needed to support leadership competencies.

One way to address this dilemma is to use a conceptual framework for planning student interactions in an e-learning environment (where communications are primarily asynchronous and mediated by digital technologies). An appropriate framework must meet two conditions (Hirumi, 2002). First, it must limit excessive, unguided, and meaningless interactions. Second, the framework must be able to accommodate a variety of e-learning contexts and facilitator epistemologies (e.g., social constructivism). The purpose of this article is to report on an assessment of a specific framework used to plan student interactions in an academic leadership development program delivered through e-learning technologies.

The assessment was designed and produced using the principles of classroom research (Cross & Steadman, 1996). Accordingly, the study was designed and conducted by learners and the facilitator in a context specific setting, a graduate seminar in an academic leadership program. Initial responsibilities for the study were determined by classroom roles. The instructor assigned a case study to a student cohort and selected Hirumi’s (2002) framework to examine student interactions in the learning activity. The students completed the learning activity and presented their findings to the seminar. The subsequent assessment of the framework and interpretation of research findings, however, was made collaboratively.

The assessment of the framework is reported in the following manner. First, an overview of the framework (Hirumi, 2002) is presented together with its directives for planning and implementing student e-learning inter-
actions. Second, a description of the general competencies required by effective leaders in a specific higher education setting (the community college) is provided. Then, the learning activity used to examine the framework is described along with the incorporated specific competencies. Third, the learning environment for the subject leadership program is outlined along with a summary of the demands that student learning imposes on the organization of student interactions. Fourth, the findings from the study are reported. The assessment determined that as a general model, Hirumi's framework may succeed in guiding the planning of e-learning student interactions in certain instructional environments. But, it is not fully compatible with learning contexts used in leadership development training. The article concludes with recommendations explaining how Hirumi’s framework may be modified to guide student interaction in leadership programs using e-learning technologies. The authors realize that the professional competencies required of community college leaders are not identical with those required of leaders in other fields and businesses. But, the common challenges in delivering leadership training through e-learning technologies suggest that a suitable framework for organizing student interactions will benefit facilitators working in many professions.

HIRUMI’S STUDENT INTERACTION FRAMEWORK

The overriding purpose of Hirumi’s (2002) framework is to help facilitators plan effective and efficient student interactions in an e-learning environment. The framework enables facilitators to check and refine judgments about beneficial interactions that were previously justified in traditional learning environments by intuition and experience. Thus, Hirumi’s framework is intended to improve the quality of student interactions in e-learning settings and make them comparable to those experienced in traditional classroom settings.

Hirumi’s framework is grounded upon a three level analysis of student interactions in a distance learning setting. Once facilitators understand how interactions are classified under the framework, they can design and sequence student interactions to accomplish planned learning outcomes. Hirumi claimed the framework is independent of the designer’s theoretical assumptions about student learning (e.g., behaviorism, social constructivism, self-regulated learning theory). To be sure, instructors committed to different learning theories will vary in their application of the framework. But, in Hirumi’s view, the framework can be applied under a variety of theories.

Hirumi (2002) used three categories or levels to classify student interactions. The first category of interaction is “learner-self interaction” (p. 144). At this level, learners experience a series of cognitive operations as learning occurs. Hirumi acknowledged that this level of interaction is beyond the
speculation of behaviorists but, for other theorists, these interactions can be posited even if they are unable to observe them. For nonbehaviorists, learner-self interaction is important because once specific requisite cognitive operations can be projected, facilitators can identify and design learning activities that will lead to student learning.

The second category of interaction is, “learner-human interaction or learner-nonhuman interaction” (Hirumi, 2002, p. 144). At this level, instructors are prompted to identify and analyze the desired interactions that students might have with the instructor, other learners, and/or persons outside the formal class setting. Additionally, the framework calls for discerning nonhuman interactions that might occur when learners encounter content, the e-learning interface, and/or the learning environment.

The third level of interaction is identified as “learner-instruction” (Hirumi, 2002, p. 148). Here, interaction consists of a series of deliberately planned events necessary to achieve a set of specific learning objectives. In essence, a Level III interaction is an instructor’s e-learning strategy or, more specifically, a set of Level II interactions, “designed and sequenced to stimulate Level I interactions,” (Hirumi, p. 143). The e-learning strategy should be based on the facilitator’s synthesis of research, theory, and experience.

Hirumi (2002) held that an e-learning strategy should be applied in a six step process. First, the facilitator should identify essential experiences needed to achieve the learning objective. Then an instructional strategy should be selected in light of the objectives, desired learning experiences, selected learner characteristics, the facilitator’s learning theory, and the context. The third step in the process requires that the facilitator operationalize the learning experiences. Once the learning experiences are operationalized, the facilitator can qualify and quantify the Level II learner interactions (learner – human interactions and learner – content interactions) needed to support them. The fifth step in the process calls for the selection of appropriate telecommunication tools (e.g., e-mail, and bulletin board system). Finally, the sixth and last step prompts the facilitator to review and analyze the frequency and quality of e-learning interactions and, given these results, improve future versions of the activity.

Of course, Hirumi’s (2002) framework is not unique in the e-learning literature. Two considerations were central in leading the facilitator to select it for assessment in this study. First, although others have examined aspects of student interaction in e-learning contexts (Berge, 2002; McLoughlin, 2002; Northrup, 2001, 2002), Hirumi offered one of the more explicit and directive frameworks for facilitator planning and analysis. Second, Hirumi specifically identified and reviewed the kind of student interactions likely to occur in legal case studies. Both of these considerations made Hirumi’s framework a suitable subject of study in this e-learning context. The framework's clear explication contributed to its ready application and the author
affirmed the framework was specifically intended to support the kind of learning activity discussed next.

THE REQUISITE ABILITIES OF COMMUNITY COLLEGE LEADERS

The literature regarding the development of community college leaders has focused on leadership roles (Anderson, Murray, & Olivarez, Jr., 2002; McArthur, 2002), leadership competencies (Brown, Martinez, & Daniel, 2002; Townsend & Bassoppo-Moyo, 1997), leadership career paths (Amey, VanDerLinden, & Brown, 2002; Miller & Pope, 2003), and leadership development models and programs (Baker, 2002; Davies & Quick, 2001; Lovell, Crittenden, Stumpf, & Davis, 2003). An understanding of the research in each of these areas is required if facilitators are to successfully prepare individuals for leadership positions. But, facilitators teaching in an e-learning environment will have the greatest impact on student learning in formal coursework if they conceptualize leadership development as a process that leads to the acquisition of certain competencies.

In a national randomized survey of community college chief academic officers, Townsend and Bassoppo-Moyo (1997) found that effective community college leaders are recognized through professional competencies organized in four general domains; contextual, communication, interpersonal, and technical, (Townsend & Bassoppo-Moyo). Competency in the contextual domain is exhibited through an understanding of the educational, financial, and legal environments that affect delivery of instructional programs and services at the community college. Leaders demonstrating competency in the communication domain exhibit exceptional oral and written communication skills in traditional synchronous and computer mediated formats. Competency in the interpersonal domain is also essential for effective leadership. Community college leaders must be able to demonstrate advanced human relations skills, understand and believe in participatory management, know how to facilitate a group and build a team, and mediate and resolve interpersonal conflict. Finally, effective leaders must have technical competency in areas such as computer literacy, budgeting and finance, and human resource development and evaluation (Townsend & Bassoppo-Moyo).

In the setting for this study, a community college leadership Ph.D. program, development of competencies in these four domains was distributed throughout the curriculum. This ensured that students would have an opportunity to practice and develop leadership skills while studying a variety of course subjects (e.g., student development, finance). In each course, students were required to employ multiple perspectives to identify and prioritize problems and then propose possible solutions in a positive change process (Bolman & Deal, 2003; Kotter, 1996). This work was frequently organized around hypothetical case studies. Students were prompted to
develop and practice specific skills reflecting an understanding of institutional context, effective forms of communication, information technologies, and interpersonal relations.

THE LEARNING ENVIRONMENT IN A GRADUATE LEADERSHIP PROGRAM

The assessment of Hirumi's framework was conducted in the context of a cohort-based graduate, law of higher education seminar in the spring semester of 2003 at Colorado State University. The seminar was delivered using a hybrid e-learning format that integrated (a) an opening extended class session with all students on campus, (b) weekly synchronous class meetings using interactive video or audio, and (c) continuing asynchronous communication using an Internet e-mail and bulletin board system. Twelve students were enrolled in the seminar (seven women and five men) and each was assigned to one of three cohorts in the class. The mean age was 44 and each student was employed in a midlevel or senior leadership position at a community college or four-year institution. Also, each student had completed 18 graduate semester hours or six courses in the doctoral program and each class used the same hybrid e-learning format previously described.

The facilitator assigned one of the cohorts, “the Lady Luck Cohort,” a legal case study that required application of the Family Educational Rights and Privacy Act (FERPA) to a hypothetical fact situation. The case study identified the three women in the Lady Luck Cohort as three senior members of a community college president’s leadership team. The Cohort had six weeks to complete their work. Members were instructed to analyze the fact situation, conduct appropriate legal research, formulate a resolution that was consistent with the facts and the law, prepare written recommendations, and present these recommendations to the class.

Members of the Cohort communicated with the instructor about the case study during regular class periods. But, much of the interaction prior to the final presentation was conducted during private weekly Cohort synchronous telephone meetings and on their asynchronous Cohort bulletin board discussion (which included the facilitator but no other students). At all times during the learning activity, the three students resided in different states and were employed as full time administrators in postsecondary institutions. The Lady Luck Cohort presented its final report and recommendations at a weekly synchronous class meeting at the end of the semester.

The specific learning outcome identified by the instructor and assigned to the Lady Luck Cohort required continuing development of competencies distributed across the four domains identified by Townsend and Bassoppo-Mayo (1997). These competencies were as follows: (a) contextual: the development of analytical skills to interpret a legal text (FERPA) in the context of a hypothetical fact situation, (b) communication: the improvement of
collaborative writing and editing skills to draft the final report and recommendations, (c) interpersonal: improvement of presentation skills to effectively recommend an outcome while stimulating student engagement by the rest of the class, and (d) technical: refinement of technology skills to prepare and post the Cohort presentation.

Development of all four competencies was premised on specific learning events and incorporated student interactions. The legal contextual competency was to be promoted by learner–human interactions during weekly synchronous cohort meetings and on the synchronous bulletin board. Learner–nonhuman interactions occurred with class texts and a commercial legal database. These interactions were intended to result in the location of the FERPA law and then an analysis of its relevant sections. Interactions were expected to lead to consensus regarding an interpretation of the text and its relationship to the hypothetical fact situation.

Improvement of the communication competency, requiring construction of an interpretation through collaborative writing and editing, was to be secured through learner–human interactions in weekly synchronous cohort meetings and learner nonhuman interactions on the asynchronous bulletin board. Members of the Cohort needed to write and edit a document that reflected their collective analysis and recommendation.

Improvement of competency in the interpersonal domain was also premised upon learner–human interaction and learner–nonhuman interaction. Student interactions included development and implementation of an agenda concerning the presentation of the Cohort’s analysis and recommendations. Cohort members also needed to determine how their analysis and interpretation would be presented, who would participate in the presentation, how other students would be encouraged to participate, and who would be given responsibility for responding to questions.

Finally, the refinement of technical competency also required learner–human interaction and learner–nonhuman interaction. These interactions resulted in the Cohort’s posting their report before class (providing access to all other class members), presenting their analysis and recommendations in the final synchronous class meeting, and managing their presentation time.

Analysis of the planned and exhibited student interactions over the course of this learning activity indicated that Hirumi’s framework for planning e-learning student interactions provides a reasonable mechanism to identify e-learning activities. The application of the six step process for sequencing interactions, however, revealed conceptual and pragmatic limitations to Hirumi’s theory. This process requires that instructors plan learning activities by identifying specific interactions along with their quality and quantity. A framework that calls for the planning of interactions at this level of detail, however, inevitably constrains spontaneous and flexible learning. At a conceptual level, this diminishes the potential for high quality learning
because students are limited in the construction of new understandings.
New understandings are facilitated by the sequencing process only to the extent
they emerge within prescribed interactions. This, in turn, reveals a pragmat-
ic limitation to the framework that is especially important in leadership
development programs.

The detailed planning of specific interactions, including their quality and
quantity, may work in an environment where students may have a similar
range of knowledge and experience. In this setting, facilitators may reason-
ably project events likely to occur in a specific learning activity. In other set-
tings, however, and especially those involving cohorts of practitioners in
public or private organizations, this will not be possible or desirable. Stu-
dents may be unable to develop specific competencies unless the learning
environment is sufficiently flexible to allow for active learning and social
interaction (Huang, 2002). The question posed then is, does Hirumi’s frame-
work accommodate these critical conditions?

Hirumi recognized that facilitators must be aware of certain environ-
mental conditions in planning student interactions. The author acknowl-
edged, for example, that a variety of technical issues must be considered in
planning learner – nonhuman interactions. Also, Hirumi recognized that
when facilitators plan interactions they should consider the importance of
“group size, group goals, individual roles and responsibilities, group and
individual accountability, contact information, communications, grading,”
(Hirumi, 2002, p. 145). But, Hirumi’s framework does not acknowledge or
consider environmental factors such as students’ prior experience and
knowledge. This may not be significant when facilitators are working with
traditional undergraduate students sharing similar educational and social
experiences. But, this shortcoming is significant when facilitators are work-
ning with mid-career professionals in developing leadership competencies.

Leadership cannot be taught as a purely cognitive activity and it cannot
be learned in isolation. Rather, learning that leads to the development of
leadership competencies must be based on an understanding that leadership
is an interactive art grounded in the culture of the organization where, “lead-
ers and others construct social reality through the interpretations they make
of equivocal events,” (Birnbaum, 1992, p. 22). Researchers focusing on
leadership in community colleges have endorsed this perspective (Baker,
1992). This inherent ambiguity has also been acknowledged by researchers
studying leadership in other public and private sector settings (Bolman &
Deal, 2003; Schein, 1992). Moreover, the ambiguity that inevitably shapes
leadership practice in organizations is matched by a corresponding com-
plexity found in many leadership programs.

Experienced facilitators working in leadership development know that
some students have extensive formal or informal leadership experience. Oth-
ers do not. On another continuum, some students have participated in exten-
sive leadership training and acquired a significant knowledge base regarding leadership theory. Others have not. Accordingly, in many cases, one of the most important learning objectives for any leadership program is to help students develop the communication and interpersonal skills needed to lead a diverse team in resolving problems. These skills cannot be learned in a semester. The learning required to develop such skills cannot be reduced to a finite set of interactions designed for specific learning activities. Findings from this study confirmed that Hirumi’s framework (and specifically its directive for sequencing) is unable to accommodate the range and depth of interactions that must be permitted to support professionals in developing the competencies required of individuals leading complex work teams in ambiguous organizations. This was confirmed by the facilitator’s analysis of student interactions planned and observed in the Lady Luck Cohort case study.

THE LADY LUCK COHORT

Members of the Lady Luck Cohort brought a variety of knowledge and experience to the seminar that served as a critical environmental factor for this study. One student was a senior administrator with an extensive background in student development. She had a detailed understanding of how FERPA applied to most issues arising at community colleges. This knowledge and her further legal research provided the Cohort with a foundation for developing its recommendations. Another student had extensive classroom experience and was very familiar with diverse learning styles. She advocated for a presentation of the case study using various media that would help a variety of learners internalize legal concepts. The third student had executive level management experience in administration and finance and reminded her colleagues that legal concepts could be difficult to grasp unless presented in a manner that respected the technical limitations of class communication. This member advocated for a presentation that would engage all students and facilitate their learning in the case study.

After several telephone conversations, members of the Cohort agreed on their interpretation of FERPA and its application to the case study. What was not so quickly resolved, however, was how the Cohort would present their analysis and recommendations to the rest of the class. After further discussion between Cohort members and the facilitator, the Cohort decided they would make their presentation using a dramatic script, which not only explained the resolution of the legal issues but represented the culture of the community college and explained how leaders in this organizational setting should approach the problem. To encourage genuine participation, the script assigned roles to everyone in the class. The cast of characters included the community college president and her vice presidents, a director of student services, two FBI agents, support staff, and three attorneys. After completing the script, mem-
bers of the Cohort then reviewed their legal analysis of FERPA. This review brought the Cohort back to its initial analysis of the case study and members confirmed that their presentation format left the core elements of the interpretation intact. The script was posted several days before the last class meeting. When the Lady Luck Cohort presented the case study, everyone in the seminar had a role and everyone was directly connected to the learning activity. Characters raised issues and resolved them by constructing new understandings of FERPA while modeling the behaviors, dialogue, and values that showed proficiency on the competencies targeted in the exercise.

**INTERPRETATION OF THE LADY LUCK EXPERIENCE**

Hirumi’s framework for planning student interactions provides a helpful theoretical explanation of how e-learning may be improved. Experience tells us that the careful management of student interactions in an e-learning environment can often lead to more efficient and effective learning. But, in its present state the framework does not accommodate the complexity of student interactions that may be required in some leadership development programs or under some learning theories. In the Lady Luck example, student interactions were identified and planned by the facilitator at the outset. But, the Cohort’s successful analysis of the case study, the preparation of its recommendations, and the development of targeted competencies were only accomplished by going beyond the planned interactions.

Despite the limitations noted in the framework, the authors believe it may be revised and applied successfully for development of professional leadership competencies by directly incorporating qualifications derived from (a) an understanding of social constructivism as applied to distance learning (Huang, 2002) and more particularly, (b) Vygotsky’s (1978) zones of proximal development (ZPD) as explicated by Borthick, Jones, and Wakai, (2003). Social constructivism has specific implications for distance learning (Huang, 2002). Of particular importance is the recognition that learning in an e-learning setting must not only be active and related to students’ prior knowledge, but the environment must allow for “collaborative learning through reflection and social negotiation” unimpaired by technology (Huang, p. 33). This means that a framework for planning student interactions must allow for the recursive and nonlinear interactions needed for reflection and social negotiation. For example, as demonstrated in the Lady Luck case study, members of the Cohort promptly developed a specific contextual competency by interpreting FERPA and decided how it should be applied to the hypothetical fact situation. They then turned to the task of determining how their analysis would be presented to the class. But, after writing their script, the Cohort returned to their analysis of the law and ensured that their initial conclusions were unaltered by the artistic liberties
taken in writing the script. Analysis and interpretation not only preceded determination of a presentation format, they followed it too. As presently configured, Hirumi’s process for sequencing interactions does not accommodate this type of recursive communication, an aspect of the reflection and social negotiation that social constructivists wish to preserve in designing e-learning activities.

Similarly, the linear sequencing of Hirumi’s framework and its specific requirement that facilitators quantify student interactions undermines learning within students’ ZPDs. Social constructivists regard ZPDs as a representation of the potential learning students may attain based on assistance from others in collaborative learning contexts (Borthick et.al, 2003). The learning that is promoted by collaboration and represented in ZPDs is not a transfer of knowledge, a process that may be planned within a framework focused on linear and quantifiable student interactions. Instead, the learning promoted by collaboration is a consequence of the interactive context and the learners’ capabilities. New knowledge is not received in a transfer process; it is constructed based in the interaction of the participants. These interactions require a framework that can allow for the circular interactions found in reflection and social negotiation.

RECOMMENDATIONS

Given these observations the authors believe Hirumi’s framework for planning student interactions must accommodate facilitator learning theories and curricula in a more explicit manner. The following recommendations are directed towards these ends.

First, Hirumi’s sequencing process acknowledges, in step two, that learning theory must be a consideration in designing an instructional strategy. But, this process occurs, for Hirumi, after the facilitator identifies the experiences that will lead learners to the desired learning outcome. This ordering fails to recognize that a facilitator’s theoretical assumptions about student learning have consequences for how he/she might identify and select potential learning experiences. It is recommended that the facilitator begin by acknowledging their assumptions about student learning and then proceed to identify appropriate learning experiences and the incorporated student interactions. This will provide some assurance that the planned learning experiences and student interactions will be consistent with a facilitator’s theoretical position regarding student learning.

Second, for instructors committed to social constructivism, we recommend that a planning and sequencing process ensure interactions facilitate the reflection and social negotiation needed to promote knowledge construction in students’ ZPDs. Unless course constraints require otherwise, across the board a priori limitations on the quantity of interactions should be
avoided. Experience confirms that cohorts of adult learners are quite effective in helping other learners understand when e-learning interactions are excessive.

Third, the selection of student interactions and, before this, overarching learning experiences should acknowledge the organization of the curricula, its stated philosophy, and the facilitator’s expectations for development of competencies. The identification of learning experiences and incorporated student interactions must be consistent with an overall, long term expectation of professional and personal development that should be stated before planning any learning activity.

Fourth, the sequencing process should include a final assessment that prompts instructors to reflect on the planned student interactions and determine if they were consistent with assumptions about student learning. Consistency or the lack of consistency should be significant to instructors and these observations should be used to either align their practice with their philosophy or reevaluate their assumptions about student learning.

Fifth, the selection of an instructional strategy in step two should not only consider superficial characteristics such as “group size, group goals, individual roles and responsibilities, group and individual accountability, contact information, communications, grading,” and “context” (Hirumi, 2002, p. 145) but, also the complexity of student knowledge and experience. This is especially important when working with nontraditional learners with rich career and life experiences.

Sixth, the authors wish to be explicit in noting that these recommendations are offered to modify what we believe is a reasonable framework that provides an important and valuable resource to e-learning facilitators. But, the Hirumi framework, like all teaching and learning applications, is a device that can and should be altered and improved for specific contexts when required.

Finally, the findings reported here were generated from classroom research concerning a specific curriculum, a particular array of e-learning technologies, and a specific set of individuals. The authors recognize that other researchers and practitioners could come to different conclusions if they assess the framework in different contexts.

CONCLUSION

The development of professional competencies in e-learning environments may be improved by using a framework for planning and sequencing student interactions. Although such frameworks like Hirumi’s have advantages, they also have limitations and may not accommodate certain student populations, curricula, and facilitator assumptions about student learning. The authors have proposed revisions to Hirumi’s framework and specifica-
With these revisions, it is believed Hirumi’s framework can guide facilitators, and specifically social constructivists, in promoting student learning of leadership competencies. Although discussion has been limited to specific interactions encountered in development of leadership skills in a particular instructional setting, the findings and interpretation should offer other facilitators a perspective that may be useful in acquiring a better understanding of their own practice.

References


