

*An edited version of this manuscript appeared as:*

Fang, X., & Warschauer, M. (2004). Technology and curricular reform in China: A case study. *TESOL Quarterly* 38(2), 301-323.

## **Technology and Curricular Reform in China: A Case Study**

By Xu Fang and Mark Warschauer

### **Abstract**

This paper reports on a five-year study of a technology-enhanced educational reform initiative at a university in eastern China. A faculty team attempted pedagogical and curricular reform to better prepare English majors for international communication, collaboration, and research using new technologies. The effort resulted in the development of several project-based courses as well as incorporation of technology as a supplement to traditional lecture courses. Participant observation, interviews, surveys, and text analysis were used for focused examination of two project-based courses within a broader study of the reform program. The project-based instruction brought about several positive changes in learning processes and outcomes, including increased amounts of authentic interaction, greater learner autonomy, and more relevance of content to students' lives and careers. However, few faculty were willing to teach project-based courses due to the great amount of time and effort that such instruction demanded, as well as the mismatch between student-centered learning and traditional norms and incentives in Chinese higher education. The study concludes by assessing the overall gains and shortcomings of the reform effort and the implications of these results for future attempts at educational restructuring in China.

TESOL professionals around the world face challenges brought about by economic and technological change. A new international economic order, termed *informationalism* by Castells (1996/2000), has given rise to global English(es), changing employment patterns, and diffusion of new technologies, each of which in turn has impacted language teaching worldwide (see discussion in Warschauer, 2000).

Nowhere are these changes occurring more dramatically than in China, which has one of the world's fastest growing economies and rapidly changing societies. Modern China, which for decades was an essentially closed society, is integrating with the world economy at a breath-taking pace, at least in its industrialized eastern region. These socio-economic developments have sparked many Chinese educators to question the country's traditional approaches to English language instruction, which was previously meant to foster reading ability alone rather than two-way oral and written communication. As elsewhere, language education reform efforts are intertwined with new ways of thinking about technology in instruction, since so much of today's global communication in English takes place in computer-mediated environments.

Unfortunately, efforts at Chinese educational reform are seldom reported on or analyzed in international journals. Those studies that have appeared (e.g., Pennington & Cheung, 1993, 1995; Littlewood, 1995) suggest that the nature of the attempted innovations, the communication channels by which they are diffused, and the social and cultural context of implementation all operate as constraints affecting the process of educational change, particularly at the level of individual classrooms and teachers. Those findings help frame the current study, which examines the social and cultural context of an effort to reform English teaching at a Chinese university through technology-

enhanced, project-based learning. We first present some requisite background information on English language teaching and technology in China and then turn to a case study of the reform effort.

### **Tertiary ELT in China**

In China, a typical English major will enter the university with about six years' prior experience studying English in secondary school. The student will then follow a four-year program of study that provides foundational training in reading, listening, speaking, and writing in these arranged by skill area (e.g., Extensive Reading, English Grammar, Oral English, English Composition).

Within this program, there is a core course called Comprehensive English that appears by its name to be more general in content, but in practice is narrowly focused on helping students understand the language of written texts. Comprehensive English is taught through a combination of traditional grammar-translation methods (see discussion in Dzau, 1990a), involving teachers' detailed explanations of word meaning and usage, sentence formation, and English grammar, with a scattering of audio-lingual method, featuring pseudo-communication activities such as memorization and role-play of dialogues. These methods fail to promote extensive reading skills, and can even contribute to a fossilization of poor reading styles and thus hinder students from ever reading efficiently (Li, 1984). As students are taught to focus on each individual word in a text, and examine the text carefully to see if there is any unknown grammatical phenomenon in it, they are often unable to catch the thread of an argument, to see the relationship between the parts of a text, or to understand a text's overall main idea (Dzau, 1990b, p. 83). And if Chinese students' reading skills remain poor, their listening and

speaking skills are usually weaker, with their writing the worst, due to a lack of language use for real communicative purposes in Comprehensive English or any of their other courses.

These traditional teaching approaches are based on the concept of language learning as a process of quantitative increase (*liangbian*). Most older teachers believe there should be quantitative increase of knowledge about the target language, through memorization of vocabulary and grammatical study, and that this will automatically prepare the student for the final qualitative change (*zhibian*, Dzau, 1990a). It is widely believed that fluency, flexibility, and appropriate use of language may emerge eventually over time, not through incorporation of instructional activities that encourage these to develop, but rather through the accumulation of linguistic knowledge. According to this view, no attempt needs to be made to encourage creativity, which is believed to flow naturally, in time, from discipline and proficiency in rote memorization. As a result of this approach, even after a decade of language instruction, most English majors still experience stark pragmatic failure in authentic communication (see discussion in Yan & He, 1985).

As China has recently entered the World Trade Organization, and is now preparing to host the 2008 Summer Olympics, the need for a more modern educational system that prepares people for better interaction with global society is widely felt. Governmental leaders, educators, and the public all believe that a combination of English language proficiency and mastery of information technology can facilitate interaction with the outside world and fortify China's global leadership. Based on this belief, the

Chinese government has placed on the agenda a strong emphasis on both enhanced English language instruction and expanded use of technology in education.

As part of this effort, the government recently announced that English instruction in schools will now begin in grade three (when students are nine years old), three years earlier than previously. As for educational technology, the Chinese Ministry of Education articulated a new education policy in the early 1990s emphasizing networked education, with the aim of getting every school wired to the Internet and making a smooth integration of computers into the school curriculum (Huang, 2001). Educational units nationwide reacted to this mandate, and by 2001, China had nearly 100,000 secondary and elementary schools which had attempted to integrate new technologies in education, involving 50 million students, 3 million computers, and 150, 000 computerized classrooms (Huang, 2001). On another level, the China Education and Research Network (CERNET) reached a major milestone by the end of 2000, when it was able to link every university in China to the Internet (Foster & Goodman, 2000). In addition to the national CERNET, provincial and institutional language teaching and research networks have also been contributing to the development of telecommunication networks in higher education.

Hence government policies, national infrastructure construction, and a growth of computer use in education have all been aligned to provide an opportunity for proponents of ELT curriculum reform with technology. A key site for such reform efforts is found at universities, which compared to secondary or primary schools have the best facilities, the best-trained instructors, and the most talented students, and thus the greatest potential for carrying out technology-enhanced curricular and pedagogical reform.

To date, though, the processes and outcomes of these reform efforts have been seldom studied, and even less frequently have results been shared either within China or internationally. To help remedy this dearth of knowledge about technology-enhanced educational reform in China, the current study was carried out.

## **Methodology**

This paper reports on a five-year study (1998-2003) of a technology-enhanced ELT reform project at a university in eastern China. The study explored two principal research questions:

- Teaching and learning: How did the reform program affect the English teaching and learning process and outcomes within the classes that implemented it?
- Diffusion: To what extent was the reform effort able to take hold, and what barriers or obstacles existed to it doing so?

The overall design incorporated an embedded case study model (Yin, 2002), in which two sections of revised courses were selected for more focused investigation within a broader study of the reform program.

During the period of the study, the lead author was both an instructor and researcher within the reform project. The second author was a North American professor and collaborator who visited the School, but did not work at the institution. The combination of an internal and external researcher allowed the inside perspective of the lead investigator to be tempered by a reflective outside perspective, and the outsider's conjectures to be informed by inside knowledge.

### ***Site, Participants, and Courses***

The study was carried out in the School of Foreign Languages (hereafter, the School) at Jinhua University (hereafter, JHU).<sup>1</sup> The university is located in one of the wealthier areas of eastern China, with the city emerging as an important high-tech center. JHU, a comprehensive university consisting of six campuses with the student enrollment of over 40,000, is considered one of the 100 elite universities in China, and as such has been granted generous government funding.

A technology-enhanced educational reform project has been carried out within the School since 1997, and this case study analyzes that reform project from 1998 to 2003. The goal of the project was to better prepare university English majors to actively use English for sophisticated international communication, collaboration, and research in a variety of academic and professional settings. To accomplish this, pedagogical and curricular reforms were established to move away from the traditional emphasis on rote memorization and to instead allow students to carry out research projects, communicate with other students and scholars around the world, and develop and publish new knowledge. In doing so, it was hoped that students would not only develop their oral and written language skills, but would also learn to use new technologies to locate, evaluate, and use information for international communication and research.

During the five-year study, from 1-3 faculty members participated directly in the reform project, teaching explicitly revised courses. A broader group of 3-10 faculty integrated new technology into instruction in some fashion or another, representing, at a maximum, 22% of the overall faculty. By the last year of the study, more than 90% of

undergraduates took at least one course that had some degree of technological infusion, but only about 12% were taking an explicitly revised course, as seen in Table 1.

[INSERT TABLE 1 ABOUT HERE]

There were two types of revised courses that made use of new technologies, which we have labeled project-based revisions and add-on revisions (see Table 2). In the former category courses, project-based learning became a major component of the course, and technology served as a medium of communication, research, and knowledge production. Included under the category project-based revisions is a new course established in 1998, *Internet for English Learning ABC*. Students in this course learned the basics of computer and Internet use--including writing e-mails, searching the Web, producing Web pages, and authoring PowerPoint presentations. The course mainly served as a technological aid to accompany the other two revised courses featuring project-based learning, *English for Tourism* and *Writing*. In addition, the *Comprehensive English* course was partly revised and 30% of the lesson time was devoted to project-based learning in the sections taught by the Multimedia Group.

[INSERT TABLE 2 ABOUT HERE]

In add-on revisions, the fundamental teaching structure was maintained but technology was included as an instructional aid. These courses included *Grammar*, which included lectures aided by PowerPoint slide shows; *Listening*, which incorporated downloaded news programs and other audio material; and *Extensive Reading*, which included extracurricular reading materials made available on the course Website.

Both types of revised courses attempted to expand access to learning materials beyond those found in the designated textbook. However, since only the project-based

revisions fundamentally changed the learning objectives and processes, they are the main focus of our research.

Two sections of the project-based courses, a Comprehensive English course taught in 1998 and an English for Tourism course taught in 2000, were selected for more focused investigation. These sections were selected due to the variation they provided in both level of reform (one partially revised course and one completely revised course) and student task (one course incorporating long-distance collaborative writing and one course incorporating local student research and publication). In these two sections, the authors conducted more extensive observations and interviews, and also subjected the student work and communications to more detailed analysis.

### ***Sources of Data***

Sources of data included participant observation (on a weekly or biweekly basis in the two focus classes and in School staff meetings; on an occasional basis [once or twice a semester] in other revised classes); informal interviews (with students in the two focus classes); student surveys (in the two focus classes); analysis of student texts (e.g., student-student and student-teacher e-mail communications both in-class and out-of-class in the two focus classes); and examination of finished project products (e.g., final project Web page and PowerPoint presentation files, student research reports, and self-evaluation writings in the two focus classes) and other artifacts (e.g., instructors' syllabi in the School). Additional data came from extensive personal communications in the School, including with graduate and undergraduate student participants, staff, faculty members and administrators.

## **Data Analysis**

Data analysis techniques were drawn principally from ethnographic and sociolinguistic research. In particular, we used pattern matching (Miles & Huberman, 1994; Spradley, 1980) to interpret the general patterns in the gains of the student learning process and outcomes and direct interpretation (Lincoln & Guba, 1985; Stake, 1995) and I-statement analysis (Gee, 1999, 2000) to analyze interview data and student texts. The latter method examines the ways in which people speak in the first person, referring, for example, to their actions, successes, abilities, or constraints, and thus fashion themselves as a person of a particular sort or type through language.

## **Teaching and Learning**

The first question in evaluating any teaching reform is whether instructional materials and methods were in fact changed. Based on our observations of the project-based courses, our analysis of course syllabi and student work, and our interviews with instructors and students, it is clear that the educational reform did represent a substantial shift in approach, as compared to non-revised sections of courses. Table 3 indicates our analysis of the estimated average content differences between traditional and project-based sections of two courses, the English for Tourism course and the Writing course, based on examination of multiple sections of each course during the period of the study.

[INSERT TABLE 3 ABOUT HERE]

The project-based courses emphasized students' collaborative construction and production of knowledge through social investigation and communication, rather than learning through attendance at teachers' lectures. Moreover, the specific assessment procedures (see Appendix A: Personal Evaluation Sheet and Appendix B: Group

Evaluation Guide) emphasized collaborative project-based learning, laying an equal emphasis on both learning process and product (For a diachronic overview of the projects carried out by students in the project-based courses, see Appendix C).

Collaborative student projects took two main forms. In Comprehensive English, Internet for English Learning ABC, and Writing courses, projects were generally based on long-distance collaborative writing with overseas partners, conducted over the Internet. For example, in a reform section of Comprehensive English taught in 1998, students engaged in two main collaborations: (1) an international exchange with ESOL students in the US, France, and Ukraine called the Cities Project, in which students exchanged writing about their city with a long-distance partner and then developed a group presentation based on what they learned and (2) a second writing exchange with a university in the US focusing on discussion of local culture. At the end of the class, students made a group presentation discussing an aspect of international culture they investigated through the exchange.

In contrast, in the English for Tourism classes, student projects were usually based on research of local or national issues, and then published on an intranet. These projects did not include long-distance collaboration, but placed greater emphasis on original research. For example, in a reform section of the course, taught in 2000, students first searched domestic Websites to find and evaluate relevant information with tourism industry, and then developed a group research topic. Afterward, the groups designed and distributed questionnaires and interviews and collected field data. In order to construct their theoretical framework, they also needed to consult outside reference books recommended by the teacher. They then analyzed the data and composed a group

research report written in a formal academic style. At the end of the course, the groups made PowerPoint presentations for the class and developed Web sites to make their findings available to others. They also collected both personal and group assessments, and assembled all their data and writing from their project into personal and group portfolios.

In summary, the activities in the revised courses represented a radical departure from the traditional methods of teaching and learning in the school, which previously had been based almost entirely on students' listening to instructors' lectures.

The revised curriculum has brought about changes in learning processes and outcomes, with several patterns emerging from the data of language use in authentic communicative contexts. These patterns are consistent with those found in other examples of similar courses featuring computer-mediated communication, research, and project work (Barson, Frommer, & Schwartz, 1993; Kern, 1996; Soh & Soon, 1991; Tella, 1991; for a review, see Warschauer, 1997). We have labeled them *interaction*, *autonomy*, and *relevance*.

### ***Interaction***

A conventional university language course in China involves little opportunity for student interaction and participation. In contrast, the revised courses were structured very differently, with a good deal of student participation and language interaction in authentic communicative contexts. Several positive results appeared to emerge from this.

First, the sheer quantity of authentic language use was far greater than in traditional Chinese ELT courses. In the English for Tourism course described above, the average student research report was 7230 words, or nearly 30 double-spaced pages. This

is far beyond what would be expected of a student in any traditional undergraduate English course in China, even in a group project. Similarly, in the Cities Project described above in the 1998 Writing course, students composed on the average 50.7 e-mail messages for their teachers and peers—certainly a small number for a typical U.S. student, but a very large number for a Chinese undergraduate who in most cases had never previously written a single e-mail message in English.

During such interaction, English native speakers' natural use of vocabulary, grammar, and syntax provided exposure for students to the target language in authentic contexts. Such language input appeared to help students improve their language through assimilation and internalization of others' words, as evidenced by many examples we witnessed. For instance, Kevin, an American student, wrote to Xinglei, his Chinese key pal at JHU, that "... If you have the communication skills, I feel that it will be easier for you to *land a job* here in the USA..." (emphasis added). Five days later, another Chinese student, Yahong, wrote in his e-mail, "... Secondly, by getting involved in business activities, we *land jobs* that can give full play to our professional knowledge and skills" (emphasis added). Yahong explained in an interview that he had learned the phrase from Xinglei's group, all of whom knew the term from Kevin's e-mail message.

As Bakhtin (1986) points out, language development occurs through a "process of assimilation--more or less creative--of others' words (and not the words of a language)" (p. 89). For this to occur, language input must first be noticed (Schmidt, 1990; 1993). Computer-mediated communication provides an environment for this, since it combines the interactivity of speech with the permanence of writing. Others' words are thus

recorded and archived so that language can be easily noticed, internalized, and adapted (see discussion and examples in Warschauer, 1997, 1999), as we witnessed in this class.

Third, students were forced to engage not only with the forms of language but also with the content of it—again, too often a rarity in traditional Chinese ELT courses. For example, in the Cities Project, students’ messages indicated their active involvement in discussing and debating what their exchange partners said about life in their countries as compared to China. As they got involved in these debates, they began to engage in language behaviors that we often teach but are seldom practiced, such as skimming or scanning prior messages for information, relying on context to determine the meaning of a particular word, or reading between the lines to evaluate the belief system behind a supposedly factual statement. These positive phenomena were difficult to measure or quantify, but our observations of these courses, compared to our observations of and personal experience in traditional courses, suggest to us that they occurred much more regularly in the reform courses than in traditional ones.

### ***Autonomy***

Interviews and observations suggested that another important gain of the program was enhanced initiative and autonomy within the language learning process. In the two courses, students selected their own group task, decided how to accomplish the task, and negotiated decisions among members of their group without having to rely on the control of instructors.

Students frequently commented positively on how these courses promoted their autonomy. For example, a student in the above-mentioned Comprehensive English

course commented that, "Most of time we depend on ourselves. We become the master of ourselves in this process." Another student explained,

To be frank, the project is the best teaching pattern that I've ever experienced. It broke the traditional monotonous teaching method and established a brand-new uninhibited setting for us. In these activities, we play a more active role which made us feel happy and had a desire to learn more.

To analyze learner autonomy in the English for Tourism class taught in 2000, I-statement analysis was carried out of all student self-evaluations written at the end of the semester (see Table 4). Among an average of 21 analyzable terms from each of the 28 self-evaluations handed in from 30 students, an average of 14.1, or 67.1 percent of the sample, were coded as active, suggesting that students conceived themselves as taking initiative in learning the subject matter in the technology-enhanced classroom (see table 4).

[INSERT TABLE 4 ABOUT HERE]

Unsurprisingly, not all students reacted positively to the new learning environment. A number of students indicated discomfort with an emphasis on learner control and responsibility. For example, a student named Huang Lei wrote the following self-evaluation in his English for Tourism class, in which he and his group had carried out research on food service in Jinhuang's four-star hotels.

We managed to interview some hotels as well as tourism bureau. We learned from them something new, but by and large, the result was not satisfactory. Because in communicating with them we realized that we knew very little about this specific field and reading books by ourselves could complement little about that. Anyway, if all the students were asked to teach themselves, what do we need teachers for? ”

While a number of students shared Huang Lei's perspective, an equal or greater number saw things differently. They tended to value the chance to take initiative, and frequently commented on the value of the group input in allowing them to do so. As explained by a student named Yu Fen:

I'm satisfied with my work. Comparing with the work of last semester, I think I am more active this semester. I participated in all aspects of the group project. I tried my best from browsing the Web sites on embroidery to writing our research reports, from doing interviews to setting up our own Web page. And my confidence comes from the cooperative spirit of our group and the teacher's encouragement. I think even the conflict of our minds in the group discussion becomes part of our success.

Huang Lei and Yu Fen were representative of the two common reactions by students in the class—those who rejected the new teaching format and those who embraced it. The former group cared more about the effect of the teachers' direct instruction upon their learning, while the latter group tended to value what they could gain from their group. Hence the differential outcomes: Huang looked to teacher direction, and lacking that he lost his confidence in being able to accomplish the group project. In contrast, Yu's confidence and satisfaction came from the combined efforts of an individual and a group, which helped enable her to exercise her autonomy and thus successfully complete the project.

Autonomy in language learning is sometimes presented as a Western concept unsuited to the educational traditions and contexts of East Asia. Yet as Littlewood (1999) argues, it is not autonomy per se that is foreign, but rather Western notions of

autonomy, which tend to emphasize the role of the individual over that of the collective. In contrast, Chinese students can develop their autonomy best through programs which emphasize collectivity and peer leadership. This seemed to dovetail nicely with the orientation of the revised courses, which encouraged learner autonomy through teamwork. However, the complaints of Huang Lei and some others indicate the challenges involved in such a transition, including how best to provide proper teacher scaffolding to support group-based learner autonomy.

### ***Relevance***

Another pattern noted was relevance, defined as a close relationship between course content and issues of current and future concern to students' lives. Increased social relevance of course content was noted in many of the revised classes. For example, the courses incorporating long-distance interaction almost invariably involved the students in discussing, and often rethinking, issues related to their own society, culture, and way of life (see Bakhtin, 1986 for discussion of gaining better understanding of one's own culture through revealing it to outsiders).

Another aspect of relevance—relationship to future career practices was witnessed in the English for Tourism course. From 1994 to 1997, the instructor of English for Tourism (the lead author) had students passively listen to her lectures, and diligent students who took detailed notes of the lectures most often got a high grade in the final written test. The test demanded memorization of information from the textbook so as to “solve” case problems that were actually more a reflection of rote learning than of interpretation or analysis. Not surprisingly, there was not always a correlation between the types of skills required to achieve high test scores and those required for success in

the tourism industry, where creativity, interpretation, and thinking ability more often come into play. In fact, one local travel agency manager indicated that he purposely tried to hire students with low grades (between a level of pass and 80%), since “these students may not be diligent [at memorization], but they often have a wide interest in some other disciplines and have a potential to be creative and pragmatic” (personal communication, April 1994).

Following the curricular reform, the nature of the course changed dramatically. Students had the active opportunity to combine the learning of English and the use of information technology in projects closely related to the actual challenges faced by tourism industry professionals. From 1998 to 2001, student completed their research studies on topics such as “road construction and city planning”, “the operating strategies of travel agencies during the annual golden week”, “overseas tourists’ shopping potential”, “management mechanism in the state-owned gardens,” and “hotel food service”. During these projects, students established contact with leaders and staff from the City Tourism Bureau, the City Planning Bureau, hotels, travel agencies, gardens, amusement parks, and museums. In addition, they interviewed international and domestic tourists, shop owners, business professors, and local consumers. These changes, though most dramatic in English for Tourism, were witnessed in other courses as well, in which students in their international writing projects had opportunities to discuss and learn about issues related to their future careers, whether based in tourism, foreign trade, social science research, or other areas.

The city where JHU is located is becoming one of the most important information technology manufacturing bases in China. The new job market demands employees

skilled in new information literacies. These include not only, or even principally, the mechanical aspects of computer operation but more importantly proficiency in finding, analyzing, critiquing, and interpreting information, and forging that information into presentable knowledge. These skills are of course mediated by language, and, given the role of English in global commerce, are frequently carried out in English. Students in the revised courses had opportunities to combine English and technology in the ways that corresponded to these needs.

Of course a university is not a vocational school. The relevance of the program went beyond that of preparing skills that were needed by industry. Rather, through a practice of real social discourse in English, students also had opportunities to develop a critical view toward the status quo. For example, one group of students conducted research on the operating strategies of travel agencies in the city of JHU during the annual National Holidays (the first week of October, referred to as the Golden Week holiday). Based upon systematic observation of travel agency operations and analysis of survey data and interviews, the group produced a detailed report that critiqued anti-consumer travel practices related to the Golden Week holiday, and the role of travel agencies in enabling these practices. This kind of critical approach—badly needed in a country going through such rapid social development—is often lacking in Chinese education, but emerged naturally in a context in which students’ learning activities were based on their own research and investigation into real-life socioeconomic issues.

### **Diffusion**

In the early years of the program, the Multimedia Group made extensive efforts to spread their educational vision. They offered lectures about the underlying pedagogical

approach of their work and about resources available for technology-enhanced language learning. They gave workshops on the integration of technology in the classroom. They also launched an English learning, teaching, and research Website for students and teachers on campus. The Website showcased students' educational technology projects, provided a forum and space for student and teacher's online communication, and accommodated online English teaching resources. Much of the student work that they showcased was quite impressive, including, for example, online publication of students' original research projects in English on the state of affairs of local businesses. In spite of these efforts, the Multimedia Group failed to expand, with no more than three faculty teaching project-based courses in any academic year.<sup>2</sup>

During the same period, conditions were improving dramatically for using technology in the classroom. The number of computers in the department was expanding rapidly (see Table 1 above), with the student-per-computer ratio dropping from 24.6 in 1998-99 to only 3.7 in 2002-03. In addition, many more faculty were becoming familiar with technology, as the percentage of faculty with home access to computers and the Internet grew from less than 25% in 1998 to greater than 90% in 2003. These improved conditions were reflected in a sharp increase in faculty using technology in their classes (see Table 1 above), but not in their teaching revised courses incorporating project-based learning. Rather, teachers made minor revisions to their regular course structure, by making use of downloaded audio material from the Internet, using presentation software during their lectures, or offering supplementary reading material online.

What explains the discrepancy between, on the one hand, a growing number of teachers willingness to use technology in instruction, and on the other hand, the lack of expansion of the project- and technology-based reform project?

We believe that this contradiction is understood in light of Cuban's (1993) model of *situationally constrained choice*. Cuban's model, based on his study of a century of US educational reform efforts, suggests that deeply-held cultural beliefs about the nature of knowledge, how teaching should occur, and how students should learn—all reinforced by educational systems that reward traditional forms of instruction—tend to mitigate against radical reform in teaching and learning. Rather, when teachers implement innovations, they tend to do so at the margin of instruction, leaving core relationships and processes in place.

This model fits well with what we observed at JHU. In China there is a set of deep-rooted cultural norms and beliefs that the teacher holds dominance of the classroom and deserves utmost student respect. The methods suggested by the Multimedia Group—which focused teachers' efforts on providing guidance, scaffolding, and feedback, rather than principally on lecturing—ran contrary to these cultural norms and beliefs. Teachers who engaged in student-centered learning ran the risk of facing disapproval from both their students, who were used to other forms of learning, and their peers, who view linguistic knowledge and lecturing ability as the cornerstones of good teacher, rather than the ability to organize student-centered learning (cf. Holliday, 1994). The same privileging of linguistic knowledge over pedagogical knowledge applied to scholarship, with faculty members respected more for publications on linguistics and literature rather than on learning processes or outcomes.

What's more, the learner-centered approach was extraordinarily challenging, involving extra demands that are placed on teachers' time, energy, and intellectual attention. This was evidenced, for example, by the large number of teacher student e-mail messages exchanged. In addition, student assessment took much longer in the project-based courses, as it involved time-consuming attention to electronic portfolios (see comparison of assessment procedures in Table 3). Heavy teaching loads in China, together with a lack of professional approbation for reform-oriented instruction or scholarship, discouraged teachers from devoting the extra time and energy that would be necessary for the project-based approach.

This did not mean that instructors were resistant to using technology. Technology usage jumped in the 2002-03 academic year after a huge increase in the number of computers in the School. Rather, they tended to use computers in ways that were consistent with their pre-existing beliefs about teaching and learning (cf. Warschauer, 1999), with any changes taking place at the margin of the instructional process rather than at the core of teacher-student relations. They thus used technology to *amplify* their previous methods of instruction—by providing more reading or listening materials or by enhancing teacher lectures—rather than to *transform* them.

In spite of these results, we do not believe that the reform effort should be seen as a failure. Three particular gains have been achieved. First, the project contributed to a culture in the School that is supportive of technology access and use. Though it is impossible to claim a direct cause and effect, the existence of the project, together with some honors its leading members had received, appeared to be factor in the university's

decision to increase its commitment to computer technology in the School, as well as in the readiness of some faculty to revise their courses with technology.

Second, several of the undergraduate and MA students who participated in the project are now seeking more advanced degrees in English or applied linguistics. A few are carrying out further research on project-based learning. They will thus be well-situated to continue to support continued reform efforts when the time is more ripe.

Third, valuable lessons were learned about students' responsiveness to this kind of project-based reform that may be valuable for informing future efforts. These lessons include students' demonstrated preference for collective, rather than individual, autonomy, as well as their strong interest in engaging in authentic online interaction.

Before these types of reforms can spread more broadly, greater incentives will likely need to be introduced. A look at Singapore, an Asian neighbor that often serves as a model for China's leadership, provides an illustration of one path a reform effort could eventually take. Singapore's leaders have made great efforts to reform their country's instruction through technology, only to find their efforts stymied by traditional top-down approaches to teaching and learning (Warschauer, 2001). Eventually, the Ministry of Education decided to reform the college entrance exam system, with credit now awarded for students' development of learning portfolios, in the hope that this would encourage more project-based and learner-centered instruction. In China, a similar restructuring of traditional reward systems may be required before project-based learning can be broadly accepted.

## **Conclusion**

Though further research on learning outcomes would be beneficial, including controlled comparisons between results achieved with students in the reforms and traditional classrooms, the initial findings of this study suggest several positive outcomes. Students in the revised courses engaged in learning that was more interactive and more closely aligned with real-world challenges and social needs. This provided enhanced opportunity for students to develop broad language skills, and to apply these skills using new technologies in communication, research, analysis, and production of new knowledge.

However, these gains required a substantial personal commitment of instructors in ways that ran counter to professional, cultural, and institutional values and reward systems in the university and in China. The reform did not expand, at least as intended by the initiators, even though the university involved is in a relatively wealthy and technologically advanced area. Universities in other areas, where technology infusion is slower and faculty are under greater economic pressure, may well experience even more difficulty in carrying out these types of reforms.

The study thus suggests that this Chinese university, and perhaps others, is not yet ready for the kind of wholesale curricular reform that this project entailed. However, it is also worth noting that China is going through very rapid social and economic change, almost unparalleled in Chinese or, indeed, world history. Any visitor to China's major eastern cities will hardly recognize the landscape compared to a decade or two ago. It is not unlikely that the educational landscape may also change in the coming decades, just as it is changing in other Asian countries, such as Singapore.

Thus while educational transformation may not be on the agenda today, well-defined pilot program and research studies on new approaches are nevertheless needed. Programs such as the one described in this paper, if they have the modest goals of accumulating lessons and knowledge for the future rather than the more far-reaching goal of rapid institutional change, may well contribute to a long-term process of educational reform.

**Table 1: Computers and Participants**

Academic Year	Computers	Teachers			Students		
		In Reform Project (Percent)	Using Technology (Percent)	Total	In Reform Class(es) (Percent)	In Class(es) Using Technology (Percent)	Total
1998-1999	24	3 (7.5%)	3 (7.5%)	40	60 (10.2%)	60 (10.2%)	590
1999-2000	36	2 (4.7%)	2 (4.7%)	43	64 (8.7%)	64 (8.7%)	737
2000-2001	36	3 (6.5%)	3 (6.5%)	46	57 (7.4%)	57 (7.4%)	774
2001-2002	36	1 (2.1%)	5 (10.4%)	48	35 (4.6%)	120 (15.7%)	762
2002-2003	196	3 (6.7%)	10 (22.2%)	45	90 (12.3%)	663 (90.7%)	731

**Table 2: Revised Courses**

	Course Name	Teaching Innovation	Role of Technology	When Implemented
Project-Based Revisions	<i>Internet for English Learning ABC</i>	Project-based	Medium for communication, research, and knowledge production	1998-2003
	<i>English for Tourism</i>			1999-2001
	<i>Writing</i>			2001-2002
	<i>Comprehensive English</i>	Project-based learning (30% of total lesson time)		1998-1999; 2000-2001, 2002-2003
Add-On Revisions	<i>Listening</i>	Downloading online materials	Assistant instructional tool	1998-2003
	<i>Grammar</i>	Using PowerPoint in lectures		2002-2003
	<i>Extensive Reading</i>	Providing reading materials online		2002-2003

**Table 3: Comparison of pedagogy in traditional and project courses**

	Pedagogy in Traditional Courses	Pedagogy in Same Courses After Project-Based Revisions
Reading materials	<ul style="list-style-type: none"> <li>• Course textbook (97%)</li> <li>• Occasional extra reading materials (3%)</li> </ul>	<ul style="list-style-type: none"> <li>• Course textbook (20%)</li> <li>• Reference books, Websites, Community data (80%+)</li> </ul>
Time spent on specific tasks (Lesson plan)	<ul style="list-style-type: none"> <li>• Lecture (75%)</li> <li>• Grammar exercises (15%)</li> <li>• Class discussion (10%)</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture (10%)</li> <li>• Project work (85%)               <ul style="list-style-type: none"> <li>• Extensive reading (10%)</li> <li>• Social investigation (30%)</li> <li>• Academic writing (40%)</li> <li>• Electronic presentation (5%)</li> </ul> </li> <li>• Evaluation (5%)</li> </ul>
Assessment Procedure	<ul style="list-style-type: none"> <li>• Written test (90%) (Midterm 30%+Final 60%)</li> <li>• Class performance &amp; Attendance (10%)</li> </ul>	<ul style="list-style-type: none"> <li>• Student portfolios (80%)</li> <li>• Evaluation sheets (20%)               <ul style="list-style-type: none"> <li>• Personal evaluation (10%)</li> <li>• Group evaluation (10%)</li> </ul> </li> </ul>

**Table 4: I-statement analysis of student self-evaluations in English for Tourism class**

Category of I-Statement	Example	Frequency of Occurrence
Action	"I put forward my ideas..."	67.1%
State	"I was responsible for ..."	10.9%
Ability	"I acquired new skills... "	8.0%
Constraint	"I could not express it..."	7.6%
Cognition	"I strongly believe..."	4.3%
Success	"I am proud of our work..."	2.9%

## Appendix A

### Personal Evaluation Sheet

Name: \_\_\_\_\_ Group#: \_\_\_\_\_ Class: \_\_\_\_\_

Project Topic: \_\_\_\_\_

- Please name **tasks** you've completed for the project and specify both the **quantity** (e.g. pieces of in-coming & out-going email messages, word count of all your writings, etc.) and **quality** based on your own record and judgment:

(Quality evaluation scores: 5=Excellent; 4=Very Good; 3=Good; 2=Not Bad; 1=Poor)

Tasks Completed e.g.	Quantity/Word Count	Quality	File Names
Incoming messages	/		
Outgoing messages	/		
Research outline	/		
Survey questions	/		
Web Page making	/		
Peer-editing	/		
etc., etc.	/		
Individual Report	/		
Self-Assessment	Total no. of words =	Average Score =	Your IWEF name =

*Note:*

- Please add lines as you need. Remember to total the quantity and calculate the quality's average score
  - Please submit your "Individual Writings' Electronic Folder"(IWEF) with all the project writings/e-exchanges you've accumulated this semester. Remember to name your files clearly and list them under "File Names" in the above table. Your folder name (IWEF name) = your last name + initial(s) of your first name(s) + your group#. For example, if your name is Li Xiaodong and you belong to Group 5, then your folder, IWEF name should be: lixd\_G5
- Please evaluate your overall performance using the same criteria:

(Evaluation Scores: 5=Excellent; 4=Very Good; 3=Good; 2=Not Bad; 1=Poor)

Participation	Cooperation	Contribution	Total Score

- Please write an Individual Report on your project experience (500~800 words). Some of the questions that you might want to address include:

- What are your specific contributions to the project?
- How successful was the project in helping you learn about society, major/subject interested?
- How successful was your project in helping you improve your language learning?
- What are the gains of collaboration between classmates and partners outside ?
- What are the challenges you have encountered in the project? How did you overcome them?
- What new skills and lessons have you learnt in the process?
- What would you have done differently if you had a chance to do it again?
- What suggestions would you make to improve the project or the course teaching next term?

## Appendix B

### Group Evaluation Guide

Group No. \_\_\_\_\_

Topic: \_\_\_\_\_

1. Please evaluate each other's overall performance:

(Evaluation Scores: 5=Excellent; 4=Very Good; 3=Good; 2=Not Bad; 1=Poor)

Name	Participation	Cooperation	Contribution	Evaluation (self/others)	Total Score
				/	
				/	
				/	
				/	
				/	

2. Please comment briefly on each member's most outstanding performances:

Name	Most Outstanding Performances & Contributions

### Appendix C: Accomplished Student Projects in Revised Courses (1998-2003)

Time	Course Name	Experimental Class	Project Name	Project Outcome
Spring 1998	<i>Comprehensive English</i>	English for Foreign Trade, Juniors	Cities Project	Themed WebPages
	<i>Comprehensive English</i>	English for Tourism, Freshmen	English Learning on CD-Rom	Themed WebPages
Fall 1998	<i>English for Tourism</i>	English for Tourism, Juniors	Student Research	Research Reports, Themed WebPages
	<i>Internet for English Learning ABC</i>	Optional for Juniors	Student Research	Research Reports, Themed WebPages
Fall 1999	<i>English for Tourism</i>	English for Tourism, Juniors	Student Research	Research Reports, Themed WebPages
	<i>Internet for English Learning ABC</i>	Optional for Juniors	Student Research	Research Reports, Themed WebPages
Spring 2000	<i>Comprehensive English</i>	Teacher education Juniors	International Writing Exchange	Themed WebPages
	<i>Writing</i>	Teacher education Juniors	JHU-H.K.C.U Online Writing Collaboration	Themed WebPages
Fall 2000	<i>English for Tourism</i>	English for Tourism, Juniors	Student Research	Research Reports; Themed WebPages
	<i>Internet for English Learning ABC</i>	Optional for Juniors	Student Research	Research Reports; Themed WebPages
Spring 2001	<i>Comprehensive English</i>	English for Foreign Trade, Juniors	Business Research	Research Reports; Themed WebPages
	<i>English for Tourism</i>	English for Tourism, Juniors	Student Research	Research Reports; Themed WebPages
	<i>Writing</i>	Russian- English Bilingual class, Juniors	JHU-H.K.C.U Online Writing Collaboration	Themed WebPages
Fall 2001	<i>Internet for English Learning ABC</i>	Optional for Juniors	Student Research	Themed WebPages
Fall 2002	<i>Internet for English Learning ABC</i>	Optional for Juniors	Student Research	Themed WebPages
Spring 2003	<i>Comprehensive English</i>	English Majors, Class 2, Freshmen	Reflective Journal Writing	Personal & Group portfolio

## References

Bakhtin, M. M. (1986). *Speech genres & other late essays*. Austin: University of Texas Press.

Barson, J., Frommer, J., & Schwartz, M. (1993). Foreign language learning using e-mail in a task-oriented perspective: Interuniversity experiments in communication and collaboration. *Journal of Science Education and Technology*, 4(2), 565-584.

Castells, M. (1996/2000). *The rise of the network society* (2nd ed.). Malden, MA: Blackwell.

Cuban, L. (1993). *How teachers taught: Constancy and change in American classrooms 1890-1980* (2nd ed.). New York: Longman.

Dzau, Y. F. (1990a). How English is taught in tertiary educational institutions. In Y. F. Dzau (Ed.), *English in China*. Hong Kong: AIP Press.

Dzau, Y. F. (1990b). Teachers, students and administrators. In Y. F. Dzau (Ed.), *English in China*. Hong Kong: API Press.

Foster, W., & Goodman, S. (2000). *The diffusion of the Internet in China*. Retrieved May 5, 2001, from <http://cisac.stanford.edu/docs/chinainternet.pdf>

Gee, J. P. (1999). *An introduction to discourse analysis: Theory and method*. Routledge.

Gee, J. P. (2000). Teenagers in new times: A new literacy studies perspective. *Journal of Adolescent and Adult Literacy*, 43(5), 412-420.

Holliday, A. (1994). *Appropriate methodology in social context*. Cambridge: Cambridge University Press.

Huang, R. (2001). Tomorrow's hope: the status quo and development of Chinese educational informatization. *Computer journal*, 62, 16-17.

Kern, R. (1996). Computer-mediated communication: Using e-mail exchanges to explore personal histories in two cultures. In M. Warschauer (Ed.), *Telecollaboration in foreign language learning* (pp. 105-119). Honolulu, HI: University of Hawaii's Second Language Teaching and Curriculum Center.

Li, X. (1984). In defense of the communicative approach. In Y. F. Dzau (Ed.), *English in China*. Hong Kong: API Press.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.

Littlewood, W. (1999). Defining and developing autonomy in East Asian contexts. *Applied Linguistics*, 20(1), 71-94.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage.

Pennington, M.C. & Cheung, M. (1993). Managing contextual factors in educational innovation: Process writing in Hong Kong. *Journal of English and Foreign Languages*, 2, 20-33.

Pennington, M.C. & Cheung, M. (1995). Factors shaping the introduction of process writing in Hong Kong Secondary Schools. *Language, Culture and Curriculum*, 8, 15-34.

Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-158.

Schmidt, R. W. (1993). Awareness and second language acquisition. *Annual Review of Applied Linguistics*, 13, 206-226.

Shetzer, H., & Warschauer, M. (2000). An electronic literacy approach to network-based language teaching. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 171-185). New York: Cambridge University Press.

Soh, B.-L., & Soon, Y. P. (1991). English by e-mail: creating a global classroom via the medium of computer technology. *ELT Journal*, 45(4), 287-292.

Spradley, J. P. (1980). *Participant observation*. New York: Holt, Rinehart & Winston.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks: Sage.

Tella, S. (1991). *Introducing international communications networks and electronic mail into foreign language classrooms* (Research report No. 95). Helsinki: Department of Teacher Education, University of Helsinki.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *Modern Language Journal*, 81(4), 470-481.

Warschauer, M. (1998). Online learning in sociocultural context. *Anthropology & Education Quarterly*, 29(1), 68-88.

Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Warschauer, M. (2000). The changing global economy and the future of English teaching. *TESOL Quarterly*, 34, 511-535.

Warschauer, M. (2001). Singapore's dilemma: Control vs. autonomy in IT-led development. *The Information Society*, 17(4), 305-311.

Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. Cambridge, MA: MIT Press.

Yan, Z., & He, Z. R. (1985). Pragmatic failure of the Chinese learners in communication with English native speakers. *ELT in China: Papers presented at the international symposium on teaching English in the Chinese context (ISTEC)*, Guangzhou, China, 185-198.

Yin, R. K. (2002). *Case study research: Design and methods*. Thousand Oaks: Sage.

---

<sup>1</sup> The name of the university and all individuals involved have been changed for the sake of anonymity.

<sup>2</sup> The number of faculty teaching project-based courses dropped to one in 2001-02 when two of the members of the Multimedia Group were on leave, but then rose back to three the following year.