On-Line Course Curricula and Interactional Strategies: The Foundations and Extensions to Adult e-Learning Communities

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Abstract

The purpose of this article is to provide researchers and, in particular, practitioner-scholars of e-learning curricular designs and instructors with one conceptual model that supports more involvement and interaction within on-line courses. The *On-line Curriculum Interaction Model* posited by the author is informed by the foundational philosophical, theoretical, research-based results, and professional experience (i.e., Blackboard, WebCT, eCollege) about on-line learning and interactional strategies designed to create community and better transfer of learning among adult learners. Specifically, four levels of interaction stages are explored to describe ascending levels of interaction including initial course content (academic) involvement, student-peer interaction, and instructor-student interaction within various on-line learning community e-contexts, for workplace application.

El propósito de este artículo es de proporcionar a los investigadores y, en particular, a los académicos-profesionales del e-learning diseńos curriculares y a los instructores, con un modelo conceptual que apoya una mayor participación y la interacción dentro de cursos en línea. El En-línea Currículo modelo de interacción postula que el autor es informado por el fundacional filosófico, teórico, la investigación basada en los resultados, y la experiencia profesional (es decir, Pizarra, WebCT, eCollege) sobre aprendizaje en línea inter-relacionado y estrategias destinadas a crear una comunidad y una mejor transferencia de aprendizaje entre la educación adulta. En concreto, son cuatro niveles de interacción que se exploran en etapas para describir los niveles ascendentes de la interacción inicial, entre ellos el contenido de los cursos (académicos) participación de estudiantes, la interacción entre pares, y estudiante-instructor de la interacción dentro de las diversas comunidades en-línea de aprendizaje e-contextos, para dar aplicación a los lugares de empleo o de trabajo.

Keywords

On-line courses; e-learning, e-learning curriculum designs; adult learners; on-line interaction; experiential learning; constructivism.

Topics

- Introduction
- Philosophical and Theoretical Bases
- Interaction and Involvement in Web-Based Distance Education
- The On-Line Interaction Model
- Conclusions and Implications
- References

Introduction

Crucial to quality Internet-based distance education programs, and the desired learning transfer, are the necessary academic and social engagement aspects made possible through the right kinds of curricular designs. The attempt to achieve the necessary types of student involvement and interaction in college, academically and socially, has been a much debated issue for quite a number of decades among educational researchers, instructors, and administrators (Tinto, 1975; Astin, 1984; Pascarell & Terenzini, 1991). Given that there are constant challenges in achieving involvement and interaction within traditional on-campus learning and social environments, creating adult-appropriate curricula for e-learning education and training programs, in particular, is an even greater challenge; this is especially obvious in light of this new learning technology's impact on course content, time, and space (Bannan-Ritland, Bragg III, and Collins, 2006). Internet-based learning platforms considered to be "e-learning" include instruction delivered using CBT, CD-ROM, Internet, and Intranet tools (Clark & Mayer, 2006). Silberman (2006) defines the term further by positing that e-learning specifically includes Internet and computer-based training; video training, webcasts, and webinars; discussion boards, chat sessions, and electronic breakout groups; and instructor-led teaching combined with e-learning modules (hybrid).

At the outset of Internet-based distance education programs, the idea of affording, for instance, working adults the convenience of not physically attending class seemed financially and logistically appealing to most college-level students, faculty, and administrators. However, many ignored the importance of students learning within a community where a credible level of social and academic interaction could be achieved. Thus, creating a virtual learning community and its diverse benefits is what must be at the heart of e-learning curricula, as this is wherein learning synergies can be best achieved in most distance education programs.

This article will introduce an e-learning curriculum interaction model (See Figure 1) that the author, based on established theory, practitioner experience (i.e., Blackboard, Webct, and eCollege), and wider investigations, asserts will enable enhanced course relevance and transfer of learning among adult students when appropriately applied within on-line course content environments. According to

Richardson and Newby (2006), "very little research has looked at how students engage with their on-line courses, especially in terms of learning strategies..." (p. 23). They further posit that future research should explore how instructors can influence "learning designs and scaffolding strategies" (p. 35). The article's findings and conclusions stand to benefit scholars and researchers of web-based online curricular designs, in addition to practitioners teaching and facilitating for college-level, adult education programs.

Philosophical and Theoretical Bases

Interactional and Involvement Foundations

It has been the author's experience that many of the new generation of on-line e-learning curriculum designers and instructors are not necessarily aware of the earlier philosophical and foundational theories relating to student interaction and involvement, in addition to how adult learning theory (i.e., andragogy) can actually inform e-learning curricular designs.

According to Tinto (1997), high levels of student involvement generally proved to be a predictor of gains in learning. Tinto's (1975, 1993) interaction model assumes that traditional students arrive at college with various forms of social capital including family background, soci-economic status, prior academic preparation, skills and abilities, but in addition, bring a certain level of commitment to the goal of succeeding academically. This level of commitment is either bolstered or diminished depending on how deep the level of academic and social integration the student experiences at college (Tinto, 1975).

Tinto (1987) bases his interactional theory on the idea that students and their institutions continually interact through social and educational communities, and that "persistence is contingent on the extent to which students have been incorporated into" these environments (Rendon, Jolomo, and Nora, 2000, p. 128). He grounds part of his theoretical bases on Durkheim's (1957) work entitled, *Theory of Egotistical Suicide*. Durkheim refers to "two types of membership – social and intellectual – through which membership can be brought about" (p. 101) within a societal community; failure to achieve acceptance can bring about egotistical suicide on the part of the individual seeking social and intellectual affirmation (Tinto, 1987). As such, Tinto (1987) asserts that achieving success in student interaction, retention, and learning transfer, in general, "hinges on the construction of educational communities in college, program, and classroom level" (p. 188).

While Tinto (1975, 1997) does not address e-learning classroom interaction environments in his writings, he does establish the crucial concept that for most non-residential students, the classroom serves as the primary social and intellectual meeting place where faculty and students, at large, interact. But what kinds of interactional experiences can students engage in within the traditional classroom setting, that can ultimately inform e-leaning modalities? Astin (1984) provided definite examples of *what,* with *whom,* and *where* interaction and involvement could occur during college.

Astin (1984) defines student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 134). He posits that student involvement, indeed interaction, can be classified under five general categories: academic involvement, involvement with student-peers, involvement with faculty, involvement in work, and others, including watching television, commuting, or attending on-campus social events (Astin, 1993).

Specifically, Astin's (1984) involvement theory includes five major aspects: (1) Involvement refers to the commitment of physical and psychological energy towards objects; (2) involvement must occur along a continuum regardless of the object, with some students devoting more time to them than others; (3) involvement has both a qualitative (level of commitment) and quantitative (time devoted) component; (4) student learning and development is proportional to the quantity and quality of student involvement towards the object or subject matter; and (5) the effectiveness of any educational policy or program is correlated to that program's ability to increase the level of student involvement. While Astin (1984) does not specifically address involvement within the context of distance education (e.g., mail correspondence, closed-circuit TV, and video conferencing), e-learning, or adult student involvement strategies, his work on the various types of student involvement can begin to inform e-learning curriculum designers and instructors about the *what, who,* and *where* aspects of effective student involvement types and strategies. Moreover, the five general categories of involvement, as outlined above, can be utilized to sequence e-learning interaction strategies overall (See Figure 1). However, how can e-learning curriculum designers and instructors create learning-friendly, web-based forms and content that takes adult learners' unique learner profile and characteristics into consideration to create effective e-learning communities? The work of Knowles (1984) on *andragogy* can begin to inform the answers to this question, making possible forms of on-line individual contructivism, but coupled with the writings of Kolb (1984) on experiential learning, also create social constructivism experiences among students and their instructors. We can now shift the focus from traditional to adult non-traditional student motivation and learning paradigms.

Andragogy and adult learners

Andragogy is defined simply as "the art and science of helping adults learn" (Knowles, 1984, p. 43). The term "andragogy" was originally termed by German teacher Alexander Kapp in 1833 to explain Plato's idea that individuals continue learning into adulthood (Baumgartner, 2003). The term was used more widely in Eastern Europe before Malcolm Knowles popularized it in the United States during the early 1960s. In the contemporary sense, the construct of andragogy "became a rallying point for those trying to define the field of adult education as separate from other areas of education" (Merriam and Caffarella, 1999, p. 273), namely for non-traditional students. This construct offers five assumptions about adult learners: (1) adults are internally, versus externally, motivated about learning new things; (2) adult students must transition from dependent learning towards self-directed learning; (3) adults' greater reservoir of experience can be used as a learning tool; (4) adults' readiness to learn is based on actual social roles; and (5) adults need to apply new knowledge and skills almost immediately (Knowles, 1980).

Criticism has been lodged against andragogy however, in that, it was not quite clear if it stood for a theory of learning or teaching, or if it qualified as a theory at all (Hartree, 1984). Nonetheless, Merriam and Caffarella (1999) assert that, for practitioners who work with adult learners, andragogy can "be a helpful rubric for better understanding adults as learners" (p. 277/8), be viewed as a more humanistic approach addressing adult education, or as Knowles (1989) cited, "as a basis for an emergent theory" (p. 112). Yet, while Knowles's (1984) work on andragogy provides a bases for beginning to understand *how and why* adult learners can experience a form of individual constructivism, Kolb (1984) believed that new experiences could be created and used as a source for new learning and development among adult learners (social constructivism); this can be possible by recognizing and leveraging the contributions of different learning styles, operationalized through a diverse set of discourse options.

Kolb's Experiential Learning Construct

Kolb's (1984) work on experiential learning can be closely associated to a dictum postulated by Confucius, 'Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand' (http://www.reviewing.co.uk/research/experiential. learning.htm#2). Kolb (1984) defines experiential learning as "the process whereby knowledge is created through the transformation of experience" (p. 41). He further clarifies experiential learning encounters by asserting their constructivist nature, in that, it is "a process, not an outcome; that learning is best facilitated when students apply their own beliefs and ideas to a topic" (Chaves, 2006, p. 149). Kolb's (1984) experiential learning theory offers four dialogical discourse learning stages. Each of the four discourse experiences can also be considered preferred learning styles among adult learners; they are: concrete experiences, reflective observations, abstract conceptualization, and active experimentation. *Concrete experiences* can include the analysis and discussion of article-based issues, textbook readings, lectures, guest lectures, guided discussion experiences, Internet-based learning; *reflective observations* can include group discussion, free-writing, and brainstorming exercises; *abstract conceptualization* involves self-direction and the freedom to hypothesize about subject matter; and lastly, *active experimentation* involves the use of the case-study method concerning real-world examples for new learning and application.

While Kolb's work creates a four-stage constructivist learning styles approach, some criticism has also been lodged against his theory. For instance, Forrest (2004) argues from a training perspective that there are a variety of processes which can occur all at once and that some of Kolb's learning stages can be left out completely. Rogers (1996), while admitting that Kolb's experiential learning theory has refocused learning back onto the student, posits along with Miettinen (2000) that the Kolb learning cycle inventory results are based solely on the way learners rated themselves and not in relation to other adult students in their learning environment, which serves to enhance reasoning and learning outcomes. Ultimately, Kolb (1984) posits that "Curriculum design should follow the learning cycle of experiencing, reflecting, thinking and acting...an initial way to connect with the material and then begin to stretch his learning capability in other learning modes" (http://www.learningfromexperience.com/faq). McCarthy (2000) affirms Kolb's work arguing that, for example, the 4MAT Curriculum Model can be used to trace how instructors and student's roles change as they transition through the four quadrants identified as direct experience, reflection, abstract concepts, and action. As students transition through the quadrants when interacting with a lesson, the instructor's role changes from content expert (quadrants 1 and 2) to coach and facilitator (quadrants 3 and 4). The 4MAT model has been used to inform web-based training for instructors teaching within distance education programs (Hutchins, 2003).

Finally, Chickering and Gamson's (1987, 1999) Seven Principles of Good Practice for Undergraduate Education (SPGPUE) serves to coalesce most of the preceding theoretical constructs into one. According to Batts, Colaric, and McFadden's (2006) investigations about online courses, the SPGPUE "(a) encourages student-faculty contact, (b) encourages cooperation among students, (c) encourages active learning, (d) gives prompt feedback, (e) emphasizes time on task, (f) communicates high expectations, and (g) respects diverse talents and ways of learning" (p.). Chizmar, Walbert, and Hurd (1999) demonstrated the useful application of the SPGPUE through three web-based undergraduate classes. Examples of what they perceived instructors could use technology in support of the SPGPUE include (a) encouraging students to use communication tools to share ideas, review assignments, critiques, and to work on group projects with student-peers and their instructors; (b) in providing prompt feedback about students' questions and assignments, in addition to providing on-line quizzes that provide effective feedback concerning academic performance; and (c) enabling choice in learning tools based on students' preferred way of interacting with the course materials. Lemke and Ritter (2000) conducted a survey 236 on-line learners wherein the results indicated that respondent's perceptions about the use of technology and its impact on better academic performance supports using the SPGPUE.

The preceding theoretical foundations serve to inform the application concepts and strategies represented by the Online Curriculum Interaction Model (See figure 1); in particular, where Astin's (1984) ideas pertaining to academic and student-faculty interaction can occur, and with what web-based course interaction tools (i.e., chat sessions, threaded discussions). Moreover, the model is informed by Knowles' (1984) work on andragogy, its application and sequencing strategies pertaining to the various levels student involvement levels. However, complementing and supporting the preceding theoretical foundations are other works which address the need to know how students can engage, quite exclusively in, on-line learning and their associated strategies. The works of Moore (2006) on three types of interaction and Hutchins' (2006) writings on instructional immediacy exemplify strong efforts to do just this.

Interaction and Involvement in Web-Based Distance Education

While Tinto helps to define "interaction" in a broad sense where residential "students and their institutions continually interact through social and educational communities" (Rendon, Jolomo, and Nora, 2000, p. 128), Moore's (2006) contributions extend three of Astin's (1984) traditional student involvement categories into the context of distance education (virtual) learning environments. Moore (2006) asserts that distance educators need to agree upon the distinctions between three types of interaction namely learner-content interaction, learner-learner interaction, and learner-instructor interaction.

According to Moore (2006), *learner-content interaction* (LCI) is the defining characteristic of education, "since it is the process of intellectually interacting with content that results in changes in learner's understanding...perspective, or the cognitive structures of the learner's mind" (p.). He makes a further distinction between LCI and simple content-interaction, wherein adult students, in particular, it is understood can undertake self-directed learning assignments (Tough; 1971; Knowles, 1975, 1984), albeit within a non-didactic interaction. Indeed, according to Cross (1981) an estimated 70 percent of adult learners engage in self-directed learning. As cited earlier, Knowles (1975) argues that adult students must transition from dependent to independent self-directed learning, and he describes self-directed learning as a process wherein learners take the initiative, with or without others' assistance, to achieve learning objectives. However, what differentiates adult learners from younger ones is that the former's motivation to learn new things is largely internal, and I would argue semi-compulsory due to workplace demands for lifelong learning, versus external (compulsory); this is where, for most adult students, the process of LCI can actually begin.

Learner-learner interaction (LLI), Moore (2006) argues, is a new dimension of distance learning stating that it "is inter-learner interaction, between one learner and other learners, alone or in group settings" (p.). For instance, learning the skills of interaction and collaboration for ultimate use in occupational settings, in particular, is valuable. I would add that the opportunity to create learning synergies among more experienced and knowledgeable adult students makes LLI a valuable engagement strategy. Finally, l*earner-instructor interaction* (LINI) enables the learner to interact with the author of the subject-matter content. LINI enables instructors to create and maintain subject-matter interest among students, in addition to modeling particular values and attitudes. Moore (2006) asserts that instructors have the

opportunity to "organize students' application" of cognitive or psychomotor learning objectives, provide relevant feedback, evaluation, or change teaching strategies at midstream. As such, the LINI can be the centerpiece of learning confirmation, guidance, and feedback between students and their instructors. Hutchins' (2003) writings on instructional immediacy (II) narrows the focus and provides two relevant examples of instructor feedback strategies that can be used in e-learning course environments, namely through the use of verbal immediacy and nonverbal immediacy.

Hutchins (2003) posits that "instructional immediacy has received considerable attention as a component of eliciting student satisfaction and learning in web-based classes" (p. 4). She asserts that instructional immediacy centers on the behaviors which increase closeness and nonverbal interaction among instructors and their students. Gorham (1988) expanded the definition of II to include the idea of verbal interaction increasing psychological intimacy between students and their instructors.

Instructional immediacy in its present form includes verbal and nonverbal immediacy interaction strategies. Verbal immediacy involves the frequent use of students' names, humor, encouragement, frequent contact with students, and the use of personal examples. Nonverbal immediacy, on the other hand, includes eye contact, the use of vocal expressions, smiling, and body language on the part of the instructor. Hutchins (2003) asserts that, ultimately, verbal immediacy is more relevant to web-based learning environments due to an instructor's lack of physical presence. Indeed, according to Arbaugh (2001), statistically significant results about the association between verbal immediacy and student learning and satisfaction within web-based courses suggest that instructors who employ verbal immediacy in the classroom should, generally, have no difficulty in transferring this skill into an on-line format. One on-line interaction model seeks to coalesce the preceding theories, concepts, and practitioner experience into one viable model in an effort to capture how forgoing theories and research findings regarding student interaction, involvement, adult learners, and experiential learning can inform on-line course curricular designs and scaffolding strategies.

The On-Line Interaction Model

The *On-Line Curriculum Interaction Model* (see Figure 1) can be used to inform and create effective curricular designs within the various learning management system platforms (i.e., Blackboard, Wimba, eCollege, or WebCT). Specifically, factoring in the intersections between adult learning theory, the various forms of student involvement, and their application within various online course interaction tools (i.e., chat sessions, threaded discussion, or Web conferencing), curriculum designers and university teachers can achieve greater learning transfer among adult learners, especially first-time on-line course students.

The *On-Line Curriculum Interaction Model* (see Figure 1) can be effectively applied to web-based curriculum design efforts by understanding four levels of on-line learning interaction. At the most basic level (lower left), Level One interaction with the on-line course's introductory content leverages and utilizes the adult student's internal motivation to learn new things; it can also be assumed that a certain level of self-direction on the part of the adult learner can be capitalized upon at this stage as well. As such, at the asynchronous stages of new learning, connecting with the student can involve instructor greetings and announcements, textbook reading assignments, power point slides, webcasts, or Word documents which can increase the level of connection via text form or visual imagery, be they static, in motion, or using sound/voice. At this stage, the learner is largely passive, but receptive to introductory materials due to internal motivation and, through self-direction, searches for resources and answers to new questions. Verbal immediacy (VI) has been provided initially through an e-mailed instructor greeting apprising students about technical requirements, textbook issues, on-line course tutorials, among others pertinent issues. Early stage VI, however, is provided through computer programmed personal greetings or helpful error messages, in addition to "a personal tutor that can help students with navigating the course site" (Hutchins, 2003, p. 5).

Level Two interaction stages usher the student into the semi-synchronous interaction environment. Self direction continues and propels the student towards the first stage of learning within community, inside the threaded discussion (TD) environment. Student and instructor interactions are not "real-time" per se, but TD assignments can be designed to slowly transition the learner into a technical learning environment, wherein interaction and responses to reading assignments, questions, or case studies allows for more cognitive processing and reflection time. In a study centered on synchronous versus asynchronous collaboration within an on-line business writing course, results indicated that, while students communicated less with each other with TD assignments, learners spent more time on class objectives and they were able 'to reflect on what was said and to take their time to develop a useful response' as compared to face-to-face sessions (Mabrito, 2006, p. 105); as such, the interaction was more academic than social in nature. However, students actually preferred synchronous sessions (chat sessions) to experience a more dynamic learner-to-learner interaction environment.

It is within Level Three on-line interaction environments where a full-blown synchronous experience begins; such as, instructor-led chat sessions where verbal immediacy (i.e., encouragement, use of student names, personal examples, humor, and others) can occur in real-time. According to Mabrito (2006), students preferred synchronous learning episodes since "more of the synchronous conversations were focused on the group than had been the case in asynchronous" environments (p. 104); as such, the interaction experienced in this environment seemed to be more social than academic in nature. Often assigning grade points to relevant chat postings tends to refocus learners back onto the subject matter content. In the case of both TDs and chat sessions, there was an escalating level of community being created and experienced, especially with respect to learner-instructor interaction. Chat rooms can also be effectively utilized by students as cyber-collaboration rooms (i.e., break out sessions) to work on case-study analysis presentations and team-based project assignments where it was necessary to get organized and parcel out project assignments. Indeed, according to Lapadat (2000), web-based courses carry the potential "to foster pedagogies and learning environments designed according to constructivist principles." Moreover, Mabrito (2006) posits that social constructivist learning environments can be found in two arenas, "the ideological (a discussion-based pedagogy, where student talk to solve problems) and the task-centered pedagogy, where peers collaborate 'to produce jointly authored or created product' (p. 94).

Level Four interaction offers the highest form of e-learning community since it is within this virtual environment where learner-content, learner-learner, and learner-instructor can achieve its most intimate level of classroom engagement. The availability of information technology tools including voice, text chat, camera images, and full-motion videos converge to achieve social and academic interaction in real time (synchronous). Power point slides, webcasts, Word documents, chat text, Power board illustrations, application sharing, and two-way feedback can accompany lecture/discussions and create as much psychological closeness in cyberspace between students and their instructors. It is within Level Four interaction stages where students can report on occupationally-based (task-centered) assignment results and receive feedback from course participants, as would be the case in a real-world occupational setting.

Nonverbal immediacy is at its best due to the use of voice and video cameras at either ends.

Conclusions and Implications

The research and scholarship relating to effective curricular designs for constantly increasing forms of e-learning abounds. Some of the research and case study results focus only on the *learning* while others focus solely on *teaching or instructional delivery* approaches, and yet other focus more on the *technologies* making it possible to connect learners with their teachers. It has been the author's experience that e-learning education and training curricular strategies considered relevant to adult learners, in particular, are those that (1) create virtual learning community platforms (i.e., TDs, chat rooms, voice and video), (2) create engagement learning opportunities among student-peers (i.e., group or team-based assignments), (3) allow for ascending levels of learner-learner and learner-instructor interaction about course content, and (4) associate major course work requirements to workplace scenarios, or needs, in order to reasonably align and support students' organizational (workplace) goals and objectives.

The *On-line Curriculum Interaction Model* is one construct that can help university teachers, in particular, create and time-release interactional experiences among students and the instructors. It can be assumed that many students enrolling in today's online courses are actually inexperienced and even intimidated by the learning management system's environment. However, it cannot be assumed that if a learner has experience and abilities using communications-computer systems or web-based tools (i.e., webcasts, web conferencing, or e-mail) they will be able to interact, more so, learn within a virtual environment; these tools are simply the means to a very important end (i.e., learning transfer). Rather, it must be understood that as course content is being assimilated by the student, he or she is also experiencing gradual, but escalating, web-page navigation and interactional experiences. Once the basics of Level One and Two interactions have been understood and experienced by students, they can then enter into the greater communal experience often encountered within Level Three and Four stages of interaction; their personal confidence levels about learning within an e-learning format gradually increases. Applying course content academics can then be, subsequently, applied more confidently in students' real world settings.

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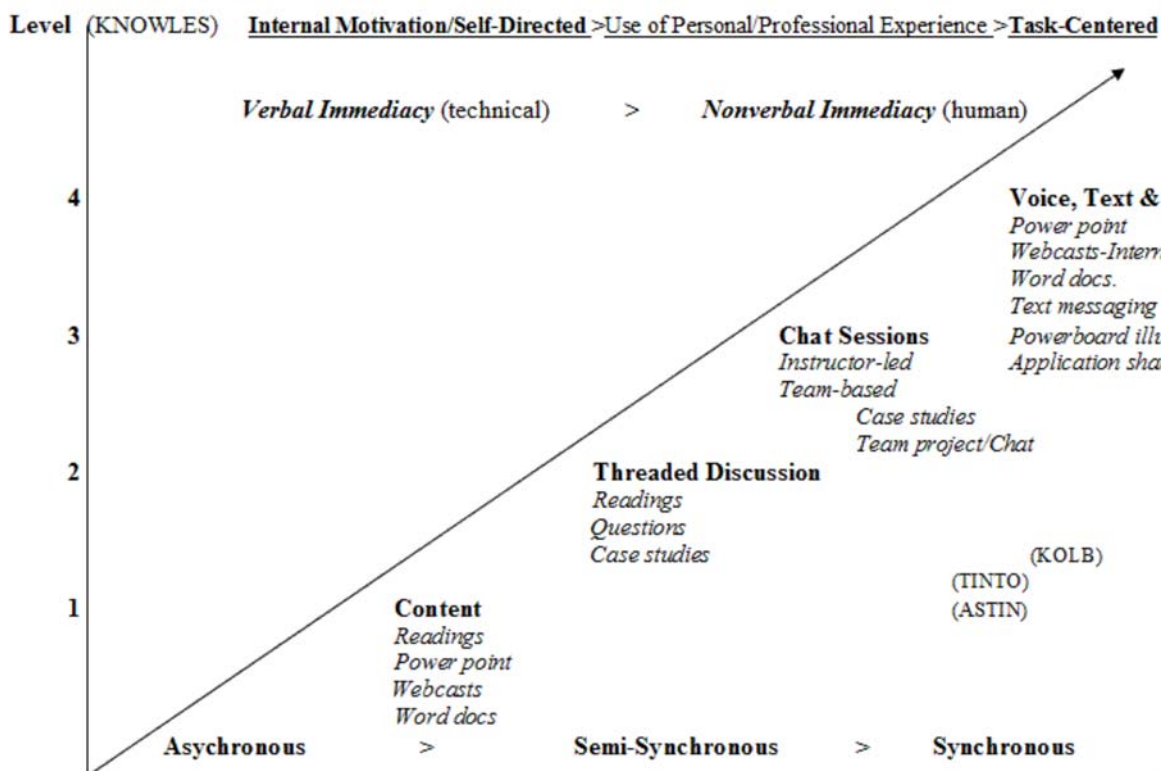

Figure1. On-line Curriculum Interaction Model