

Culture, Context, and the Diffusion of Technology in Education

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Cross-cultural educational technology is one of the major emphases of the new online journal, *International Journal of Technology in Teaching and Learning*. This article discusses (a) the importance to understand cultural issues when using technology in education, (b) the role of the journal in research and practice in the field of educational technology, and (c) the types of work appropriate for publication in this journal, including acceptable paradigms, topics, and methodology.

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One major focus of this new online journal, *International Journal of Technology in Teaching and Learning*, is dedicated to the dissemination of knowledge about cross-cultural educational technology. In this article, I will first introduce some of my experiences dealing with cultural differences when I worked on an international project with a university in Ukraine. Then, I will talk about the role of this journal in research and practice in the field of educational technology. Finally, I will discuss the types of work appropriate for publication in this journal, including acceptable paradigms, topics, and methodology.

CULTURAL DIFFERENCES

In his book, *When Cultures Collide*, Richard Lewis (1999) tells a story about teaching an international group of students:

I was once in charge of an English Language Summer Course in North Wales for adult students from three countries – Italy, Japan, and Finland. . . . We had scheduled a trip to Mount Snowdon on a particular Wednesday, but on Tuesday evening it rained heavily. . . . A dozen or so Finns approached me and suggested

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that we cancel the excursion, as it would be no fun climbing the muddy slopes of Snowdon in heavy rain. I, of course, agreed and announced the cancellation. Immediately I was surrounded by protesting Italians disputing the decision. Why cancel the trip – they had been looking forward to it (escape from lessons), they had paid for it in their all-inclusive fee, a little rain would not hurt anyone and what was the matter with the Finns anyway – weren't they supposed to be tough people? A little embarrassed, I consulted the Japanese contingent. They were very, very nice. If the Italians wanted to go, they would go, too. If, on the other hand, we cancelled the trip they would be quite happy to stay in and take more lessons. The Finns . . . eventually, in order not to lose face, agreed they would go. The excursion was declared on. It rained torrentially all night. . . . The bus was scheduled to leave at half past eight, and at twenty-five past . . . I ran to the vehicle. Inside were 18 scowling Finns, 12 smiling Japanese, and no Italians. We left on time and had a terrible day. We . . . returned covered in mud at 5 o'clock, in time to see the Italians taking tea and chocolate biscuits. They had sensibly stayed in bed. (p. 1-2)

I came across Lewis' book only recently. It was written for the international business community and the goal of the book is to help readers become better international managers by understanding better the cultures they will work in. The book reminded me of some of my own international work. Four years ago my wife, Nina, and I received a grant from the U. S. Department of State to work with a university in Ukraine. The project involved faculty exchanges, collaborative research, and several joint curriculum development projects. It also called for the creation of a high-speed Internet link to the university. We had been told by the administrators at the university that the institution already had Internet access but that it was "slow." I made one of many mistakes when I interpreted "slow" in the context of American universities. In an American university, it is commonplace to complain about the slowness of an internet connection when a home page laden with graphics, sound, and animation does not pop up in a few seconds. Virtually any pause in the stream of multimedia data pouring onto your screen signifies a *slow connection*.

I also misinterpreted what "Yes, we have internet access" meant. If a university in the US "has internet access" it means there is relatively widespread connectivity across the campus that allows faculty, staff, and students to access and use the World Wide Web.

Neither of these meanings had much to do with slow access at the Ukrainian university. Located some distance from the larger cities like Keiv and Kharkiv, our collaborating university was in a town of about 100,000 that had no T1 lines, no DSL, no fast Internet access at all. The university's access was via an ordinary phone line that hooked one computer to the phone line via an ordinary modem.

Now let me point out a mistake you have probably interpreted my phrase "ordinary phone line" to mean a phone line like the one you have at home. The phone line at the university was *ordinary* for rural Ukraine (and most of the rest of the countries that were formerly part of the Soviet Union). It was noisy, stopped working at regular but unpredictable intervals, and was connected to the town telephone exchange, which, when I visited it, turned out to be stuffed with mechanical relay systems that looked to be early 50's era equipment. Before completely giving up on getting any sort of connectivity through the local phone system, we did some research on how reliable the phone line was. We were able to transmit data back and forth to an internet provider in a nearby city at about 1/4th the speed the 56K modem was capable of supporting. However, in our one-hour test we were disconnected because of problems with the phone line 27 times. And, at every disconnection, we

had to dial back in, establish a connection, and begin the session anew. If this took an average of 2 minutes, then we spent 54 minutes of the hour connecting and reconnecting. Such service made even routine use of email virtually impossible.

Today that university has a 15-foot satellite dish sitting on the roof of the main classroom building, and students crowd into several of the university computer labs where they can access the Internet over a reliable link through a satellite that orbits 23,000 miles over the equator. It links that university to the worldwide network we call the Internet and that single change has made a major difference in the way faculty and students think about learning, about education, and about their university. Cut off from the West for decades for political reasons, and unable even now to buy expensive subscriptions to Western scholarly journals or purchase high priced books about cutting edge work in their fields, many felt they were falling further and further behind in what was rapidly becoming a global marketplace for ideas, information, and knowledge.

The transition from “no internet access” (in American terms) and usable and reliable internet access for a sizable number of students and faculty, was not an easy, straight forward, or simple process. And, at each step along the way, my ignorance and naiveté added to political, cultural, and resource barriers that had to be overcome.

When I worked in Ukraine, people’s most common phrase to me during the project was, “Jerry, you’re not in America!” To illustrate the point I will cite an example that involves the telephone exchange in town. When we called and asked to talk to one of the engineers there, we were told to come down at a certain time. However, after arriving, there was a disagreement between two of the engineers at the exchange. Later, Nina and colleagues from the university had to explain that one of the engineers had been concerned about espionage. An American coming to town to see the telephone exchange had raised his suspicions. Could there be something nefarious going on? And would he have problems from officials if he let me see the exchange? This is much easier to understand if you know that for decades Soviet citizens were cautioned about speaking to foreigners, and newspapers regularly carried stories about all sorts of spying. A Western visitor, for example, could be charged with spying for taking pictures of bridges on roads leading to the center of a large city, or of the barracks of a local army unit. A Soviet citizen’s duty to the motherland included being perpetually on guard against foreigners, most of whom, they were told, were working against the interests of the Soviet Union.

Coming from a fairly open country where it is relatively easy to “start over,” it was difficult for me to understand why some things happened. Many were, in fact, impossible to understand without knowing more about the historical and cultural context of Ukraine.

The success of the program in Ukraine was *in spite* of my lack of understanding of Ukrainian culture, history, and tradition, rather than *because* of my understanding. After the project, there were many “AHA!” moments as I read Lewis’ (1999) book, especially the chapter on Russia, which has a culture very close to Ukraine. For example, Lewis explains how Russia’s history and its vastness helped cultivate a “suspicion of foreigners.” Similarly, there is a streak of pessimism that comes in part from the harsh climate (and 70 years of a centrally planned economy).

Another Russian characteristic that rang a bell with me was the notion that corruption is practiced as a way to beat the system. Lewis explains the origin of this common practice in the authoritarian and top down nature of the government (both Czarist and Communist) and the Russian Orthodox Church. Laws and rules passed down to citizens could not be questioned. When you add to this a large and arrogant officialdom, a system of privileges for those who are favored by the authorities, and

widespread official corruption that is still endemic today, it is not difficult to see how ordinary citizens had to develop ways around the official system. My wife, Nina, for example, tells about visiting the home of a school friend whose father was a high-ranking military officer. There, on the family's bookshelves, were hundreds of books she would have loved to read. Books were cheap in the Soviet Union but access was limited. Military officers were given preference when it came time to distribute the limited print runs that were typical in those days. Without "knowing someone" at the bookstore or publisher who could put a copy under the counter for you, many books remained out of reach of the ordinary citizen. In our project, we had to solve a problem by "practicing corruption" more than once. For example, when we imported the satellite dish and receiver into Ukraine so that we could set up internet access at the university, it was stopped at customs and held for eight months. Eight different government agencies had to be begged to give clearances, and each of them had unending paperwork to fill out. Eventually, we were down to one agency, the KGB, or more correctly the agency that replaced the KGB when Ukraine became independent. They required form after form, document after document – including the translation of the entire operating manual of the system from English into Ukrainian. This was required in spite of the fact we were using the same equipment as was used by the Ukrainian customs offices to transmit data from border stations to the central office.

After eight months, it began to look like there was no possibility of getting the equipment out of customs, even though it was widely used in the country. We learned later that most companies that brought these systems into the country did so through customs brokers who paid a small bribe to officials for "expediting" the process. Our colleagues at the university eventually located a graduate who now worked for the KGB and he got the system approved in a matter of weeks. To do business in Ukraine it is sometimes impossible to go through the bureaucracy. It is a maze without a "correct" path through it. The only option is what Ukrainians and Russians have been doing for centuries – find a way around it. While my examples bear mostly on business in Ukraine the situation in higher education is the same, as one Fulbright fellow who taught in Ukraine has explained (Johns, 2005).

Many of my examples are negative and reflect badly on Ukraine but as noted earlier the American's lack of understanding of another culture, and the role of education in it, was a significant problem in the project. For example, we budgeted \$150 a month for someone to work full time on the project at the Ukrainian university. We felt guilty about budgeting so little. That salary was a source of problems for exactly the opposite reason. At the time, the Rector (President) of the university received a salary of about \$75 a month and beginning Assistant Professors were earning \$27!

The crucial point of what I am trying to say here is that all of us have been indoctrinated into our own culture, or own education system, and our own approach to information and education technologies. When we work across cultures, our ignorance of that culture can be a major barrier to success. And, lack of understanding of other cultures can limit our effectiveness even when we work in our own cultural context because we take so many things for granted. For those two reasons, I am very pleased to be writing an article for the first issue of a new journal, the *International Journal of Technology in Teaching and Learning*; one of its emphases is dedicated to the dissemination of knowledge about cross-cultural educational technology.

THE ROLE OF THE JOURNAL IN RESEARCH AND PRACTICE

There are already a number of journals on “comparative education” and I would recommend them to you. English language journals like *Comparative Education Review*, *Comparative Education*, *Compare: A Journal of Comparative Education* and *International Journal of Educational Development* all publish articles of interest to the educator interested in the international or cross-cultural aspects of educational technologies. That, however, is a minor focus in these print journals, which all cover a much wider range of topics. The same is true of an electronic publication, *Current Issues in Comparative Education*, which is published by Teachers College, Columbia University and is available free via the internet (<http://www.tc.columbia.edu/cice/>). This journal even published a special issue on “Technology for All” (Volume 6, Number 1, 2003).

Other journals in the field are published in different languages: *Comparative Education Review* (Chinese), *Comparative Education Research* (Japanese), *Educazione Comparata* (Italian), *International Review of Education* (German, French, English), *Quarterly Review of Comparative Education* (published in English, French, Spanish, Arabic, Chinese, and Russian), and *The Journal of Comparative Education* (Chinese).

The topic of this journal is also occasionally covered in educational technology journals such as *Computers in the Schools*, *Educational Technology*, and the *Journal of Research on Technology in Education*. The *International Journal of Technology in Teaching and Learning* is, however, the only journal currently available that puts a major emphasis specifically on the topic of cross-cultural issues in the use of educational technologies. It is, fortunately, a refereed resource that is available free of charge to anyone who has internet access.

PUBLISHING IN THE JOURNAL

In the final part of this paper, I would like to explore what types of work I think are appropriate for publication in a journal of this type. I will divide that discussion into three parts: paradigms, topics, and methodology.

WHAT PARADIGM SHOULD YOU USE?

Not long ago virtually all the educational research at least pretended to be based on a positivist or postpositivist paradigm that emphasizes the scientific method and the objective analysis of data (Phillips & Burbules, 2000; Smith, 1993). Today, there are several different paradigms. One way of thinking about the guiding paradigms in educational research is organized around the *big three*: postpositivism, critical theory, and interpretivism. Briefly, the three paradigms can be crudely described this way:

Postpositivism. Emphasizes empirical research that looks for causal relationships between variables. Postpositivists favor randomized experiments but accept data from other sources such as quasi-experimental studies, correlational studies, and survey/interview research. The emphasis, however, is on finding general patterns or laws of behavior that can be used to guide decision-making in education. An example of a study in this tradition is Uribe, Klein, and Sullivan’s (2003) study of computer-mediated collaborative learning on problem solving in ill-defined knowledge domains. They compared the work of two groups. In one group, students worked alone to apply a problem solving process they learned via computer to solve a

realistic problem. In the other group, the students worked collaboratively on the practical problem in groups of two. The students in the dyads performed better on the problem solving task than students who worked alone, and they also spent more time on the problem. Positivist researchers generally try to find the truth about a question that can be expressed in laws of behavior or at least very broad rules or conclusions that can tell us what we should do in practice.

Critical Theory. Emphasizes the power relationships between different groups in society and looks for ways of empowering those without power. Critical theorists use a wide range of methodologies but interpret the data they collect through the ideological framework of neo-Marxist theory just as a cognitive scientist might filter data through a cognitive science theory of learning. An example of research in the critical theory tradition is a study of the educational software used in primary schools in England (Bradshaw, Clegg, & Trayhurn, 1995). The study found that even when software designers try to create characters in educational software that are *gender neutral* both boys and girls tend to assume the characters are male. They also found, however, that adults working with the children (5 and 6 year olds in this study) can influence the way students perceive characters and thus change the perception of what is normal male behavior.

Interpretive. This theoretical framework views research in the social sciences and applied fields like education as different from research in the natural sciences. In the latter, the goal is to develop laws and theories that allow us to predict and control. In the social sciences, the most appropriate goal is *understanding*, not universal laws of behavior. And, because both the subject matter and the purpose of research are different, the methods are also different. Interpretive researchers tend to prefer “thick” data based on qualitative research methods over “thin” quantitative data. An example of interpretive research is a study by Dougiamas and Taylor (2002) that looked at an Internet-based graduate course in education. The approach these authors took could also be called *instructional design* (Willis, 2000) or *design-based research* (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003), or participatory action research (Kemmis & McTaggart, 2000). All these approaches to research are examples of interpretive research. This study provides a clear contrast to the postpositivist research described earlier (Uribe, et al. (2003). In the postpositivist study two groups were formed, the treatments were administered, and then several types of data were collected and analyzed. In the interpretive study by Dougiamas and Taylor (2002), the study was an intensive analysis of one college course – an internet-based course on constructivist teaching. Because this study illustrates so well the differences between postpositivist research and interpretive research, and because interpretive research is in general difficult to summarize in a few sentences I will devote more attention to this study.

The authors were interested in developing an online course environment that supported and encouraged reflection by having individuals read, critique, and write. They gathered a variety of data including responses by students to several surveys that tried to get at topics such as the quality of the online learning environment from a social constructivist perspective, attitudes of the students toward “ways of knowing” as well as observation, analysis of the online responses, analysis of online student reflective journals, and interviews with students. What marks this study as interpretive, however, is the iterative methodology they used. They did not apply a treatment once and then measure the effects. Instead, they developed a version of the internet-based course environment, used it, collected and analyzed data during and after use, and then revised both the software and their theories about the characteristics of good online learning environments. After one cycle of the process

was finished, another began. The result was theory and software evolved simultaneously.

While these three paradigms guide most of the educational research today, they are not evenly spread over the journal literature. Some journals favor one paradigm over another and even one theory over another. The *Journal of Applied Behavior Analysis*, for example, is postpositivist in orientation and emphasizes a behavioral theory of learning. *Instructional Science*, on the other hand, also takes a postpositivist approach but tends to publish papers based on cognitive science and constructivist theories. There would be little overlap between the research paradigms and theoretical frameworks in these two journals and those of *Critical Discourse Studies*, a relatively new social science journal that emphasizes neo-Marxist theory as a guiding framework for both the research models used and the way data is interpreted.

The *Journal of the Learning Sciences* (JLS) remains focused on cognitive science as a broad theoretical framework for interpreting data, but its editors recently decided to expand the journal's approach to scholarship to include papers that fall outside the traditional postpositivist framework. Thus, JLS might be characterized as a journal that publishes cognitive science papers but accepts work in both the postpositivist and interpretive framework (although there is some indication the journal views interpretive approaches as preliminary work that can come before doing postpositivist research). Another publication that is even more eclectic is the *e-Journal of Instructional Science and Technology*, which also tends to favor papers about work based on cognitive and constructivist theories. This journal, however, is not postpositivist in orientation. Instead, it accepts submissions based on all three of the major research paradigms.

What approach should this new journal take to the question of research paradigms? And theories of learning? While I consider myself an interpretivist who favors social and cognitive constructivist learning theories, I would strenuously object to restricting this journal to those perspectives. Good and useful research comes from all three of the popular paradigms, and from different theories of learning. We will all be enriched by a journal that not only tolerates but also actively encourages submissions from authors working from different paradigmatic and theoretical perspectives to submit their work. In addition, as readers of the journal, it behooves us all to be open to the work of authors who work in frameworks that are outside, even antagonistic to, our own.

WHAT TOPICS ARE APPROPRIATE FOR PUBLICATION IN THE JOURNAL?

This journal is at the crossroads of two fields of scholarship – educational technology and international or cross-cultural research. What is at that crossroads? The term educational technology, or instructional technology, has a broad meaning and covers virtually any approach to using information or digital technology for educational purposes. These terms also cover pedagogy, the development and use of different ways of teaching and learning. The international and cross-cultural aspect of the journal's focus is a bit harder to pin down. What is, and is not international or cross-cultural? These broad terms encompass several fields. The web site for Stanford University's International Comparative Education graduate program (SUIC, 2005) has collected definitions of several fields that will help us see the issue more clearly, including:

Comparative education and *international education* are often confused. The former refers to a field of study that applies historical, philosophical, and social science theories and methods to international problems in education. Its

equivalents in other fields of academic study are those dedicated to the transsocietal study of other social institutions, such as comparative government, comparative economics, and comparative religion. Comparative education is primarily an academic and interdisciplinary pursuit (Epstein, 1994, p. 918).

International education... fosters an international orientation in knowledge and attitudes and, among other initiatives, brings together students, teachers, and scholars from different nations to learn about and from each other. International education also includes the analysis and description of such activities. Many practitioners of international education are experts on international exchange and interaction. Their activities are partly based on their knowledge of comparative education (Epstein, 1994, p. 918).

Comparativists, as distinct from international educators, are primarily scholars interested in explaining why educational systems and processes vary and how education relates to wider social factors and forces. International education tends to focus more directly on descriptive information about nations and societies and their education systems and structures. International educators use findings derived from comparative education to understand better the educational processes they examine, and thus to enhance their ability to make policy relating to programs such as those associated with international exchange and understanding (Epstein, 1994, p. 918).

In the broader definition of *education* and *development*, it is important to emphasize first the distinction between formal, informal, and non-formal education. Each of these is related differently to the process of development, and each type of education requires different types of policies in terms of education and development goals and strategies. Second, it is also important to distinguish between basic literacy, primary, secondary, and tertiary education. The strength of the relationship between these different levels of education and the development of a society requires specification. Finally, an enduring debate in formulating education policies for development is whether academic or vocational education programs are more appropriate for development strategies (Fagerlind & Saha, 1994, p. 1648).

If all this is included in the scope of the journal, what is not included? A study of the implementation of a new computer-enriched mathematics curriculum in Indiana middle schools would not be appropriate. On the other hand, if the study looked at issues such as problems immigrant children had with the curriculum, or the study compared this curriculum with those in China, Finland, and the UK, it would be appropriate. Similarly, an analysis of the roles educational technologies play in President Bush's No Child Left Behind program for America schools would not be appropriate but a comparative study of government policies about educational technologies that looks at the approaches in several different countries would be very topical.

In terms of design-based research, an article reporting on the development of a web-based course for students at a particular university would not be appropriate, but the story of how a course or electronic course environment was developed by an international team for use by several universities in different countries would be. Finally, I would like to note that the focus of this journal includes both microlevel research (e.g., the intensive study of a single course or student) as well as macrolevel studies (e.g., an international study of policies and practices in many different countries), and everything in between.

WHAT METHODOLOGIES ARE ACCEPTABLE IN THE JOURNAL?

As noted earlier, some journals focus on a particular research paradigm. Many also restrict themselves to certain research methods. The *International Journal of Qualitative Studies in Education*, as you might expect from the title, publishes papers that use qualitative methodologies. Similarly, *Education Statistics Quarterly* publishes statistical analyses of education data. *Educational Action Research* as well as the *Journal of Action Research in Education* are even more restrictive and focus on one type of qualitative methodology.

While there is an important place for methodologically restricted journals – especially when an emerging method is not yet accepted by the established journals, I believe this journal will benefit from accepting papers that use wide variety of research methods. I hope that on the pages of this journal we see all sorts of methods – from empirical studies of randomly assigned treatment and control groups to intensive case studies and reflective analyses to philosophical investigations of foundational issues. And in that mix there should also be reviews of the literature, historical analyses of patterns and traditions, case studies of individual projects, studies that use traditional ethnographic approaches such as participant observation, surveys, policy studies, and studies based on economic and political theories as well as psychological and curriculum theories.

We should be able to read design studies in this journal that tell us how international projects were developed and what theoretical frameworks for doing such work seem supported by the experience.

Accepting a study based on a wide range of methodologies is good, but accepting studies that are poor examples of the methodology used is not. It is one thing to present empirical data, it is another to present a meaningful set of data that is successfully analyzed and interpreted. Similarly, it is one thing to call a paper a case study, it is another to actually use the extensive literature on how to conduct strong case studies to produce a scholarly and useful case study. The refereeing process should eliminate papers with weak methodology (regardless of what paradigm and what methodology is used) and provide readers a source of high quality scholarship (again, regardless of what paradigm and what methodology is used).

CONCLUSIONS

I welcome the arrival of this new journal. It focuses on an important topic, and I hope that you will become an active participant in the journal – both as a reader and as a contributor. The “you” in that last sentence encompasses educators, technologists, and leaders everywhere. During the colonial era of European expansion there was a tendency for people from countries such as England to take cultural superiority for granted. That is, they automatically assumed that the practices, beliefs, and methods of England were better than those of India, South Africa, Canada, or wherever they were in the world. The flow of *expertise*, *civilization*, and *knowledge* (e.g., progress) was a one-way street. It flowed from the dominant military and industrial powers in Europe to other countries in the world. While there are some overtones of this worldview in American foreign policy today, that view of *progress* has, thankfully, been partially replaced in the last few decades by a greater respect for the traditions and knowledge of different cultures and an increased willingness to learn from a global community of scholars and professionals. This global community model is in contrast to the idea of disseminating knowledge from one group of countries to all the other countries in the

world. There is still a legacy of colonial thinking in some disciplines, some political groups, and some national governments, but let us all hope that the imperialism that characterized much of the colonial period in history does not remain a dominant policy in any group or country for long. We all have a lot to learn from each other and this journal can contribute to that process. As an international outlet for scholarship and professional practice knowledge it can help all of become less ignorant and more informed about the international roles and implications of educational technologies.

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