

Virtual Classrooms and the Discussion Forum: A Net Benefit for Business Students

Dr. Caroline Akhras

Assistant Professor of Management
Faculty of Business Administration and Economics
Notre Dame University
Lebanon

Abstract

A serendipitous turning point in education may be in the teaching/learning outcomes of online collaborative work. It is held that collaboration alone could signal the most meaningful insight as collaboration is social, dynamic, and multidimensional. Advanced technology opens broad teaching/learning opportunities though concomitantly providing divergent expectations concerning the quality of E-Learning. Many educators are using blended-learning and developing creative methods to integrate technology. Virtual classrooms and discussion forums are collaborative tools available on Course Management Systems widely used in Higher Education. As a practitioner-researcher, I hold that for graduate-level business students a collaborative process of knowledge-building ought to be integrated into their traditional program through Virtual Classrooms and/or Discussion Forums. The purpose of this research is to assess whether performance improved when graduate students developed their course assignment using collaborative learning tools. Two critical components were addressed: (a) collaborative performance on-line and (b) student-teacher interaction. Case assessment was conducted. Implications and recommendations were made.

Introduction

Education is directed towards building knowledge repositories, particularly intellectual human capital. One of the banks of the intellectual capital in Higher Education is the intangible asset embedded in the expertise and knowledge of the students which today is increasingly recognized as a source of sustainable competitive advantage. Information and communication technologies have focused on the design and development of virtual environments (Malhotra & Majchrzak 2005) which are among the palette of exceptionally rich collaborative technology. Once established, collaboration in a cloud (McGuire 2010) becomes an authentic context of student interaction necessitating management of knowledge: a context within which students bound by passion for specific topics, common objectives, course assignment, shared roles, and bases of expertise communicate and collaborate. Virtual communities become places, *bas* (Nonaka & Konno 1998) where knowledge is born through social networking and through personal involvement (Luo 2010).

The online teaching environment is a powerful medium for promoting higher-order thinking skills in university students, though the concept of virtual cooperation is highly problematic. It is not pedantry to assert that the popular “telework” notion of “telepresence” does not fully coincide with complete interaction that characterizes ideal teamwork (Pyoria 2007). Educators have taken advantage of the internet because it is a popular global platform which can independently support education through creating, sharing, and distributing knowledge. Peer socialization and the establishment of a peer network are a crucial component of educational experiences for graduate students (Luo 2010). Moreover, students expect their careers to benefit from the social ties they make during their times as members of learning communities (Kazmar, 2006). Business Schools in particular have been under constant pressure to provide students with the expertise to effectively use emerging technology in leading businesses to gain competitive advantage (Lessard & Gaumond 2006; Corbitt, Holt, & Segrave 2006; Pyoria 2005). Given its exponential growth in the marketing domain and the acceptance of business models integrating technology in business, it is integral to train business students to become adept in interactive web-based applications. To prepare students for their future careers, it is vital that “digital” teachers (Prensky 2001) and/or trans-classroom teachers offer opportunities for students to experience virtual teamwork firsthand and reflect on the effective use of technology pragmatically (O’Bannon & Puckett 2010; Burniske & Monk 2001). As such, some Business Schools have adopted computer-mediated-education for business simulation and cases (Aggarwal & Legon 2006; Straub 2006; Webster & Hackley 1997).

Virtual classrooms may be perceived as being isolated as a learning tool; to actively engage in dialogue and social interaction, students need “essential aspects of knowing a domain” (Lareamendy-Joerns & Leinhardt 2006”, p.590). Learning evolves incrementally from simple to complex. It is more than acquiring knowledge: learning is a process of forming self-identity and empowerment as a result of active participation in learning communities. Irrespective of the medium of communication, learning highlights meaningful activities that engage and sustain deep learning through reflection, inquiry, analysis, and synthesis process, an ongoing process that is active, constructive, collaborative, complex, contextual, and conversational (Mimirinis & Bhattacharya 2007; Vygotsky 1986). Modern teaching and learning methods emphasize tasks and activities that take place in a collaborative environment and relate to the examination of particular problems from different approaches among which is problem-solving (Borich 2007; Lewis 1997). The collaborative environment is a dynamic synergistic social process built on shared awareness and understanding, one different from two students coordinating their efforts (Slavin 2001). Peer interaction leads to a process of knowledge build-up through convergence of the transformed knowledge of those learners involved. Collaboration can also improve the development of thoughts, ideas, and concepts through discussion, debate, and negotiation (Roschelles 1992). Collaborative learning appears to facilitate active learning, knowledge build-up, procedural knowledge, information processing, and in-depth understanding (Psycharis 2008). Yet, basic issues of collaborative work are student-to-student support, joint responsibility for reaching group goals, and active participation (Adams & Hamm 1992) that may be facilitated through appropriate use of blended learning (Akhras 2010a).

Universities have established Course Management Systems as an important option for teachers who want to enhance their traditional classes through their course delivery integrating technological and pedagogical features into a well-developed Web-based system to deliver both online courses and to supplement face-to-face courses through blended learning (Sabieh 2009; Falvo & Johnson 2005; Clark & James 2005). Familiar features on CMSs include course management tools (syllabus, announcements, calendar, drop boxes), course content areas (quizzes and assessments), and communication tools (discussion boards, chat rooms, virtual classrooms, and whiteboards) which facilitate the teachers’ role in providing learning activities, sending/receiving assignments, assessing learning, conducting discussions in an asynchronous on-line environment and which facilitate the students’ role in sharing resources, collaborating, uploading their assignments, taking on-line exams, accessing their grades, and being up-to-date on their course. These features support student-to-course content, student-to-student, and student-to-teacher (Roqueta 2008; Ioannou & Hannafin 2008; Sabieh 2008; Simonson et al. 2006).

It is held that blended learning promotes student-centered-learning and encourages increased student interaction (Davies & Graff 2005). Online collaboration allows students to experiment with technology, develop their own technical skills, and become sensitized to the technological environments and capabilities of others. Interactive tutorials with timely feedback, simulating multimedia environments with live-like visualizations, flexible time and learning environment are factors that empower students to actively control their learning environment and engage in critical thinking (Garrison & Kanuka 2004; Dzuiban, Hartman, & Moskel 2004). Nonetheless, appropriate use of technology in line with students’ maturity and information technology development is integral. Studies show that integrating virtual cooperation either in the discussion forum or the virtual classrooms may be highly problematic, both theoretically and empirically whereby the essential problem for students may be that no technical interface can replace face-to-face interaction, a factor held to be the primary precondition for team spirit, the tacit flow of knowledge, and team work (Pyoria 2007; Bates 2005). What students “know” may remain unarticulated, or unconscious: their “tacit knowing” is built but not shared (Pyoria 2009;Schultz 2009) . Other researchers assert that knowledge is not even built in discussion forums, though such an assertion is not supported by sufficient evidence (Barbera 2006). What has been noted is that it provides an effective training ground/an opportunity to improve students’ communication skills, create a positive learning attitude, address different learning styles, enjoy using technology, and cater to those who work best with others (Curtis & Lawson 2001; Ravenscroft 1997; Ellsworth 1995; Kolb 1984). In their *bas* (Nonaka & Konno 1998), as students work with others, they sort out differences, negotiate meaning, figure out how to conduct their project together, make decisions together in order to arrive at synergy in performance (Adler 2002).

The Study

This section covers the purpose of the study, the hypothesis, the participants, the procedures used in the study, the research design, tools, and analysis of data used.

The purpose of this research is to assess whether performance improved when graduate students developed their course assignment using CMS collaborative learning tools rather than work collaboratively face-to-face. Two critical components were addressed: (a) collaborative performance on-line and (b) student-faculty involvement.

Hypothesis 1: The level of collaborative performance is significantly higher in online work than the level of collaborative performance offline.

Hypothesis 2: The level of student-teacher interaction is significantly higher in virtual communication than the level of student-teacher interaction face-to-face.

126 students attending two graduate level business courses were selected in the Fall and Spring Semester as the control group and as the experimental group. 60 were male and 66 were female. Two were married; the rest were single. 110 worked; one worked on campus. The participants were asked to work collaboratively. To orient them for their MBA collaborative project which is integral for effective performance (Pyoria 2010; Akhras & Akhras 2010), the participants were given preparatory problem-solving pair-work through which they would both familiarize themselves with graduate work in their course and “break-ice” with their partner.

- In each of the Fall and Spring Semester, students attending one graduate courses were chosen as the control sample; their assigned collaborative business-related course project would be summatively evaluated as the participants developed their assignment. In order to prepare them for their MBA project, the participants were first assigned individual work to be submitted week one; then, they were assigned collaborative work with their assigned partner to be submitted week two. They were to select a topic related to the course, have it approved by their teacher, gather information independently, discuss it peer-to-peer and student-to-teacher, debate key points, negotiate, decide how to develop the assignment, and then have it ready to submit by the set submission date.
- In each of the Fall and Spring Semester, students attending one graduate courses were chosen as the experimental sample; their assigned online collaborative business-related course project would be evaluated as the participants developed their assignment. In order to prepare them for their MBA project, the participants were first assigned individual work on the university’s CMS to be submitted week one; then, they were assigned collaborative work with their assigned partner to be submitted week two on the CMS. These students were asked to work on the course assignment in the virtual environment collaboratively. They were to work online whereby one class used the discussion forum while the other used the virtual classroom: They were to select a topic related to the course, have it approved by their teacher, gather information independently, engage in discussions peer-to-peer and student-teacher, debate key points, negotiate, decide how their assignment would be organized, develop it through discussions on the discussion forum, and then prepare the project for submission on the assigned due date.

The research is conducted as a case study in that it investigates a relatively few incidents, covering many features of a naturally occurring event, with both qualitative and quantitative data in order to understand what is really happening (Gomm, Hammersley, & Foster, 2000). Two main areas were probed using two research assessment instruments—collaborative work and student-faculty involvement. These instruments were used to assess the two main areas probed:

On-line Project on Discussion Forum: The first assessment instrument was developing the Masters’ level Business Project collaboratively on the Discussion Forum of the university’s CMS within a defined time interval.

On-line Project on Virtual Classroom: The second assessment instrument was developing the Masters’ level Business Project collaboratively on the Virtual Classroom of the university’s CMS within a defined time interval.

Traditional Project on Paper : The third assessment instrument was developing the traditional Masters’ level Business Project collaboratively on paper within a defined time interval.

Student-Faculty Involvement: The fourth assessment instrument was the frequency and quality of students-teacher online or offline/face-to-face.

Questionnaire: The fifth assessment instrument was a questionnaire related to the value of integrating the discussion forum and the virtual classroom in their MBA course.

The Rubric: The sixth assessment tool was the rubric to assess student’s course assignment as a written document (see Figure 1 below).

<u>1.0-2.0 points:</u>	<u>3.0-4.0 points</u>	<u>4.0-5.0 points</u>
Posted main information Replied to partner No depth of presentation, only opinion Information posted one at a time/several posts at one time Comments barely related to main discussion No constructive comments to help discussion All posts made within 24 hrs. of assignment due date.	Posted main topic information and one response on same day Several posts all on same day Time between postings indicated that student had read and considered substantial number of student postings before responding Replied to others on a regular basis; provided relevant responses and constructive feedback Enhanced quality of discussion (i.e. illustrated point with examples, suggested new perspectives on issues, referenced other research, asked questions that further helped discussion, evoked follow-up response from others, & cited current news events).	Demonstrated leadership in discussion Posted regularly during week Time between postings indicated that student had read and considered substantial number of student postings before responding Replied to main topic; substantially enhanced quality of discussion (i.e. illustrated a point with examples; suggested new perspectives on issues, referenced other research, asked questions that further helped discussion, evoked follow-up response from others, & cited current news events). Replied to others on a regular basis; provided relevant responses and constructive feedback.

Figure 1: Rubric to Assess Online Collaboration

Each of the assessment instruments was scored differently:

- The first and second assessment instrument was scored using the Hazari Rubric (2004), partially adjusted (see Figure 1 above) .
- The third assessment instrument was scored using depth and scope of coverage.
- The fourth assessment instrument was a checklist of how often the students consulted.
- The fifth assessment instrument was a checklist of factors scored using the Likert scale.

T-tests were used to quantitatively analyze the data.

Based on the data analyzed, the section below discusses the results in line with the literature reviewed. This study has shown that integrating virtual collaboration through the discussion forum and virtual classrooms was a net benefit for MBA students. The purpose of this research was to assess whether performance improved when graduate students developed their course assignment using CMS collaborative learning tools rather than work collaboratively face-to-face. Two critical components were addressed: (a) collaborative performance on-line and (b) student-faculty involvement.

The first hypothesis which stated that the level of collaborative performance is significantly higher online than the level of collaborative performance offline was supported ($t=48.807$; $p < 0.05$). It may be said that the real-life context of live collaborative work allowed the participants to build knowledge through social interaction: student-to-student and student-to-teacher (Passig & Schwartz 2007; Vygotsky, 1989); the experiential nature of collaborative work seemed to have improved the quality of their learning context and created a positive attitude to course work as was the case with other business students (Gareis 2006; Hazari 2004). “ Dr. I really enjoyed the challenging online work.” This focus on active and critical thinking during collaborative projects seemed to have fostered enthusiasm and helped students further develop critical thinking (Du & Xu 2010; Stripling 2003; Fisher et al. 2005). As students explored the varies facets of synchronous and asynchronous channels in their virtual context, they became aware of the advantages and disadvantages of each channel and sharpened their communication skills as others have (Zhu et al., 2005). Online collaborative communication when combined with the use of different tools and techniques seems to have facilitated a greater conceptual understanding of information technology which as a knowledge repository is a competitive advantage in the global marketplace as it was in Finland (Pyoria 2009; Passig & Schwarz 2007).The second hypothesis, which stated that the level of student-teacher interaction in terms of generating the course project was significantly higher online than that offline, was supported ($t=36.79$; $p < 0.05$).

An essential factor may be that their teacher examined her teaching/learning approach and allowed for a wide range of interactional, instructional, and assessment practices that integrate information technology as others have done (Berger & Trexler 2010; Johnson & Magusin 2005; Brooks 2002) as can be seen from the preparatory procedure used prior to the course project. It was found that students tended to become more dependent on their teacher as an authority figure, an information-technology specialist, a facilitator, a counselor, and a negotiator when they were in the virtual environment than in the face-to-face environment (Akhras 2010b; Bates 2005). It seemed to be assumed that their teacher was knowledgeable about all factors related to business management, “Dr. I am not sure what this means; please would you explain it?” It was also assumed that she was an IT specialist who would facilitate their course project, “Dr. this browser is not opening; what should I do?” “Dr. remind me how do I turn on the record button?” She also had to be ready to provide advice and when necessary resolve conflict 24/7, “Are you free at 10:00 p.m.? We both finish work then, and we need your help; we want to talk through some issues with you online.” On the other hand, it is interesting to note that the student-teacher involvement in the face-to-face context was more that of a coach-player interaction. Out of 64 students, only 16 came to see her to discuss general material whereas online students discussed the course project with her online and face-to-face in class, covering quite simple steps as, “How do I turn on the camera in the virtual classroom” to the more complicated facets of the MBA project as, “How do I integrate my opinion to the text analysis?” Studying not only became more time and space flexible, but teacher involvement increased (Akhras 2010a). The combination of e-learning and face-to-face teaching in this case study increased accessibility, flexibility, and choices for interactivity as was the case in other research conducted (Du & Xu 2010; Akhras 2009; Rosenberg 2001) which, as such, is a forward leap in instructional productivity.

Conclusion

This case study showed that as MBA students collaborate in the virtual classroom or on the discussion board, their knowledge repository led to improved performance and increased student-faculty involvement. It is a net benefit when Higher Education integrates virtual environments to graduate level business courses accommodating their need to be proficient in leading-edge technology and extending their social network in the business world. Some limitations in the research conducted stemmed from the sample selected. The participants were homogeneous in terms of age, gender, and nationality. Second, the participants were mainly business students which may lead to them sharing many attitudes including that related to using the discussion forum. Other fields of study may use and value different features of virtual collaboration which might lead to different results. Third, the participants’ level of ICT proficiency, access to the internet, access to one another on the internet in terms of time and work obligations, and lastly, the participants readiness to learn about using the discussion forum/virtual classroom in order to engage in course work assignments may be seen as an additional limitation. Fourth, another limitation faced in this case study was the technological restriction of using the university’s CMS in terms of speed, efficiency, and intuitiveness. Given these limitations, the following recommendations are made.

In order to sustain net benefit for graduate-level business students, the practitioner-researcher recommends ensuring a broader bandwidth of reliable service which provides a connected network of courses and people, a boundaryless structure (Cross et al. 2000; Ashkenas et al. 1995). across the faculties, university, and immediate stakeholders whereby students, faculty, administration, the Board of Trustees, the immediate community, and local, regional and global businesses can participate in achieving student success online, by asking questions, providing input, and engaging in group decision-making (Akhras 2010b; Peddibhotla & Subramani 2006). This open-door all-channel “telepresence” (Graf, 2008) is essential today, providing real time, near real time, and synchronous/asynchronous tools that enable students to work how they want while fully participating with others who want to work differently. These students are a knowledge repository, a truly sustainable competitive edge social, dynamic, and multidimensional.

References

- Adams, D. M. & Hamm, M. E. (1990). *Cooperative learning: Critical thinking and collaboration across the curriculum*. Springfield: Charles Thomas.
- Adler, N. J. (2002). *International Dimension of Organizational Behavior*. Cincinnati, Ohio: South-Western.
- Aggarwal, A. K., Legon, R. (2006). Web-based education diffusion: A case study. In L. Esnault (Eds.) *Web-Based Education and Pedagogical Technologies: Solution for Learning Applications*. New York: IGI Publishing. 303-328.

- Akhras, C. & Akhras, R. (2010). An enhanced teaching/learning environment: Steps to measure collaborative BB skills of MBA students. *Proceedings of The Second Regional Conference on Program and Learning Assessment in Higher Education*. Lebanese American University Center for Program and Learning Assessment. Beirut, Lebanon. October 29-30
- Akhras, C. (2009). Assessing the pedagogical value of online collaborative work. *Proceedings of The First Regional Conference on Program and Learning Assessment in Higher Education*. Lebanese American University Center for Program and Learning Assessment. Beirut, Lebanon. October 29-30
- Akhras, C. (2010a). Student engagement: Which should we assess, the outcome or the process? *Proceedings of The Second Regional Conference on Program and Learning Assessment in Higher Education*. Lebanese American University Center for Program and Learning Assessment. Beirut, Lebanon. October 29-30
- Akhras, C. (2010b). Integrating CMS learning tools: Is this effective management of knowledge? *Proceedings of the 17th International Scientific Congress of LAAS*. University Saint Esprit. Jounieh, Lebanon. November 28-29.
- Ashkenas, R., Ulrich, D., Jick, T., Kerr, S. (1995). *The Boundaryless Organization*. San Francisco, California: Jossey-Bass
- Barbera, E. (2006). Collaborative knowledge construction in highly structured virtual discussions. *The Quarterly Review of Distance Education*. 7(1), 1-12.
- Bates, A. W. (2005). *Technology, E-Learning and Distance Education*. 2nd Edition. Routledge: London.
- Berger, P. & Trexler, S. (2010). *Choosing Web 2.0 Tools for Learning and Teaching in the Digital World*. Santa Barbara, California: Libraries Unlimited.
- Brooks, V. (2002). *Assessment in Secondary Schools: The New Teachers Guide to Monitoring Assessment, recording, Reporting, and Accountability*. Maidenhead, England: Open University Press.
- Burniske, R. W. & Monke, L. (2005). *Breaking Down the Digital Walls: Learning to Teach in a Post-Modern World*. Albany, New York: State University of New York Press.
- Clark, I. & James, P. (2005). Blended learning: An approach to delivering science courses on-line. *Proceedings of the Blended Learning in Science Teaching and Learning Symposium*, 30 September 2005, The University of Sydney: UniServe Science, 19-24.
- Corbitt, B., Holt, D.M. Segrave, S. (2006). Strategic design for web-based teaching and learning: making corporate technology system work for learning organization. In L. Esnault (Eds.) *Web-Based Education and Pedagogical Technologies: Solution for Learning Applications*. New York: IGI Publishing. 280-302.
- Cross, R.L., Yan, A., Louis, M.R. (2000). Boundary activities in a 'boundaryless organization.' A case study of a transformation to a team-based structure. *Human Relations*. 842-868.
- Curtis, D. D., & Lawson, M. J. (2001). Exploring collaborative online learning. *Journal of Asynchronous Learning Networks*. 5(1), 21-34.
- Davies, J. & Graff, M. (2005). Performance in e-learning: online participation and student grades. *British Journal of Educational Technology*, Vol. 36, No. 4, pp. 657-663.
- Du, J. & Xu, J. (2010). The quality of online discussion reported by graduate students. *The Quarterly Review of Distance Education*. 11(1), 13-24.
- Ellsworth, J. (1995). Using computer-mediated communication in teaching university students. In Z. L. Berge & M.P. Collins(eds.) *Computer-mediated Communication and Online Classrooms*. Cresskill, New Jersey: Hampton Press. Vol. 1, 29-36.
- Falvo, D. A. & Johnson, B. F. (2005). Use and implementation of learning management systems in the US. Paper presented at the Society for Information Technology and Teacher Education, 2005, 16th Annual Conference International Conference, Phoenix, Az.
- Fisher, M., Thompson, G.S., & Silverberg, D. A. (2005). Effective group dynamics in team learning: Case study. *Journal of Educational technology*. 33(3), 205-222.
- Gareis, E. (2006). Virtual teams: A comparison of online communication channels. *The Journal of Language for International Business*. 17(2), 6-21.
- Garrison, D.R. & Kanuka, H. (2004). Blended learning: Uncovering transformative potential in higher education. *The Internet and Higher Education*, Vol. 7, pp. 95-1005.
- Gomm, R., Kammersley, M., & Foster, P. (Eds.) (2000). *Case Study Method*. London: Sage Publications.
- Graf, D. (2008). Tools for the management of information and learning. Retrieved April 20, 2008, from http://webcte.nova.edu/SCRIPT/serve_home8012-0Li_33075_200830/script/serve_home.
- Hazari, S. (2004). Strategy for assessment of online course discussions. *Journal of Information Systems Education*. 15(4), 340-355.
- Ioannou, A. & Hannafin, R. (2008). Course management systems: Time for users to get what they need. *TechTrends*. 52(1), 46-50.
- Ioannou, A. & Hannafin, R. (2008). Deficiencies of Course Management Systems: Do students care? *The Quarterly Review of Distance Education*. 9(4), 415-425.
- Jackson, M. H. & McDowell, S.D. (2000) Enhancing discourse on new technology within higher education, *Information, Communication and Society*, 3(4), 629-638.

- Kazmar, M. (2006). Creation and loss of sociotechnical capital among information professionals educated online. *Library and Information Science Research*. 28(2), 172-191
- Kolb, D. A. (1984). *Experiential Learning*. Englewood Cliffs, New Jersey: Prentice Hall.
- Larreamendy-Joerns, J. & Leinhardt, G. (2006). Going the distance with online education. *Review of Educational Research*. 76(4), 567-605.
- Lessard, D. & Gaumont, J. (2006). Academy industry collaboration: The example of bridge-elearning. In L. Esnault (Ed.) *Web-Based Education and Pedagogical Technologies: Solution for Learning Applications*. New York: IGI Publishing. 266-279.
- Lewis, R. (1997). An activity theory framework to explore distributed communities. *Journal of Computer-Assisted Learning*. 13, 210-218.
- Luo, L. (2010). Social networking websites: An exploratory study of student peer socializing in an online LIS program. *Journal of Education for Library and Information Science*. 51(2), 86-102.
- Malhotra, A. & Majchrzak, A. (2005). *MIT Sloan Management Review*. 46(2), 11-14.
- Markaukaite, L. & Sutherland, L.M. (2010). Exploring individual and collaborative dimensions of knowledge building in an online learning community of practice. *Information in Education*. 7(1), 05-126.
- McGuire, J., Barnatt, C., & Barker, N. (2010). How can...the cloud improve collaboration and make business more efficient? *Director*. 63(11), 25.
- Morgan, G. (2003). Faculty use of course management systems. Retrieved September 11, 2010, from <http://www.educause/ir/library/pdf/>
- Nonaka, I. & Takeuchi, H. (1995). *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford Press.
- O'Bannon, W. B. & Puckett, K. *Preparing to Use Technology: A Practical Guide to Curriculum Integration*. 2nd ed. Boston: Pearson
- Passig, D., & Schwartz, G. (2007). Collaborative writing. *International Journal of E-Learning*. 6(3), 395-412.
- Peddibhotla, N. B. & Subramani, M. R. (2006). Managing knowledge in virtual communities within organizations. *Knowledge Management: An Evolutionary View*. I. Becerra-Fernandez and D. Leidner (Editors). Armonk, New York: M.E. Sharpe. 229-248.
- Prensky, M. (2001). Digital native digital immigrants. <http://www.marcprensky.com/writing/Prensky/default.asp>.
- Psycharis, S. (2007). The relationship between task structure and collaborative group interaction in synchronous peer interaction collaborative learning environment for a course of physics. *Educational Information Technology*. 13, 119-128.
- Pyoria, P. (2005). The concept of knowledge work revisited. *Journal of Knowledge Management*. 9(3), 116-127.
- Pyoria, P. (2007). Informal organizational culture: the foundation of knowledge workers' performance. The Finnish Model of an information society. *Journal of Knowledge Management*. 11(3), 16-30.
- Pyoria, P. (2009). Virtual collaboration in knowledge work: from vision to reality. *Team Performance Management*. 15(7/8), 366-381.
- Ravenscroft, S. P. (1997). In support of cooperative learning. *Issues in Accounting Education*. 12(1), 87-190.
- Roqueta, M. (2008). Learning Management Systems: A focus on the learner. *Distance Learning*. 5(4), 59-66.
- Rosenberg, M. (2001). *E-Learning Strategies for Delivering Knowledge in the Digital Age*. New York: McGraw-Hill
- Sabieh, C. (2008) Realities of Integrating Online Support: A Case for the Middle East. In Davidson, P., Shewell, J. and Moore, W. J. (Eds.), *Educational Technology in the Arabian Gulf: Research, Theory and Pedagogy* (pp. 213-281). Dubai, UAE: TESOL Arabia.
- Sabieh, C. (2009). E-Learning and Language: The Spirit of the Age. In T. Bastiaens et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2009* (pp. 664-674). Chesapeake, VA: AACE.
- Simonson, M. (2007). Course management systems. *Quarterly Review of Distance Education*. 8(1), vii-1x.
- Slavin, R. (1991). *Educational Psychology: Theory into Practice*. Upper Saddle River: Prentice Hall.
- Slavin, R. (2001). Cooperative learning and intergroup relations. In J. Banks and C. Banks (Eds.) *Handbook of Research on Multicultural Relations*. San Francisco, CA: Jossey-Bass.
- Straub, R. (2008). In the future: Learning will reshape our world at work, at home, and at school. In L. Esnault (Eds.) *Web-Based Education and Pedagogical Technologies: Solution for Learning Applications*. New York: IGI Publishing. 248-251.
- Stripling, B. (2003) Inquiry based learning. In B. Stripling and S. H. Hassell (Eds.) *Curriculum Connections Through the Library*. Westport, CT; Libraries Unlimited.
- Vygotsky, L. (1986). *Thought and Language*. Cambridge, Massachusetts: MIT Press.
- Zhu, Y., Gareis, E., O'Keefe Bazzoni, J., & Rolland, D. (2005). Focus on intercultural communication: A collaborative online project between New Zealand and New York. *Business Communication Quarterly*. 68(1), 81-96.
- Ziegenfuss, D. (2005). By instructional design: Facilitating effective teaching and learning with technology. In M. O. Thirunarayanan and A. Perez-Prado (Eds.) *Integrating Technology in Higher Education*. Lanham, MD: University Press of America.