This paper explores how technology can overcome the negative influences of cultural and demographical differences on classroom participation. The authors propose a theoretically-based, pedagogical paradigm which illustrates how barriers erected by cultural and demographic differences in the classroom can be overcome by utilizing advanced information technology. Finally, the influences of classroom participation on various learning objectives are reviewed, propositions are derived from the model, and future research directions are discussed.

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INTRODUCTION

As global business integration continues to shrink the international environment, the development of a modern world economy demands a viable, educated workforce. Growing nations such as India, China and Brazil are finding that this huge demand for an educated populace is severely crippling their educational infrastructure (Tilak, 2007; Chen, 2007). For these countries (and other developing nations) to maintain their current levels of industrial growth and service, their citizens must turn to other viable educational sources to satisfy their domestic economies’ overwhelming demand for skilled labor.

While higher level institutions struggle to educate this growing international student population, another important issue has arisen which directly affects the domestic educational environment: lifelong continuous learning. By most estimates, the functional life (i.e. the time for which the learned skills are relevant/useful in the job market) of an academic qualification is five years, after which an individual needs to update one’s academic skill-set to remain current (Twigg, 2002). In other words, students do not cease learning once they have received their degree. In fact, most adults have maintained their relationship with higher education institutions, thereby creating a whole new student demographic. This non-conventional or non-traditional student population now accounts for upward of 60 percent of the US higher education market (Twigg, 2002). These typically part-time students, who live off-campus and have full time jobs and families, have a completely different set of issues and constraints than traditional, conventional students. For example, for the non-traditional student demographic, issues such as convenience, flexibility, cost, daycare, etc. may be the deciding factors in their educational choices (Folkers, 2005), whereas the traditional student may ignore these factors in favor of affordable campus housing, financial aid, and university location, reputation or prestige.

From the voracious appetite for quality education in the developing economies, to the non-traditional student in developed economies, advanced information technologies are significantly altering the nature of effective pedagogy. Educational institutions have exploited advanced information technologies to enter new markets (and other nations), and cater to the flexibility needs of various students with different demographics (Dykman and Davis, 2008; Folkers, 2005; Wood, Tapsall and Soutar, 2005). Diverse course delivery options have emerged, from hybrid courses where there is a certain amount of traditional, face-to-face instructor-student contact to asynchronous online courses lacking any face-to-face contact among the course participants and the instructor (Martyn, 2003). In sum, this confluence of diverse student demographics (traditional, non-traditional student mix), multiple cultures, multiple nationalities, and multiple locations create a very complicated, interesting and challenging classroom (real or virtual) environment.
Given this context, the purpose of this paper is to explore the impact of culture and demography on the participative learning environment, and determine how advanced information technology can overcome the limitations that these factors create. Specifically, the current authors posit that technology will lower the barriers that demographic and cultural differences tend to erect (Chernesky, 2003; Morrison, White and Van Velsor, 1987), thereby allowing a greater level of participation in the classroom by a more diverse set of individuals. These individuals, in turn, will experience a higher level of positive outcomes from their educational experience. By conceptually focusing on these factors, the main contribution of this paper is to create a new, representative paradigm in a research field severely lacking in theoretical foundation.

This manuscript begins with a short perusal of the literature illustrating the influence of culture on participation in the classroom. This literature review culminates with a conceptual pedagogical model showing the current theoretical paradigm. Utilizing advanced information technology as a critical independent construct, the authors reconstruct a more accurate representation of the variable interactions, and illustrate the influence of these variables on participation and other notable outcome factors. In other words, antecedents and consequences of participation are fully explained, and their influences within the proposed pedagogical model are clearly delineated. Propositions are derived from this new model and future empirical research directions are discussed.

**Participation, Culture & Learning Outcomes**

Participation in class activities allows individuals to interact with other students, gain social expertise, and access and process information that they could have never gotten on their own. It is truly vital to not only career success after the educational process is complete, but also for motivation, satisfaction, performance and a variety of emotional indicators during a student’s education. Fostering a participative environment is usually the goal of most Western instructors, as there is agreement that an experiential teaching method is incredibly effective. In sum, participation has been linked to critical-thinking skills (Delaney, 1991), problem solving skills (Gilmore and Schall, 1996), and increased student motivation (Wade, 1994).

One would be remiss, however, to overlook culture as a factor that can significantly impact class participation. For example, educational psychology plays a critical role in motivating students in the west, whereas examinations are the predominant motivators in the east (Yee, 1989). Given these differences, pedagogical approaches such as case studies, role-plays, business games and group discussions need a more careful and systematic approach in the eastern context (Chan, 1999). Furthermore, demographics can critically affect the quality of classroom participation. Race, gender, physical disabilities all have an impact on the authenticity of class participation as students tend to make sure that their
contribution is politically correct. Thus, their contribution may not necessarily be their genuine opinion as they “self-censor” their contribution so as not to say something that is perceived unacceptable. One of the ways to mitigate these problems is to have a mechanism where students may participate and still be anonymous (Avery and Steingard, 2008).

While demographic variables have been related to participation, research in Education and Social Psychology indicate that they have limited explanatory and predictive power. However, research in Organizational Behavior and Management Information Systems suggest that demographic variables are extremely important because similarity is one of the most enduring factors for inclusion in the social network (McGuire, 2000). Based on these views, the current pedagogical model of the relationship between demography, participation, and learning outcomes, although parsimonious, does not represent a realistic or accurate view of the true conceptual paradigm (see Figure 1). It also fails to include a very important variable in the current environment: advanced information technology.

![Figure 1. Current Demographic - Pedagogical Model](image.png)

**ADVANCED INFORMATION TECHNOLOGY AND LEARNING OUTCOMES**

During the past decade, the creation and delivery of knowledge have utilized advanced information technology as a part of its mix. Advanced information technology includes electronic messaging systems, virtual classes, learning management systems and other technologies that enable multiparty participation in the communication process through sophisticated information management (Huber, 1990). This is especially true in the context of international education, where technologies have been used to bridge distances and allow for communication across both time and space, an increasing consideration across all education and training organizations. In these cases, researchers have primarily focused on the different kinds of technology and its direct impact on learning outcomes (Alessi and Trollip, 2001; Leidner and Jarvenpaa, 1995) (as shown in Figure 2).
This stream of research, however, has suffered from three major shortcomings. First, the results regarding the use of advanced information technology in learning have been equivocal (Gupta and Bostrom, 2010; Kovalchick and Dawson, 2004). While most studies have enough anecdotal evidence from students, instructors and researchers, direct evidence regarding the positive effect of technology use has been limited. Second, the current research paradigm does not address the growth in instructional technology (Corbett, 2009). Much the focus of technology research has been on technological features such as email, chat, discussion boards and more recently on web 2.0 tools such as audio/video chat. However, given the number of existing and emerging tools as well as implementation differences, research examining various tools does not provide generalizable results. Finally, much of the information systems research has been deterministic (lacking a clear explanation regarding the cause and effect). However, education research points out that participation, is an essential component of learning using technology (Woo and Reeves, 2009). Therefore, in the framework presented in the next section, we develop the model by utilizing participation as a mediating variable that will explain the influence of advanced information technology on learning outcomes.

**The Proposed Pedagogical Model**

In the proposed pedagogical model (Figure 3), the current authors argue that technology is a critical part of the design of a learning environment to deliver content across geography. We also posit that technology manipulates various psychological variables that govern communication and participation in a classroom environment. In addition, the derived paradigm illustrates that both demographic and cultural variables moderate the effect of these psychological variables.
variables. Finally, we believe that this model substantially enhances the predictive power of the learning outcomes and more clearly explains the role of both technology and demographic variables in inducing student participation in an international education scenario. In sum, the proposed model brings together literature from information systems (Zigurs, 1999), social psychology (Rappaport, 2000), and education (Moore, 2003).

![Proposed Pedagogical Model]

**ADVANCED INFORMATION TECHNOLOGY: COMMUNICATION TOOLS**

Researchers have recently argued that the focus of inquiry needs to shift away from the communication tools themselves and concentrate more on the attributes of the underlying technology (Gupta, 2008; Gupta and Bostrom, 2009). Based on this approach, the authors identify five important attributes of the underlying technologies: Level of Anonymity, Richness, Simultaneity, Telepresence, and Synchronicity (See Table 1) (Gupta and Bostrom, 2008).

Technology has the potential to reduce social barriers in class participation because of anonymity. However, levels of anonymity can vary across the technologies. For example, discussions boards can be implemented in three different ways, thereby providing three different levels of anonymity: Complete
Table 1: Communication tools: Features and Attributes

<table>
<thead>
<tr>
<th>Communication Tools</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chat</td>
<td>Anonymity (Sia, Tan and Wei, 2002)</td>
</tr>
<tr>
<td>Email</td>
<td>Richness (Webster and Hackley, 1997)</td>
</tr>
<tr>
<td>Audio/Video delivery</td>
<td>Simultaneity (Laku Chidambaram and Bostrom, 1997)</td>
</tr>
<tr>
<td>Discussion boards</td>
<td>Telepresence (Papa, Perugini and Spedaletti, 1998)</td>
</tr>
<tr>
<td>Virtual Worlds</td>
<td>Synchronicity (Poole and DeSanctis, 1990)</td>
</tr>
</tbody>
</table>

anonymity, where the discussion board allows anonymous posts; complete identification, where discussion boards force students to reveal their name when posting; and limited anonymity, where discussion boards allow students to post on discussion boards using an alias. While education researchers have acknowledged these differences, no research exists that examine these differences in an education setting. However, group support system researchers have found that a greater level of anonymity improves groups’ outcomes (Connolly, Jessup and Valacich, 1990; Diehl and Stroebbe, 1987; Hackman and Kaplan, 1974; Lamm and Trommsdorff, 1973). Therefore, we contend that in an educational setting involving international students, anonymity can help reduce inhibitions associated with evaluation apprehension and social status differences (Valacich, Dennis and Nunamaker, 1992) thereby improving the communication between participants.

*Proposition 1a: The level of anonymity in advanced information technology will have a positive correlation with the level of student participation. In other words, as anonymity increases, so will participation.*

King, Burke and Pemberton (2005) classified channels of information in terms of "richness": the more learning that could be obtained from a channel or source, the richer the channel. Face-to-face communication is the richest as it provides direct experience and contact, multiple information cues, immediate feedback and a personal focus. Other interactive media such as e-mail and electronic bulletin boards provide rapid feedback but lack the cues available in
face-to-face discussion. Formal documents are the poorest form of communication as nothing in their delivery can add to the content that is already there. The lack of these social cues assists in breaking the glass ceiling and keeping prejudices at bay. Specifically, this allows recipients of poorer communications to focus on assessing individual competence on the content of the message as opposed to falling prey to preconceived notions about the sender of the communication. This provides the basis for the next proposition.

Proposition 1b: The level of information richness in advanced information technology will have a inverse correlation with the level of student participation. In other words, as the level of information richness increases, participation will decrease.

Simultaneity refers to the number of concurrent messages that can and will be sent by different users. In a typical face-to-face classroom, the number of concurrent users is usually limited to one; one person (usually the instructor) talking at a time. Advanced information technology, however, affords the ability to have multiple channels of communication as well as allowing multiple users to utilize the same channel at the same time, (multiple users employing the discussion board at the same time). This increase in simultaneity has been shown to have a positive effect on group decision making (McClernon and Swanson, 1995; Niederman, Beise and Beranek, 1996; Petrovic and Krickl, 1994; Sheffield and Gallupe, 1994). In a geographically dispersed education setting, the increase in the simultaneity will allow users to express views that might not have been expressed in a traditional classroom because of the lack of time or opportunity. This provides the rationale for the next hypothesis.

Proposition 1c: The level of simultaneity in advanced information technology will have a positive correlation with the level of student participation. In other words, as the level of simultaneity increases, so will participation.

International education programs are taught with students coming from dispersed locations. Earlier IS and education research has shown that increased group member proximity is needed to enhance group effectiveness (Bui, Sivasankaran, Fijol and Woodbury, 1987; Chidambaram and Jones, 1993; Jessup and Tansik, 1991; Ocker, Fjermestad, Hiltz and Johnson, 1998; Ocker, Hiltz, Turoff and Fjermestad, 1996; Valacich, Wheeler, Mennecke and Wachter, 1995). However, physical proximity is not possible in all contexts. Advanced information technology allows students to be virtually present by varying the level of telepresence. Telepresence refers to a set of technologies which allow a person to feel as if they were present. Specifically, telepresence allows an individual to have an effect at a location other than their true location: to give the appearance that they are present at that “other” location (Papa, et al., 1998). Technological
tools such as secondlife are pushing the envelope of this virtual presence by allowing “avatar” based personalities to attend classrooms, an avatar is a computer user’s representation of himself/herself or alter ego, allowing limited amount of human expression. We contend that it is not the extent of proximity of the students from the classroom, but the level of telepresence that will influence learning outcomes in contemporary international education courses.

Proposition 1d: The level of telepresence in advanced information technology will have a positive correlation with the level of student participation. In other words, as the level of telepresence increases, so will participation.

The final communication attribute that influences participation deals with the level of synchronicity. Synchronicity refers to the extent to which students and instructors can participate in a discussion at the same time. While asynchronous tools such as discussion boards (or bulletin boards) have existed for some time, web-based advanced information technology has allowed for large scaled synchronous tools such as virtual classrooms to exist for a course. Earlier IS researchers have argued that synchronous tools enhance the efficiency of group outcomes (Poole and DeSanctis, 1990). However, there has been limited empirical support for this position. We contend that synchronous tools allow for greater interactivity and quicker feedback from the instructor. Education researchers have found that enhanced speed of feedback improves the quality of mental models for the students (Piccoli, Ahmad and Ives, 2001). This provides the grounding for our final communication proposition.

Proposition 1e: The level of synchronicity in advanced information technology will have a positive correlation with the level of student participation. In other words, as the level of synchronicity increases, so does participation.

DEMOGRAPHIC AND CULTURAL VARIABLES

Pfeffer (1983) argued that demography is an important, causal variable that affects a number of intervening variables and processes and through them, a number of organization outcomes. Demographic factors are important in understanding and managing organizations because similarity is one of the most important bases of interpersonal attraction; and demographic features such as age, race, and gender both help to determine similarity and also signal that those who share these features are more likely to be similar. In sum, demographic theory focuses on compositional characteristics that influence communications in a network (Forret and Dougherty, 2004; McGuire, 2000) and their impact and influence in organizations (Lortie-Lussier and Rinfret, 2005).
In organizations, demographic similarities and differences have been found to influence frequencies of communication (Pfeffer, 1983). For instance, Watkins et al. (2006) argued that men (versus women) were disproportionately relied upon or sought for work-related knowledge and, in turn, obtained more promotions. Goodman (1974) suggested that the availability of communicated information and access to this information are primarily determined by personal characteristics (e.g., gender, age, and race). According to McGuire (2000), network demographic composition sets the social context for relationships within an organization. The degree of an individual's similarity or dissimilarity to others in a network has been shown to influence the processes that affect employee communication, and subsequently serve as an important predictor of career success (Tsui and O'Reilly, 1989).

There is much evidence that women, minorities, and older workers face barriers to participation in numerous ways (Chernesky, 2003; Morrison, et al., 1987; Okpara, 2006). These barriers have been described in an overall fashion as “the glass ceiling”, a transparent barrier which impedes participation beyond a certain point (Morrison, et al., 1987; Okpara, 2006). The lack of progress of breaking this glass ceiling, combined with the increased diversity of the students, pushes the management of this diversity to the forefront as one of the most significant issues facing educational organizations in the 21st century (Chernesky, 2003).

Within this issue of managing diversity is the Herculean task of managing culture. The trend of internationalization in the business environment has led to numerous pedagogical issues and challenges in the educational environment. Simply put, increased multi-nationalism has meant increased multiculturalism within the classroom. Determining the proper teaching methods to address cultural differences and operate within acceptable cultural boundaries has been rather problematic (Shaw, 1990). In addition, cross-cultural interactions usually lead to misperceptions and miscommunications and the literature has convincingly shown that people react differently when engaging in communication exchanges with others from different cultures (Adler, 2008). These misconceptions signify the divergent cognitive views that different cultures possess. Therefore, as international education methods try to overcome cultural obstacles, it is quite obvious to envision these cultural differences creating barriers to participation.

While the above summarized research does illustrate that demographics and culture play an important role on participation, it suffers from two major shortcomings: 1) it does not explain how the demographic variables actually affect participation, and 2) it does not take the characteristics of advanced information technology into account. This omission exists because earlier research examining participation has taken an input-output perspective, thus
ignoring critical aspects of the process. On the other hand, researchers examining the role of technology have argued that Information Technology plays an important role in normalizing interactions between individuals who are demographically and culturally different.

By focusing on technology characteristics rather than the technology itself, a clearer position is delineated and a more generalizable set of arguments are proposed. The proposed pedagogical model outlined in Figure 2 argues that demographic and cultural variables have an effect on learning outcomes by moderating the relationship between technology characteristics and participation. We can see some evidence of this in the literature. (Reinig and Shin, 2002) argued that the reduction of social barriers to participation through anonymity would increase the likelihood of those individuals who are minorities expressing their opinions. The impact of these demographic and cultural interactional disparities can now be effectively explained in the proposed pedagogical model. Therefore, it is proposed, that although demographic and cultural differences will lead to the exclusion of certain individuals in influential networks, technology lifts this barrier and acts as one method of shattering the glass ceiling.

Proposition 2: Individuals who are demographically or culturally different from others will have different perceptions of the levels of advanced information technology attributes. Thus, demographics and culture will moderate the effects of advanced information technology on class participation.

LEARNING OUTCOMES

Learning goals focus on the desired knowledge to be attained as a result of the learning/training process (Kang and Santhanam, 2003; Sein, Bostrom and Olfman, 1999). Research in Educational Psychology classifies learning goals into four categories: skill, cognitive, affective and meta-cognitive goals (Anderson and Sosniak, 1994). Skill goals focus on imparting procedural knowledge or know-how; cognitive goals focus on building a broader domain of knowledge regarding the subject area; affective goals focus on enhancing the level to which the learner is immersed in the subject matter; and meta-cognitive goals focus on enhancing the learners ability to understand his/her own learning and information processing process (Gupta and Bostrom, 2010).

Classroom participation has been suggested to facilitate students in developing critical understanding, self-awareness, appreciation for diverse perspectives, and an ability to be proactive (Brookfield and Preskill, 1999). During class participation, students are active and are responsible for their own learning (Cooper, 1995). Participation provides an opportunity to the students to learn through their own contribution and through the contribution of their fellow students (Hertenstein, 1991). According to Davis (1993), through discussion,
students gain practice in thinking through problems, organizing concepts, formulating arguments, testing their ideas in a public setting, evaluating the evidence for their own and others’ positions, and responding thoroughly to critical and diverse points of view. Ewens (2000) suggests that compared to traditional lecture style teaching, encouraging classroom participation promotes a higher level of reflective thinking and problem solving, including application, analysis, synthesis and evaluation, and that information learned through discussion is generally retained better than information learned through lecture.

The aforementioned argument linking participation to important learning outcomes has been validated in research studies across numerous disciplines. For example, participation has been found to significantly influence critical thinking skills (Delaney, 1991), problem solving skills (Gilmore and Schall, 1996), and increased student motivation (Wade, 1994). Students who are active participants have been shown to retain more information after the end of the course (McKeachie, 1994) and perceive more satisfaction with the course (Serva and Fuller, 2004) as opposed to students who do not participate. Therefore, these positions form the foundation for our final proposition.

Proposition 3: An individual’s participation in the learning environment will be positively related to his/her learning outcomes. In other words, the higher the participation rate, the higher the learning levels.

FUTURE RESEARCH

Future research needs to move beyond the identification of demographic and cultural differences, and toward the development of sound theoretical principles that will offset the barriers that these variables raise in the modern day classroom. New, innovative pedagogies must be developed to take advantage of cultural and demographic differences, instead of reacting post hoc to the misconceptions that these cross-cultural interactions create. A first step toward this goal is to empirically test the variable interactions postulated in the proposed pedagogical model. The operationalization of the variables, and a subsequent test and examination of the derived propositions, should give scholars a theoretically-grounded foundation upon which to base future empirical inquiry.

Existing research on racial groups, cultural groups, and other demographic-based individuals (Combs, 2003; Gupta and Bostrom, 2009; Moody, Beise, Woszczynski and Myers, 2003; Okpara, 2006) suggest that participation experiences differ within and across culture and demography. For example, although Chinese and Indian students may be subject to some negative stereotyping, and therefore, may not participate as much as the majority, they may be less likely than other cultural groups to report exclusion. Future research that gives more attention to multiple cultural groups, as opposed to comparing cultural minority groups to cultural majority groups will be very beneficial.
Finally, empirical inquiry that explains the complex nature of the intersection of culture and gender, and its subsequent impact on participation is also recommended.

**CONCLUSION**

There is a general consensus in the management education community and literature that student participation in the learning process facilitates the achievement of learning outcomes (Bigelow et al., 1998; Goodsell et al., 1992). The old maxim, “Tell me, I forget; show me, I remember; involve me, I understand”, seems to apply to business education as well. While experiential learning has pushed the boundaries of concept retention and application far beyond the basic rote memorization levels, many of the experiments on participative learning have been conducted only in the United States (Delaney, 1991; Wade, 1994). This exploratory review illustrates that, as with all Western theories that are applied in foreign societies, one cannot assume that the injection of culture into any theoretical paradigm will produce the same outcomes.

As higher level institutions continue to serve an ever-growing global market, new challenges and opportunities to creating a more participative educational environment consistently emerge. Determining the influence of culture on classroom participation and developing methods that will maximize students’ chances for educational and career success are just two of the obstacles that must be overcome. For example, in traditional Western classrooms, participation may be achieved in a variety of ways: faculty or student led discussions; case studies; small group activities; simulations; or other problem solving exercises (Faust and Paulson, 1998; Roebuck, 1998). But in the eastern cultures, the students are typically quite passive and an instructor would not expect much class participation (Biggs, 1994). This may present problems to instructors who are used to participative styles of teaching. In Eastern cultures, learning is mostly done through rote memorization with a strong emphasis on “fact” recall. This is in direct contrast to Western cultures, which encourage abstract thinking and concept application over mere rote memorization and regurgitation. These differences may not only hinder the professional success of the student, but they can also serve as major obstacles for multinational corporations seeking standardization of continued education and training for their employees in their subsidiaries throughout the world.

It has been argued that different students are predisposed to participate at different rates, with international students, local students from diverse ethnic backgrounds, and students with passive personalities participating less. In addition, female students tend to shy away from confrontational or noisy discussion sessions and mute their participation as a result (Gilson, 1994). Regardless of their positions, all of the scholars in this field agree on one thing:
student participation is vitally important, and may very well be one of the most influential keys to truly learning and understanding.

Simply put, classroom participation has long been recognized as a road map to educational success (Delaney, 1991). In fact, getting students to actively participate is the goal of every instructor. This paper attempts to explore the impact of demography and culture on classroom participation, and technology’s significance in overcoming the challenges that these variables present. Utilizing advanced information technology as an impactful construct, a new proposed pedagogy enhances understanding and the predictive nature of the theoretical paradigm. Based on this conceptual, theoretical review, it has been proposed that technology can be used to mitigate the stereotypical factors that exist with certain types of cross-cultural communication, thereby allowing input from minority group to be accepted by virtue of its content, and on its own merit.

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