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New Literacies and Emerging Technologies: Perspectives from U.S. and Chinese Middle Level Teachers

Hiller A. Spires
North Carolina State University
Raleigh, NC

Gwynn Morris
Meredith College
Raleigh, NC

Junzheng Zhang
Shanxi Datong University
Datong, Shanxi, China

Abstract

This study focuses on middle grades teachers from the United States and China, the two countries with the highest Internet use, in an attempt to understand both groups' perspectives on integrating new literacies and technologies into their teaching. Survey and focus group results indicate that, although U.S. and Chinese teachers are operating under different educational policies in their respective countries, their experiences with school changes prompted by the integration of new technologies have similarities. One notable difference was the significantly higher value Chinese teachers assigned to creativity and innovation in contrast to U.S. teachers, which may be a result of current U.S. testing policies. Although there appears to be a gap between their aspirations and their practices, middle grades teachers from both countries report an eagerness to create educational experiences that help students become active global citizens, and they recognize the role of new literacies and technologies in achieving this goal.

Introduction

Today's students have opportunities to learn in different ways from those of previous generations, with much of the change due to advancements in information technologies. Growing trends among students demonstrate increased passion for and reliance on technologies for entertainment and communication (Lenhart & Madden, 2007). At the same time, digital equity continues to be of prime concern to educators as they strive to create learning experiences that serve all students (Leu, Kinzer, Coiro, & Cammack, 2004). With technology driving much of the change we see in information and communication, an important question researchers are attempting to answer is: *How is the Internet changing what it means to be literate?*

The theoretical grounding for answering this question can be found in new literacies (Leu et al., 2004), and new media literacies (Jenkins, Clinton, Purushotma, Robinson, & Weigel, 2006). Leu and

his colleagues at the University of Connecticut have written extensively on this topic in literacy education. They have conceptualized and produced a body of research that addresses the “new literacies” broadly defined (see Coiro, Knobel, Lankshear, & Leu, 2008) as well as the focused area of online reading comprehension and navigation (e.g., Coiro & Dobler, 2007). Prompted by the rich media landscape that exists today, Jenkins and associates (2006) have articulated a new skill set that involves social skills developed through collaboration and networking. These skills build on the foundation of traditional literacy, research skills, technical skills, and critical analysis skills taught in the classroom. These new media literacies, which are contextualized within digital media environments, comprise skills students need for the 21st century (e.g., play performance, simulation, appropriation, multitasking, distributed cognition). Both of these areas, new literacies and new media literacies, embed the fundamental theory of multimodality (Kress, 2003; New London Group, 1996). Multimodality texts (i.e., print, video, still images, audio, music) offer learners unique ways to create and convey meaning.

In conjunction with the exponential expansion of Internet content, there is also an increasing trend in usage, particularly among children and adolescents. In the United States, the Pew Internet & American Life Project has conducted surveys on children and teen’s technology use since 2000. In the most recent survey, Lenhart and Maddan (2007) reported that 93% of children and teens use the Internet. Among U.S. students who have access at home, 94% use the Internet for homework. In terms of school reports and projects, Lenhart and Madden (2007) claimed that nearly 71% used the Internet as the primary source for information, while only 24% reported using standard library materials for the same task. In many cases, out-of-school technology use is outpacing in-school technology use (National School Boards Association, 2007; Spires, Lee, Turner, & Johnson, 2008). These statistics make it clear that the Internet is a prominent learning tool and that students are becoming increasingly dependent on the Internet as a primary resource for information gathering in and outside school settings (Lawless & Schrader, 2008).

Due to the proliferation of the Internet, teaching students to become strategic readers with informational text is becoming increasingly challenging for educators. The massive explosion of online information and the increasing reliance on these resources for educational purposes combine to

create a shift in what it means to be literate in today’s knowledge-based society. Today’s readers must, of course, know how to decode, but they must also know how to effectively comprehend in complex Internet reading environments. In this context, reading comprehension not only includes skills traditionally associated with processing print text but also includes locating information on the Internet, critically evaluating that information, and synthesizing information for a desired learning outcome (Goldman, 2004; Leu et al., 2004). Additionally, contemporary readers need to expand their understanding of print text to reflect the characteristics of digital text, which is nonlinear, multimodal, highly visual, interactive, and possesses unclear authority and authorship (Dalton & Proctor, 2008).

Current changes in teaching and learning may be reflective of the shifting dynamics in global economics (Friedman, 2005), which, in turn, have led to a host of educational reform proposals aimed at innovation. For example, the New Commission on the Skills of the American Workforce of the National Center on Education and the Economy (2006) recommended massive educational reform that would refocus the U.S. educational system on learning for creative work. Additionally, the Partnership for 21st Century Skills (P21) (2005) argued that technological, economic, informational, demographic, and political changes require that schools reconsider how they prepare young people for civic, economic, and social life.

Proposing to “bridge the gap between how students live and how they learn” (p. 4), P21 has identified six key elements for 21st century education including core subjects and learning skills as well as 21st century tools, contexts, content, and assessment. These six elements are further delineated into 11 specific 21st century skills, which served as the basis for the current study (see Table 1). Central to the P21 framework is the use of information and communication technologies in authentic contexts. Specifically, since the 21st century workplace is infused with digital communication and information management systems, workers are expected to have sophisticated technological skills and dispositions. Additionally, the P21 report suggested that, since young people are becoming increasingly dependent on technologies to communicate, gather information, and extend social experiences, it is essential that our educational system evolves to support a new definition of what it means to be literate in the 21st century.

Confronting the challenges of new literacies and emerging technologies not only in the United States, the most developed country in the world, but also in China, the largest developing country, is a daunting task for educators. According to the 2012 report from China Internet Network Information Center (CINIC), there are about 513 million Internet users in China. The quantity of Chinese Internet users has surpassed the United States, where there are about 245 million Internet users in 2012.

China differs significantly from the United States in many ways. China has five times more people than the United States (1.4 billion compared to 313 million in the United States) and educates 20% of the world's young people. Furthermore, China has a Socialist system of government structure and leadership, whereas the United States uses a democratic system. Despite the vast differences between China and the United States, the two countries also share common concerns, most notably in the area of education. These concerns include the rising cost of education and increased knowledge and information necessary for educators and their students to become productive global citizens (Zhao, 2009). Both countries must focus on the necessity for comprehensive continuing education for teachers, especially in new media literacies, and the importance of workforce development for a global economy (Zhao, 2009). The Chinese Ministry of Education (CMOE) recently has embraced the challenge of modernizing the Chinese educational system (2002, 2003). Of particular importance to the CMOE is the capacity to embrace modernity while simultaneously preserving and honoring the best of Chinese tradition.

Central to closing the gap between in-school and out-of-school student technology use, both in the United States and in China, are teachers' dispositions and uses of technologies to support new literacies. Given the fact that the United States and China have the highest quantity of users of the Internet, we were curious as to how middle grades teachers from both countries viewed the impact of the Internet on teaching and learning (Bishop & Downes, in press). The current study attempted to answer two questions through a survey and follow-up focus groups: What are the perspectives of middle grades teachers from the United States and China concerning new literacies and emerging technologies? How do middle grades teachers navigate the use of emerging technologies from a cross-cultural perspective?

Methods

We developed a survey to explore and quantify teachers' perceptions about new literacies and emerging technologies. The goal of the survey was to uncover similarities and differences between the groups of teachers from the United States and China in terms of perceptions and current practices related to new literacies. To gain additional information, we also conducted focus groups with teachers in both the United States and China.

Participants

Two hundred ninety-one middle grades teachers completed the survey: 193 U.S. teachers from North Carolina and 98 Chinese teachers from Shanghai and the Shanxi, Hebei, Fujian, Guangdong, and Henan Provinces of China. The 193 U.S. middle grades teachers (sixth, seventh, and eighth grades) were selected from a random subset of 557 rural and urban middle schools in North Carolina. The sample was composed of 73% female and 27% male teachers; 81% Caucasian, 13% African American, and 6% other (i.e., Hispanic, American Indian, and Asian). Further, 64% held a bachelor's degree, and 36% had their master's degree. On average, the teachers in the sample had been teaching for 11.6 years. The 98 Chinese middle grades teachers (fifth, sixth, seventh, eighth, and ninth grades) were selected from a random subset of 50 rural and urban middle schools. The sample consisted of 47% female and 53% male teachers. All but three teachers were Han (two were Hui, and one was other); however, all spoke Mandarin. Ninety-three percent of the teachers held a bachelor's degree; whereas 3% held a high school diploma, and 4% held a master's degree. On average, the teachers in the sample had been teaching for 10.3 years. When asked to choose their level of technology use (i.e., novice, intermediate, expert), the majority of both U.S. and Chinese teachers described themselves as intermediate technology users both in and outside the classroom.

A total of ten U.S. teachers participated in focus groups (five teachers in two focus groups) in a central location. Nine Chinese teachers participated in the focus groups in China. The three focus groups conducted in China took place at three middle schools near Datong City, Shanxi, China and were comprised of three teachers each.

Survey Procedures

A four-member panel, including national experts in the field of instructional technology and middle level education, generated questions for the survey. Questions were field tested on 20 local teachers to check for content appropriateness and semantic clarity. Wording and format of several questions were modified as a result of the teacher feedback. Internal reliability of questions was established at $r = .84$. U.S. teachers completed the English version of the survey online. Chinese teachers from Shanxi completed a paper copy of the survey in Mandarin due to lack of technical access to the online survey. Chinese teachers from all other regions were able to complete the Mandarin survey version online. Survey data from the Chinese participants was translated into English by a native Mandarin speaker. Unless otherwise stated, all responses were on a Likert-Scale ranging from one to five, where one indicated *strongly disagree*, and five indicated *strongly agree*.

Focus Group Procedure

Using a purposive sampling procedure, teachers, who would be able to provide additional information about their technology use (beyond the scope of the initial survey), were targeted for participation. The ten U.S. middle grades teachers came from eight different school districts across the state of North Carolina and convened at a central location; two focus groups were established, with five participants each. Three Chinese teachers participated in three focus groups, which were led by a Chinese facilitator who spoke Mandarin. Both U.S. and Chinese focus groups followed a semi-structured interview process that was videotaped and lasted approximately one hour. Focus group sessions were transcribed by an external transcription service. The data from the focus groups in China were then translated from Mandarin to English for analysis.

Using the constant comparative method (Glaser & Straus, 1967), two researchers independently read the focus group transcripts from each country and identified initial topics for coding the data. These initial topics were selected based on the frequency with which participants mentioned particular topics. The initial topics were collapsed by similarities, and the data were reread and re-coded. During this second reading, a small number of new topics were selected and then coded in a third data reading session. The researchers then clustered the coded data from the transcripts into themes and made final decisions

about which themes to include in the study, based on relevance to the research topic and volume of student responses aligned with a particular theme (Strauss & Corbin, 1990).

For example, in the first reading of the U.S. focus group data, both researchers noted frequent responses related to lack of technology and broken technology. After a second data read, this code was collapsed with other references participants made to the broader category of funding for technology and technology support. Data from the transcripts related to this category were finally incorporated into a theme titled “Educate and Support Us.”

In all, 173 U.S. comments were coded into six categories. One of these categories was labeled “other” and included comments that did not fit conceptually into the remaining five categories. Comments such as difficulties communicating with non-English speakers, parent support for students and teachers, and classroom management were coded into the “other” category. Finally, the six categories were collapsed into four interpretive themes for research reporting purposes. Similarly, 133 Chinese comments were initially coded into 12 categories and then collapsed into three interpretive themes. The four U.S. themes and the three Chinese themes were integrated into three global themes, which will be discussed in the next section.

Results

Quantitative results from the survey and qualitative results from the focus groups follow. Results should be interpreted within the context of the targeted population and the potential limitations a study of this type presents. Specifically, limitations to the survey results include the nature of the targeted population. The U.S. teachers were targeted from a sample of public schools in North Carolina serving students in grades sixth, seventh, or eighth. The Chinese teachers were derived from a sample in six Chinese provinces serving grades fifth, sixth, seventh, eighth, and ninth. Results, therefore, cannot be generalized to all middle grades teachers in the United States and China.

Survey Results

Attitudes about 21st century skills. Surveyed teachers were asked to rank the eleven 21st century skills (P21, 2005) in order of importance. U.S. and Chinese teachers both rated “critical thinking and problem solving” as the 21st century skill they felt to be most

Table 1
 Mean Ranking of 21st Century Skills by U.S. and Chinese Teachers

21st Century Skill	U.S. Ranking		China Ranking	
	(Mean)	(SD)	(Mean)	(SD)
Critical Thinking & Problem-Solving Skills	*1 (3.46)	(1.23)	*1 (4.58)	(1.33)
Communication & Collaboration Skills	2 (4.44)	(1.57)	2 (4.77)	(1.92)
Initiative & Self-Direction	3 (4.67)	(1.49)	5 (5.22)	(1.29)
Productivity & Accountability	4 (6.09)	(1.32)	2 (4.77)	(1.92)
Leadership & Responsibility	5 (6.18)	(1.12)	7 (6.05)	(1.96)
Flexibility & Adaptability	6 (6.29)	(2.32)	6 (5.65)	(1.27)
Information & Communication Technology (ICT) Literacy	6 (6.29)	(2.32)	10 (7.69)	(1.85)
Social & Cross-Cultural Skills	8 (6.64)	(1.29)	8 (7.32)	(1.39)
Information Literacy	9 (6.82)	(1.31)	8 (7.32)	(1.39)
Creativity & Innovation	10 (6.88)	(1.93)	4 (4.88)	(1.27)
Media Literacy	*11 (8.25)	(1.84)	*11 (7.76)	(1.62)

Note: *Same Rank

important and “media literacy” as the least important skill. However, the ranking of the other skills varied by country (see Table 1). The most notable difference was the ranking of “creativity and innovation”: Chinese teachers viewed this as quite important (4th), while U.S. teachers felt it was less so (10th).

Furthermore, teachers in both countries were asked to rate how strongly they disagreed or agreed with the following three statements regarding computer use to acquire 21st century skills: (a) Computer use promotes student-centered learning and self-discovery; (b) Computer use can enhance my students’ creativity and imagination; and (c) My students can learn problem solving more effectively with computers. On average, both U.S. ($M = 2.63$, $SD = 1.09$) and Chinese ($M = 2.46$, $SD = 1.29$) teachers either agreed or strongly agreed with these statements, and there were no differences between countries.

Teacher and student technology use. No significant differences were found between Chinese and U.S. teachers’ use of video editing software, video conferencing, and blogs; and the vast majority of teachers in each country reported never using these technologies ($M = 1.58$, $SD = 0.93$). However, teachers in China and in the United States differed in their use of digital cameras ($t(291) = 7.59$, $p < .001$), PowerPoint presentations ($t(291) = 7.27$, $p < .001$),

wikis ($t(291) = 2.28$, $p = .023$), computerized gaming ($t(291) = 4.42$, $p < .001$), mobile devices ($t(291) = -2.69$, $p = .008$), and podcasts ($t(291) = -3.13$, $p = .002$). As seen in Table 2, U.S. teachers seemed more likely to use digital cameras, PowerPoint presentations, wikis, and computerized gaming in their teaching than their Chinese counterparts. However, Chinese teachers were more likely to be incorporating mobile devices and podcasts than U.S. teachers.

Survey results also revealed differences in Chinese and U.S. students’ use of technology. Teachers reported that U.S. students spend an average of 4.30 hours each week using a computer, whereas Chinese students only spend 1.26 hours, a significant difference ($t(291) = 4.69$, $p < .001$). U.S. students were significantly more likely to make PowerPoint presentations ($t(291) = 5.62$, $p < .001$) and to create digital multimedia ($t(291) = 2.45$, $p = .015$) than Chinese students.

Connectivity and hindrances to technology use. U.S. teachers were more likely to teach in schools with high-speed connectivity than were Chinese teachers ($t(291) = 10.98$, $p < .001$). U.S. teachers on average reported moderate- to high-speed Internet service ($M = 2.55$, $SD = 0.59$); whereas, Chinese teachers, on average, reported low- to moderate-speed Internet service ($M = 1.69$, $SD = 0.50$).

Table 2
Means (and SDs) for U.S. and Chinese Teachers' Technology Use

Technology	United States (Mean) (SD)		China (Mean) (SD)	
Digital Cameras**	2.46	(1.17)	1.36	(0.57)
Video Editing Software	1.58	(0.93)	1.51	(0.79)
PowerPoint Presentations**	3.33	(1.33)	2.07	(0.92)
Blogs	1.46	(0.92)	1.34	(0.56)
Wikis*	1.36	(0.75)	1.14	(0.39)
Computerized Gaming**	2.22	(1.19)	1.54	(0.77)
Mobile Devices*	1.79	(1.15)	2.23	(1.24)
Video Conferencing	1.26	(0.64)	1.29	(0.51)
Podcasts*	1.40	(0.82)	1.76	(0.81)

Note: * $p < .05$ ** $p < .001$

Both Chinese and U.S. teachers sometimes or often encountered the lack of hardware. U.S. and China teachers differed in the frequency they experienced other barriers to technology use, such as the blockage of useful Internet sites ($t(291) = 4.77, p < .001$), lack of connectivity ($t(291) = -4.00, p < .001$), lack of information technology (IT) support ($t(291) = -2.35, p = .020$), and lack of access to technology training ($t(291) = -2.80, p = .006$). As seen in Table 3, the primary problems in the United States are the lack of access to useful hardware and Internet sites, while the main challenges in China involve connectivity and lack of IT support.

Focus Group Results

Three global themes were identified from the U.S. and Chinese focus groups: (a) We need professional development and administrative support; (b) We are guiding learners into the 21st century; and (c) We are navigating tensions in an evolving education system.

We need professional development and administrative support. The U.S. themes “Educate and support us” and “Listen to us” are closely aligned with the Chinese theme of “Improve our teaching conditions.” Teachers in both countries wanted more professional and administrative support as well as

Table 3
Means (and SDs) for U.S. and Chinese Teachers' Hindrances to Technology Integration

Hindrance	United States (Mean) (SD)		China (Mean) (SD)	
Lack of Access to Useful Internet Sites**	3.20	(1.10)	2.49	(0.99)
Lack of Connectivity**	2.59	(1.11)	3.20	(1.07)
Lack of Hardware	3.32	(1.25)	3.17	(1.06)
Lack of IT Support*	2.81	(1.69)	3.19	(1.11)
Lack of Vision and Leadership in School	2.35	(1.11)	2.61	(0.75)
Lack of Professional Development*	2.70	(1.07)	3.11	(0.99)

Note: * $p < .05$ ** $p < .001$

Table 4
U.S. and Chinese Focus Groups' Themes

U.S. Themes	Chinese Themes	Global Themes*
Educate and support us.	Improve our teaching conditions.	Improve our teaching conditions.
Listen to us.	We want more student-centered education.	We want more student-centered education.
We want to engage our students.	We feel tensions between cultural traditions and 21st century skills.	We feel tensions between cultural traditions and 21st century skills.
Align assessments and standards with 21st century skills with teaching and learning expectations.		

Note: *U.S. and Chinese themes integrated

improved professional development for the use of emerging technologies. Teachers from both countries wanted their voices to be heard. As one U.S. teacher stated, “If we had more administrative support, I think we could get to the next step of being more successful.” The teachers had specific ideas about the need for more professional development with technology. One U.S. teacher acknowledged that some technology training has been provided, but she needed specific training in her content area. A Chinese teacher noted a disconnect between how she was taught as a child and how she is expected to teach now, asserting that teachers “need continuous training” to stay abreast of the new literacies associated with technology tools. Another U.S. teacher stated that administrators “need to listen to those of us who are the in the trenches every day.” She felt disconnected from the education decision makers and asserted that “not enough of us are in the loop when it comes to state legislation and mandates.”

We are guiding learners into the 21st century. The U.S. theme “We want to engage our students” is comparable to the Chinese theme “We want more student-centered education.” Both groups emphasized the need for students to be self-initiated, independent learners. They also wanted to teach the skills relevant to today’s world and prepare them for the 21st century. The Chinese teachers emphasized a shift from the traditional “sage on the stage” model to the “guide on the side,” in which there are more teacher-student interactions.

Echoing the current sense of international competitiveness and urgency from policymakers, one U.S. teacher declared,

I want my students to be prepared. I want them to make it against another country. I want to focus on what they can use in life—team building and critical thinking rather than rote memorization of what is going to be on a test.

A Chinese teacher demonstrated her awareness of the 21st century issue of the proliferation of Internet-based information when she said, “We need to make sure students know how to research, find the answers and valuable resources, and to know which resources are worthy and which are fake.”

The Chinese teachers reflected the current curriculum reform efforts in their country when they explained, “The dominant form of education in China still features teachers as presenters and students as the audience. This should be changed to students’ self-study as the main form and then questions for teachers.” Another Chinese teacher said, “Classroom interaction means linking what is required by the curriculum with students’ real life.” This comment demonstrated her awareness that teaching expectations were changing in China.

We are navigating tensions in an evolving educational system. The theme “aligning assessments, standards, and 21st century skills curriculum with instructional expectations” was unique to the U.S. teachers. Teachers are expected to navigate many different systemic influences, specifically pacing guides and standardized tests, while preparing students to be digitally literate in the 21st century. The U.S. teachers felt restricted by pacing guides and standardized tests. That is, they felt they spent more time teaching to the test rather than

teaching the skills students needed for future success. Furthermore, the school system's rhetoric about the importance of 21st century skills and implementation of technologies in teaching appears to be incongruent with assessments; in essence, old-school assessments continue to be promotion gateways. One U.S. teacher captured this sentiment when she said,

You're saying that we should be teaching students through project-based learning with technology, using what they are going to use when they get out into the real world. But then we throw a piece of paper and a pencil in front of them and say, "OK, this is going to determine if you are going to make it to the next grade or not." If we're going to look at what students really need, we need to look at how we are assessing them in the end.

The Chinese teachers voiced a similar theme, "We feel tensions between cultural traditions and 21st century skills." The teachers seemed concerned with how to blend elements of traditional culture with the new and ever-changing information available in their modern society. One Chinese teacher commented:

We need to tell students that in modern society new knowledge comes out very fast. With society evolving, knowledge we have today can only meet our current need and provide a ground for the compulsory education stage. For the future, it's more important for students to grasp self-study abilities. Only by making full use of Internet resources, and searching information with convenience and promptness, can we have better application of the information.

Another Chinese teacher noted, "From the perspective of a subject area, traditional Chinese culture is of long-standing. To be literate in the 21st century should mean carrying on and developing traditional culture (e.g., Beijing Opera, shadow plays, tea culture) but also expanding literacy to include the use of new information technologies, which will help to promote the quality of people."

From the themes presented in the focus groups, it was clear that both the U.S. and Chinese teachers' educational ideas were changing, but there is still a large gap between ideas and their practice. Although expressed in different ways, it is clear that the gap between the two groups of teachers is narrow in terms of their concerns for teaching in the 21st century.

Research Limitations and Discussion

Through survey and focus group data, this study presents a small sample of middle grade teachers' perspectives and practices on integrating new literacies into the classroom. There are several limitations to the research that was conducted. First, the sample for both U.S. and Chinese teachers included both rural and urban teachers, but the variability in the two samples is difficult to gauge, since a rural school in China maybe very different from a rural school in the United States. Second, the sample of U.S. teachers came from one state, North Carolina, and the sample of Chinese teachers came from a small region in China; therefore, the results of the sample cannot be generalized to both countries at large. Third, every effort was made to make sure that the Chinese teachers understood the questions asked in both the survey and in the focus groups. It is possible, however, that, based on cultural and language differences, the Chinese teachers may have interpreted the questions differently from their original intent, even though the focus group facilitator was Chinese and spoke in Mandarin. Additionally, questions could have been misinterpreted due to the differences in the middle level education philosophies of the two countries (Hervey, Spires, & Zhang 2009).

The discussion is organized to address similarities and differences across the two groups from the United States and China. Similarities in what U.S. and Chinese teachers reported related to perceptions of 21st century skills, use of certain tools, and hindrances related to hardware and vision and leadership in schools. Both groups ranked "critical thinking and problem solving" as the most important 21st century skill, and both groups ranked "media literacy" as the least important skill. Finally, both groups reported that tools such as video editing, blogs, wikis, and video conferencing were not in their instructional repertoire.

Differences in teacher perspectives are interesting in light of contrasting educational policies that are currently in place in the two countries. Chinese teachers ranked "creativity and innovation" fourth in terms of importance, as opposed to U.S. teachers who ranked it tenth. In terms of tools, U.S. teachers were more likely to use digital cameras, PowerPoint presentations, wikis, and games in their teaching; whereas, Chinese teachers were more likely to be incorporating mobile devices and podcasts. U.S. teachers reported that their students spend an average

of 4.3 hours in class using a computer as well as making PowerPoints and creating digital content. Chinese teachers reported that their students spend an average of 1.3 hours using a computer in class.

Based on our survey results, there appears to be less technology use in school than there is outside school in both the United States and China. This perspective was underscored in a recent study called *Young Digital Mavens* (China leads the U.S. in digital self-expression, 2007). The authors of the study aimed to explore how attitudes toward digital technology are changing among Chinese and U.S. youth at a time when people are spending less time with traditional media and more time with online technologies. The authors of the study reported that 80% of Chinese respondents agreed that digital technology was an inherent part of their lifestyle, compared with 68% of Americans. Chinese youth reported they are twice as likely as young Americans to say they would not feel comfortable without Internet access for more than a day. More than twice as many Chinese youth admitted they sometimes feel “addicted” to living online. This finding is not surprising, since China is emerging from being a closed society; the newfound freedom of expression associated with using the Internet to communicate may produce a more intensified experience for Chinese users, especially middle and high school students (Hervey, Spires, & Zhang, 2009). In our survey results, Chinese teachers reported that their students spent, on average, 1.3 hours per week on a computer in class; there appears to be a greater disconnect between in-school and outside-school technology use by Chinese students than their U.S. counterparts.

The results reported here reflect the governmental policies of each country. Both education systems have governmental policies in place that directly affect educational practice, including the use of new media literacies. Early in 2006, U.S. President George W. Bush called upon the nation to bolster mathematics and science education and to nurture corporate innovation. In the same month, Chinese President Hu Jintao outlined major strategic tasks for building an “innovation-oriented society.” The Chinese government is focusing on reforming education as a key strategy for economic growth and development (CMOE, 2002, 2003). The key features of the reform movement are: (a) decentralization of elementary and secondary education; (b) a “quality-oriented” rather than a “test-oriented” system, with an emphasis on learner-centered methods; (c) an increase in the amount of preservice education required of

teachers, with greater emphasis on pedagogy; and (d) an increase in formal inservice education (Preus, 2007; Zhao, 2007). In contrast, No Child Left Behind (NCLB) emphasizes centralization of education with more testing and a decrease in professional preparation in pedagogy for teacher certification (Zhao, 2007).

A similarity between China and the United States is that policymakers in both countries recognize the importance of a well-prepared workforce that can compete on the global stage. The United States is using accountability as the means to develop a 21st century workforce, whereas China is emphasizing creativity as the lever to move their education system forward. The Chinese government’s message of emphasizing innovation and creativity has clearly permeated the professional education community in China. This perspective is supported by the survey and focus group results in the current study, the numerous Chinese education delegations that are visiting the United States to learn about creative educational practices, and reports from the Chinese Embassy. Obviously, there is a lag between China’s educational policy that emphasizes creativity and innovation and the instructional approaches that pervade the classroom.

It is no easy task for teachers to carry out teaching reform in China. First, the country’s huge population requires middle schools to enroll 50 to 80 students in each class (Zhu, 2007). Second, traditional Chinese culture views teachers as intellectual and moral authorities, and historically students have revered their teachers. Thus, for teachers to maintain dignity in front of their students is an issue of cultural identity. There are reports of schools where new reforms are in place that mutual respect is pervasive in the classroom, and the teachers’ role has evolved into one of encouraging students’ participation in classroom interaction and cultivating new understandings (Zhu, 2007).

Based on the analysis of this study, teachers in both countries are eager to create educational experiences that help students become active global citizens. Clearly, new literacies and technologies will facilitate important communication and problem-solving skills needed for participation in the global economy. Both U.S. and Chinese teachers need customized professional development support to make important changes in their instruction that will facilitate new types of educational experiences and learning for the 21st century. The fact that China is interested

in creativity and innovation, combined with the increased numbers of Chinese who are now attending higher education institutions, creates a dynamic context for change. Likewise, under the current administration, the United States is embracing new policies that will dismantle No Child Left Behind and support innovative models of education through the American Recovery and Reinvestment Act (U.S. Department of Education, 2009).

Premsky (2006) asserted that “Kids are training themselves—in the absence of anyone doing it for them—to be ready for the world of the twenty first century” (p. 203). Teachers from the United States and China potentially can learn from each other as they navigate new literacies and technologies and transform education to meet new work and life demands within their respective cultures. Although this study focused on U.S. and Chinese teachers, it is important for researchers to broaden their global view to begin understanding how many other countries are changing their educational systems to meet 21st century demands. As globalization becomes a dominant feature in society, it behooves all educators to share intellectual capital to improve education worldwide.

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