Exploring interactions of cultural capital with learner and instructor expectations: A case study

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ABSTRACT

In this case study, we are able to take a close look at a situation not often encountered in the literature on ICTs in emerging economies: a private company from an emerging economy provided much-needed funding for a US NASA higher learning consortium through a contract for training and research and development in 3D visualization. This study examines this training program by asking: How do bidirectional flows of cultural capital interact with learner expectations and instructor preconceptions in the case of a cross-sector, cross-border training program? Researchers and practitioners concerned with education in a globalized context may consult findings here to deduce a set of criteria underlying these learners' expectations for this NASA branded program and preconceptions of the instructors about the learners that may help instructional designers prepare for comparable cross-cultural training programs.

INTRODUCTION

Policy advisors have made a global call for nations to prioritize their knowledge-economy-building initiatives, and this call is being answered by a surge of non-profit and market-driven strategies to produce innovative educational technologies (Britz, Lorc, Coetzee & Bestere, 2005; Dahlman & Utz, 2005; Daniel, 1996; Morey, 2004; van der Wende, 2002). For organizations to innovate in the educational technology space, they have been forming partnerships across sectors and across borders in order to train personnel for high level innovation. Such cross-sector, cross-border training for innovation environments continue to increase in number and provide rich ground for examining dynamics of culture in the process of instructional design and technology (IDT) in a globalized knowledge economy.

The roots of instructional design cling to the soil of the military-industrial complex and its call for more effective, efficient and productive processes for uniform training (Reiser & Dempsey, 2007). Though still of legitimate concern in today's learning environments that reflect the transitional growth from industrial to knowledge-based economies, calls for effectiveness, efficiency and productivity are accompanied by calls for equity, sustainability and innovation (Vrasidas, Zembylas & Glass, 2009). For example, development was once seen from the Western point of view as a measure of economic growth through attention to gross domestic product indices; whereas, newer, more globally inclusive views show attention to development as a process of improving individual human rights and attention to environmental sustainability (Sen, 2006 qtd. in Vrasidas, Zembylas & Glass, 2009). Petrina (2004) argues that the models proposed by instructional designers are lacking because "universal formulas" could only work in apolitical environments which arguably, do not exist. Visser and Suzuki (2007) observe that "the professional literature of the instructional design field draws heavily on the experience of its application and development in one country, the United States of America" (p.235). These critiques of applying Western-based models gain more significance as the practice of IDT continues to occur in increasingly global contexts.

This study seeks to problematize traditionally reductionist approaches of IDT, in particular because of the cross-cultural implications of imposing only one world view as the truth by exploring how bidirectional flows of cultural capital interact with learner expectations and instructor preconceptions in the case of a cross-sector, cross-border training program.

Case

In 2007, NextGenEd (pseudonym), a private education software company headquartered in India, contracted with the Institute for Advanced Learning (pseudonym) (IAL), a consortium of three US state universities, a community college and one of NASA's Space Centers, to train up to fifty employees to build applications that produce 3D graphical representations for CAVE (Cave Automated Virtual Environments). NextGenEd initiated this training program as a research and development project to potentially produce software and build immersive three-dimensional virtual (i3Dv) environments for thousands of higher education, primary and secondary institutions in India, the US and Europe. The IAL team, subject-matter experts in i3Dv programming with minimal experience as educators, prepared and offered an on-site training program at their location on the campus of a NASA space center. From January 2008 to December 2008, NextGenEd sent twenty-four employees to participate in this training program as students. This case study examines this training program from the initial planning stages beginning in late 2007 until post-training stages of research and development still in progress in late 2010.

THEORETICAL FRAMEWORK

The theoretical framework for this study draws from Young's (2008) Culture-Based Model (CBM) for instructional design. As part of the empirically-based framework, Young proposes twenty-five cultural elements in three categories: anthropology of culture, psychology of culture and science of culture (p.64). Drawing from a broader study examining all of these elements, this study presents a narrowed focus on the one element of cultural capital in order to examine how it interacts with learner expectations more closely (Russell, Kinuthia, Lokey-Vega, Tsang-Kosma, & Madathany, 2013). Cultural capital represents factors related to the economics and material wealth of a culture (Young, 2009). In defining cultural capital and forming guiding questions, Young (2009) focuses on economic categories of production, distribution and consumption of goods and services.

Guiding Question

How does cultural capital interact with learner expectations and instructor preconceptions in the case of a cross-sector, cross-border training program?

LITERATURE REVIEW

Anecdotal, qualitative and analytical approaches in the literature provide multiple perspectives and particularistic findings on cultural factors, learner expectations and instructor preconceptions in the instructional process and integration of technology across borders.

In "Taking Ownership: Strengthening Indigenous Cultures and Languages Through the Use of ICTs" Lieberman (2003) considers the dynamics of using ICTs for the benefit of indigenous cultural causes. The argument he makes in this article is that 1) the use of ICTs is already widespread and inevitable, and 2) policies towards productive and positive uses of ICTs may mediate the potential for negative consequences. Lieberman's analysis is relevant to this case study which offers an opportunity to examine cultural interactions with the decisions and

perceptions of stakeholders in a project to introduce an educational technology innovation in a country where indigenous cultural causes are still prevalent.

In the context of higher-education, Ezer (2006) interviews faculty and students in India to get an impression of the attitudes towards ICTs and ICTs in education in India. Ezer explores what Indian faculty and students believe to be the purpose of ICT. He concludes that students and faculty show optimism about ICT and seem to have whole heartedly adopted the Western model of individualistic, rational and imperialistic success. Ezer's research is particularly relevant to the case in this research because attitudes towards ICTs by faculty and students in India interact significantly with the purpose of the training program, the students' experience in the training program and the potential market for the i3Dv product.

Studies on open learning and distance education in nations with emerging economies show a trend of collaborations with universities and expert instructional designers from nations with developed economies (Merrill, 2001; Perkins, et al., 2005; Visser & Berg, 1999). This same trend of cross-border collaboration is evident in the literature on the impact and integration of ICTs in nations with emerging economies. In a case study describing a World Bank Institute sponsored project encompassing East and West Africa, Burniske (2003) found that participants faced cultural challenges in "fundamental activities in the telecollaborative process" (p. 108). Luschei, Padmo and Spector (2009) report on a partnership between the Open University of Indonesia and Florida State University and emphasize the importance of building friendships beyond professional relationships across borders to increase the "potential for real collaboration" (p. 22).

Several case studies in the literature provide general descriptions of international projects and conclude with a list of challenges or lessons learned about the process of design in the cross-cultural, cross-border or cross-sector context. Common themes that emerge include: 1) culture as an important factor during stages of the instructional design process (Chitiyo & Harmon, 2009; Eastmond, Gutierrez & Shanley, 2010; Lim, 2007; Perkins, et al., 2005); and 2) calls for design models or modifications to models that better fit such situations by taking culture into account (Arya, Margaryan & Collis, 2003; Soulier, 1999; Visser & Berg, 1999; Zagoumennov, 2010). This study seeks to take culture into account by considering the dynamics of cultural capital in the IDT context.

METHODOLOGY

This research uses the qualitative approach of case study and applies a cultural design framework to examine learner expectations and instructor preconceptions in a sample case. I take a pragmatic view with this case study approach in assuming knowledge about this training program is context-dependent but potentially useful for cross-referencing with other cases.

Purposeful sampling was used to select participants. One member of NextGenEd management in the US participated in the study; no members of NextGenEd management in India participated in this study. Twelve members of NextGenEd's training program team participated in the study: one project manager, one team lead, and ten students.

The sample of artifacts includes documents, websites and 3D visualization applications.

Interviews were conducted over an eighteen-month period in the US and India while the training program was still being conducted and after it had concluded. Transcripts of interviews were e-mailed to participants for their feedback. Participants acknowledged receipt of the transcripts, but no feedback was offered. Artifact analysis was conducted over a two-year period while the training program was still being conducted and after it had concluded. Observations were

conducted on site at IAL in July 2012 and at the Indian headquarters of NextGenEd in September 2010. Transcribed interviews, artifacts and field notes were coded in NVIVO through multiple stages and with multiple coders, all advanced levels of instructional design credentials and experience.

Units of data were coded in accordance with the instructional design process and cultural element of cultural capital as defined by Young's Culture-Based Model. NVIVO generated a matrix of overlapping coded references between emergent themes related to the design process and cultural capital. Units of coding were cross-referenced between units of analysis for triangulation of data, and validated data was chosen to present in the findings. Data were analyzed to identify where components of the design process, decisions of the design team, and perceptions of the stakeholders overlap with culture as defined by Young's CBM framework.

FINDINGS

Findings related to cultural capital are presented with supporting excerpts from the data to reveal:
1.   where decisions were made and stakeholder perceptions were formed that relate to learner expectations or instructor preconceptions;
2.   where the connection between these decisions and program outcomes are related;
3.   what stakeholder perceptions were expressed about these decisions and program outcomes; and
4.   where these decisions, stakeholder perceptions and program outcomes interact with or are related to cultural capital.

The findings reveal systemic cultural interactions in the bi-directional flow of cultural capital and the impact of this flow on design decisions, stakeholder perceptions and project outcomes. The emergent themes reflecting this interaction include: 1) multiple roles of instructors and students influenced by exchanges of cultural capital; and 2) misconceptions about cultural capital.

Multiple roles of instructors and students influenced by exchanges of cultural capital

The training agreement between IAL and NextGenEd included the completion of marketable i3Dv products as part of the training program. This goal resulted in members of the IAL team serving multiple roles as instructional designers-by-assignment, instructors, marketing and salespeople, project managers and product designers. These findings show overlap of cultural capital related motivations and opportunities for the instructional design team to become more culturally-informed about their audience.

The Director of IAL visited India to promote the NextGenEd i3Dv initiative.
> *Director*: It was a big marketing tour for me, I mean, that was the goal… to get people to sign up to commit to this.

The Director's trip, which took place before the training program began, was for the purposes of finalizing the agreement with NextGenEd and to promote the program and its outcomes to potential clients. Though the visit was not for the purpose of cultural awareness, the Director learned a lot about the culture of the students from the trip.
> *Director*: They're all from India…so they're all going to be the same. Well that's so wrong. I mean there's a billion people in India, it's a huge country, and they're vastly different...And that's what-I learned that. To assume that just because they're all from India that they'd all be the same, have the same habits, have the same ideas, speak the same languages, even have the same religions, dress the same-no. Their differences are, I think, even magnified more than the cultural differences we see within the United

States...like the dress, for instance...I mean the regional dress, I mean you go to LAX, and you go to JFK, or you go to O'Hare, you're going to see people basically wearing the same stuff. But you go to Delhi compared to Mumbai, and it's not going to be the same, it's going to be much different...the other thing about just the Indian culture...that I took out of... the visit was the stark contrast between the people-the rich and the poor.

The Primary Instructor of IAL visited India to consult with potential clients on projects for the students to complete, serving both a sales and marketing role as well as a project manager and instructional design role.

Primary Instructor: The main goal [of the trip to India] try to make a sale, try to convince them that this is needed.

Before this trip, the Primary Instructor based her understanding of the target student audience primarily on the information gleaned in this recruitment process.

Primary Instructor: I asked them who are these people and they say programmers...Okay, what type of education they have. They said... college. How old are they? In their 20s so they just finished their school and some has a few year experience, some has none...So these people that came, they were less than 30 years old...So they are young adults with programming and zero experience in graphics...With the exception of one at most two who had worked in the area involving graphics. So that helped me determine how basic I had to be at the beginning.

In this excerpt, we see the Primary Instructor restrict her understanding of the target audience to profession, education, age and experience. However, related findings reveal that additional encounters with the culture of the students expand her understanding of the audience.

Primary Instructor: So I went to India...I snuck out and walk around and you know I noticed that people don't speak English...they have maids which we don't... that manager guy, he has his own driver and this driver is like a permanent position because when he doesn't need to drive he stay with the car......I saw different classes of people, because I saw the drivers and I saw the group of taxi driver or auto driver and then there's high lows at the manager level, so I know that the students must have come from different backgrounds.

The marketable product goal of this training also created dual roles for the students: they were both students and employees The projects that IAL designed for students were collaborations with potential clients in India and involved students in direct interaction with these clients, creating teams of all Indian natives for introducing the i3Dv technology into India, including collaboration with IGNOU, India's open university system.

Student 10: We collaborated in India here in Mumbai with a professor on this project…a 3D simulation of an earthquake which is completely realistic.

During my observation at the Mumbai site, I experienced this completed simulation which, according to interview data and artifact analysis, had attracted the most attention from potential clients in India.

Misconceptions about cultural capital

The IAL team considered India's cultural capital in making an important curriculum decision: to train the programmers only in OpenGL. The Program Manager thought it was a good fit for the NextGenEd students because it would not cause any licensing problems for the future business plan. In the business plan, NextGenEd lays out a vision of producing thousands of applications to distribute across India.

Program Manager: That's why we went Open GL...That's why I decided that ten years ago, I came here, I said let's not to buy packages because it is open source... and especially when this India project came along, I was just like-it's open...So if they want to print out 10,000 copies, there's no licensing issues.

The client representative and several students expressed disappointment in this content decision: the singular focus on OpenGL.

Senior Project Manager: One of the failings of the program, was that despite the company's frequent and clear communications with [IAL Team] about what we were hoping to achieve, the training team focused more on the theoretical aspects of OpenGL development.

The students also expressed disappointment about this content decision because they felt they could have learned OpenGL in India.

Student 1: We could have gotten better training over here in India [on OpenGL]. The CAVE technology and the hardware part we couldn't have gotten in India. So the best solution was to have instead of a year-long training we could have gone there only for the CAVE training.

Student 8: What we learned there, we could have learned, the open GL part at least, we could have learned on by our own.

The students, like the Program Manager, view OpenGL as shared cultural capital, and they believe this makes OpenGL a less desirable choice of content.

Many of the students stated that the CAVE technology was the only reason the training program needed to be located in the US:

Student 2: For this training... CAVE and the crystallized glasses... Anything else we could have got anywhere.

Student 3: The leading technology was the CAVE, but now we have a better system I think.

The CAVE represented the primary reason for the training program, and it was cultural capital that was not available in India at the time. However, as a result of this training collaboration between IAL and NextGenEd, there is now a CAVE in India that is more updated and powerful than the IAL's model. This CAVE is the first and only fully immersive, stereoscopic three-dimensional visualization environment in India.

Another misconception about cultural capital prompted disappointment from the students. The students' ideas about NASA led to a misconception about what IAL would be and influenced their perception of the quality of the training program.

Student 9: After hearing the name of NASA, I thought there would be some high-profile teachers who had written a lot of research papers, and a lot of research background.

Student 7: We expected that some NASA scientist will come and do classes, training, something like that, we thought. We thought that we would be completely submerged with NASA scientists. But actually it was that some institute... Not that much good. Our

> expectations when they say NASA is too much. But the quality of instruction we got is very inferior.

These findings indicate impactful cultural capital interactions with the decisions, perceptions and outcomes of the instructional design process of this cross-sector, cross-border training for innovation case.

DISCUSSION

In this case study, we are able to take a close look at a situation not often encountered in the literature on ICTs in emerging economies: a private company from an emerging economy providing much-needed funding for a consortium in the US non-profit sector. Shifting economic patterns in India have changed the deficit narrative to one of growth and opportunity, and this shift is evident in this case study where funding flows from India to the US as part of a project for India to introduce a US cultural resource into its educational market. As a result of this funding structure, the Director of IAL visited India to secure financing and promote the i3dv project for NextGenEd and the Primary Instructor visited India to collaborate with potential NextGenEd clients for i3dv applications. Personal visits to India by two of the design team members allowed them to understand the target audience, explore environmental and individual/group cultures, form a more culturally-informed team, and secure and maintain financial support. Luschei, Padmo and Spector (2009) emphasize the importance of on-site visits to the success of their long-term cross-border project. Findings in the training and development literature also support the value of global relocation for cross-cultural exposure (Kho, 2001; Sofo, 2007).

One of the more intriguing findings is in the students' disappointment at what the US had to offer. The students describe an idea of NASA as the pinnacle of cutting edge technology and knowledge. They express disappointment at finding that the design team is part of a NASA consortium rather than actual NASA scientists. They thought the faculty were not prestigious enough because they did not have any patents and were employed by the consortium, not NASA; they were disappointed in the curriculum choices, claiming they could have covered the entire subject matter of the course in one tenth of the time in India and wishing the course had been more advanced and challenging; and they were disappointed in the equipment as they became aware that the CAVE on site was ten years old and that other centers had more up-to-date technology. Working backwards from how members of this cohort described their disappointment, one can deduce a set of criteria underlying their expectations for this NASA branded program: caliber of the faculty, challenge of the curriculum, and quality of the learning environment. This finding is peculiar to this study, yet many prestigious institutions across the globe are seeking to leverage their brands for educational collaborations across borders and across sectors. This finding highlights the important influence a brand may wield on students' perceptions of their learning experience.

The students were disappointed, yes, but did they learn? From a program evaluation standpoint, how is this question answered?

If the purpose of a program evaluation is to determine whether or not it served its purpose and accomplished its intended objectives, the point of view of multiple stakeholders must be considered. From the point of view of the NASA consortium they delivered the training program they were contracted to provide. All students passed the summative assessments designed to evaluate their attainment of the learning objectives of the program by creating authentic project deliverables.

Asking whether or not the students attained the learning objectives set by the NASA consortium reveals the insufficiency of the construct of objectives-based assessments as a means for program or course design evaluation. Were the objectives appropriate in the first place? The cohort response was no. Findings showed that the cohort needed to supplement the learning significantly in order to develop 3D visualization demos after returning to India from the training program. To get at whether or not the objectives are appropriate, the learners' perspective becomes essential because they are aware of how the learning is put into practice and whether or not it serves them well.

This assessment plan was designed to measure the cohort's ability to create a commercially viable product to suit the purposes of the US India company's R&D program. Since the end of the program, members of the cohort who are still employed with the company have developed 3D visualization programs, yet no products have been sold. Looking at whether or not the cohort could produce commercially viable products as a measure of the cohort's learning, however, would be problematic. There are confounding variables related to bringing products to market that are unrelated to cohort ability.

Researchers and practitioners paying attention to the connection between development trends, ICTs and education in emerging economies express both enthusiasm and caution for such projects as the one in this case study where a private company seeks to introduce a high-level technological innovation into a new market (Lieberman, 2003; Marchessou, 1999; Visser, 2007). Lieberman (2003) considers this type of initiative widespread and inevitable and advocates for a "pro-active and culturally-sensitive approach to technology introduction." Here, the systemic significance of instructional design decisions in the cross-border, cross-sector training for innovation context is particularly clear. The projects designed for real-world assessment involved students in direct interaction with clients in India, creating teams of all Indian natives for introducing the i3Dv technology into India, including collaboration with IGNOU, India's open university system. Updating traditional ISD models should include prompts for designers to consider the systemic implications of assessment and feedback decisions in a globalized knowledge economy.

Researchers and practitioners concerned with broader issues of education in a globalized context may also consult findings here related to the bi-directional flows of cultural capital across borders and across sectors in this case. These findings reveal that the client and the students share a general sense of enthusiasm for the introduction of high-level technology that is the focus of the training program. These findings support the findings of Ezer (2006) that attitudes towards ICT and ICT in education in India show optimism for ICTs and openness to Western models of success. For example, the students felt the training in the US was only necessary for the one cultural resource available in the US and not available in India, the CAVE; once the CAVE was available in India, the private company brought the students back to India. Also, the students' cultural ideas of a training program promoted as part of NASA were noted as part of their eventual disappointment with the quality of the training program. This shared sense of high-expectations interacted with their reactions to the learning environment, technology, instructors, content and achievement.

In this case, cohort disappointment in the program caused some students to complain to the company in India that the program was not worthwhile. They became a disgruntled cohort in many ways and this mood was presented to the second cohort of new employee/trainees to arrive six months later. Cohort complaints were noted by leadership as a factor in the decision to bring the cohorts back to India and continue the training remotely. It was also a factor in the leadership's decision to discontinue the training program, originally envisioned as a long-term partnership.

The India-US company and the NASA consortium originally envisioned the training program as a research and development partnership where the HLC would continue to train developers and serve as part of the development team to create commercially viable products and help attract and excite clients and investment. As such, the faculty, staff and trainees of the NASA consortium participated in client meetings for demonstrating and exploring possible projects with potential clients. In the end, once the training was over, no clients were in place to serve and continue the partnership.

These findings offer prompts for inquiry in the instructional design discipline into the complex interaction of power politics, market forces and knowledge flows across cultures and across sectors.

CONCLUSION

Findings from this study reveal that cultural capital interacts with multiple components of the instructional design process, in particular learner expectations and instructor preconceptions, in complex ways that are not reflected in or addressed by traditional ISD models. If we ground our discipline in the understanding of systemic processes, we cannot continue to ignore a prevalent and impactful variable in that system.

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