International Collaboration in Secondary Level Education

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Global Education

Over the last 20 years, the economies of the world have been linked closer and closer together. The passage of the North American Free Trade Agreement (NAFTA) and the creation of the Euro currency in Europe are just two examples of how the world economies are becoming intertwined (McLaughlin, 1996). Transnational corporations have operations scattered across the globe to take advantage of access to raw materials, information, and labor. These corporations recruit and want to preserve their productive global workforce (Branson, 1998; Franks, 1998). The largest transnational corporations have budgets greater than many individual countries. The world is viewed by these corporations as a single global marketplace (Branson, 1998). The increasing vitality of the global economy has meant change for countries, businesses, and workers. Countries find that they no longer have total control over information and their local economies. Autocratic countries such as China and Iran are trying, unsuccessfully, to block their citizens' access to information through the Internet. Economic meltdowns in Argentina and Thailand in the late 1990s had far-reaching impacts on the economies of other countries. Businesses find that they have to adapt to the new business world or fade into obscurity. Workers find that they need new skills to compete globally.

The interconnectedness of the world has been aided by the proliferation of personal computers and the Internet. Inexpensive e-mail allows people from different countries to communicate instantaneously with each other. Organizations, educational institutions, and governments have contributed to the explosion of cross-border information exchange.

These changes and new realities have been described as a new age of interdependence. This interdependence evolved from world trade and international capitalism (Hughes & Ortero, 1989). Interdependence is most evident in the areas of international trade, environment, politics, telecommunications, transnational corporations, and international travel (Fish, 1982). The new global culture is placing new demands on the people of the world. Production is no longer restricted to geographical location so workers need to be more globally astute. According to Scarborough (1991), citizens need to understand the changing technologies, workplace adjustments, and competitive pressures. Fish (1982) confirmed this by stating that people need to be more aware of and more effective participants in the global economy.

Lauda (1992) declared that students throughout the world are internationally undernourished because education systems are too narrowly focused on rigid content areas and national issues. Globalization is a focus that the business world has embraced while education has tended to be more inwardly focused (Scarborough, 1991).

Global education is the means to teach the world's citizens about the globalization trends. According to the U.S. government report *Critical Needs in International Education* (National Advisory Board on International Education Programs, 1983), "it is in our schools, however, that the greatest progress can be made. International and intercultural studies should receive more attention and higher priority" (p. 7). The report goes on to promote the learning of international awareness, cultural sensitivity, and communication skills from foreign language and intercultural studies. Franks (1998) found the following:

> As the world grows increasingly interdependent, we discover even more opportunities to learn and work from each other about cooperative education. All over the globe, nations face a critical need to develop and maintain a supply of their most valuable resource: trained and productive workers. Work-integrated education has emerged as a viable means to that end. (p 72)

High school students are preparing themselves for college and future careers. Students in discrete subject courses are not given the bigger picture about the internationalization of the world. Students miss the connections of how all of these areas are interlinked. An opportunity exists in the schools to solve this dilemma. Secondary-level technology education classes offer a curriculum that encompasses the study of technology with links to all academic classes. A technology education lab filled with Internet accessible computers and equipment is the best location to use distance learning tools and research to create a curriculum that teaches students about international culture, values, and understanding. This program is accomplished by creating a collaborative program for the students to unite with partners in other countries. The goals of this collaborative effort are to teach students in both countries to be more respectful of each other's cultures, to create long-term friendships between the teenagers, families, schools, communities, and countries, and to see the relevance of studying global issues and perspectives. McLaughlin (1996) summarized the importance of global education by stating "global education attempts to teach people how to live in a world that is increasingly interconnected and interdependent. This method of education works to establish cross-cultural understanding and to develop cooperative attitudes needed to solve world problems" (p. 15).

The Japan-Florida Teens Meet Project

Yumegakuen High School or Dream High School in Tsu City, Mie-ken, Japan, was established in 1997 as the first school in Japan that has comprehensive courses as a forerunner of Japanese education reform. High schools in Japan offer either academic courses for students who go on to university studies or vocational courses for students who go into immediate postsecondary employment. The new comprehensive courses at Yumegakuen High have led to a mixture of students and curricula that is unusual in Japan. Due to this educational reform being conducted by the Ministry of Education, Culture, Sports, Science and Technology (Monbusho), Yumegakuen High School is equipped with high tech computers and telecon-

ferencing facilities. An international studies teacher at the school was looking for a partner school in foreign countries and registered the classroom at the Web site of ePALS (http://www.ePALS.com). ePALS is dedicated to creating partnerships between schools across the world. When the teacher signed up in October 1999, there were 36,000 classrooms registered. As of July 2003, 81,514 classrooms were registered.

Several weeks after this teacher registered with ePALS, a technology education teacher from Ridgewood High School in New Port Richey, Florida, wrote to suggest a collaboration. It was a very nice and interesting offer because besides the educational purpose of the teleconference, the American teacher showed understanding toward the idea of promoting the school's image within the local community. The school is new and relatively unknown in the community of Tsu-City. It was thought that the collaboration could help recruit good students who would be suitable for these wonderful facilities.

A video teleconference test was held on November 18, 1999, for the two teachers to meet live to discuss curricula and ideas. The students in the two classes decided to call their collaboration the Japan-Florida Teens Meet Project (JFTMP). Activities were developed for the students to work on group projects and individual assignments. On December 14, 1999, students with guests met their overseas friends for the first time live through a video teleconference. This event included welcoming statements by the two school principals, introduction of guests (school board members, parents, district technology supervisors, reporters), some student activities, and question/answers. One of the activities the students did was a math dollar/yen conversion exercise. Students researched what the current conversion rate was and then calculated the cost of teen merchandise in both dollar and yen denominations. Comparisons were then made about the availability and costs of items the teens were interested in. The teen items were randomly pulled out of a hat to add some excitement to the event. This first teleconference was a great success and the media favorably reported it.

In late spring of 2000, plans were presented to the students about an international space station project. American and Japanese students would work on transnational student teams to conceptualize, research, design, and construct a 1/20th scale model international space station. The students had to design a sustainable environment built for teenagers living long term in space. The teams focused on essential modules of the international space station: living space, water-based systems, command, solar power, and scientific experiments. Two initial balsawood modules, including command and water-based systems, were completed by the American students and shipped to Japan in early June 2000. During the 2000-2001 school year, advanced technology studies students completed the rest of the modules for shipment to Japan. The design of the international space station modules was developed using a WebQuest format. This was placed on the World Wide Web for
students and parents to access outside of school. The main JFTMP Web site is at http://www.tcp-ip.or.jp/~hirayama/jftmp.

Two teleconferences were held in the fall of 2000. New students in both countries were introduced to each other. One of the teleconferences included 100 fifth graders from a local elementary school in Tsu City. A Japanese foreign exchange student at Ridgewood began participating, adding to smoother communications and understanding. Over the next several years, media in both countries reported about the teleconferences and collaborative activities. Yumegakuen High School received good publicity and attracted more students. In the spring of 2000, about twice as many students took the entrance exam than there were openings for admission.

In January 2000, the American teacher received a grant from a local foundation to travel to Japan in the summer of 2001 for two weeks with eight Ridgewood students. Five of the eight students traveling were from the technology education classes. Two days were used to visit Yumegakuen High School so the students could meet and participate in shared activities. During the visit there, the Japanese and American-built components of the model inter-

national space station were assembled and put on display. The event was covered extensively in the Japanese press. A photo was taken of the JFTMP students that day with their completed model space station. A JFTMP goal was to have that photo flown to the international space station with a Japanese astronaut. A photo of the astronaut holding the JFTMP picture in space would then be enlarged and put on display in both schools.

A decision was made to make a video project the centerpiece of the 2001-2002 school year. The video, Smoke and Mirrors, was a dramatic anti-tobacco story that had scenes taped in both countries and in both languages. Two different versions of the video were produced. In addition to memorizing their English dialogue, the American students had to learn Japanese for the same scenes. The Japanese had to learn their lines in Japanese and English. American students edited the English-only version and the Yumegakuen students edited the Japanese-only version. Both videos were premiered during a teleconference in March 2002. The videos were partially funded by the Students Working Against Tobacco (SWAT) organization in Florida.

The Future of JFTMP

In addition to the video projects, the teachers are collaborating on expansion of the JFTMP Web site. They are working to include more schools in their international collaboration because of their belief that high school students benefit from this experience. American students are taught critical thinking skills, but Japanese students are expected to be docile. Now in the age of information technology, Japanese teachers are beginning to realize the importance of critical thinking. Japanese businesses are realizing that having docile workers is not helpful to their companies in the global economy. This doesn't mean the companies need argumentative workers. They need workers who think differently and share their ideas. These different ideas can be used creatively by the companies and/or classrooms to generate better ways of doing things. This is how society can improve. The JFTMP is designed to make the most of international collaboration and friendships.

Obstacles to Collaboration

There are obstacles to the success of international collaborations. According to Weinbaum and Rogers (1995), "such projects require a rethinking of traditional school schedules, as well as providing opportunities for teachers to learn new material, design curricula, plan with their colleagues, and reflect on the effectiveness of their practice" (p. 22). Obstacles in the JFTMP program were summarized into several categories: time difference, school year schedule, language barriers, and difference of interests.

The prime obstacle was the time difference between Florida and Japan. This obstacle was overcome by the Americans coming back to school in the evening to meet live with their Japanese partners who were in their regularly scheduled first period class the following day. The Japanese don't observe daylight savings time so it became important to check an international time zone Web site to make sure the meetings started at the correct time.

Another obstacle was the difference in school schedules. The school year in Japan starts in April,whereas American schools start in August. JFTMP started in 1999 and some of the active Japanese students have already graduated from high school and are now studying at college. When the American students came to Japan, most of their e-mail friends had graduated. A secondary goal of the JFTMP Web site was to keep graduates informed about current collaborative activities.

Some challenges were related to the nature of the distance learning technologies themselves. The use of ISDN lines cost the schools about $200 per teleconference. The two schools shared responsibility for these costs although both schools had to justify the phone costs to administrators outside of their schools.

Language was a major source of concern prior to the teachers talking live with each other. It was helpful to the Americans that the Japanese teacher fluently spoke English. Ridgewood High is in a rural suburban area with little opportunity for native Japanese

speakers for translation assistance. The language barrier is a continual hurdle, but English is the target language for Japanese students to learn so this is a part of the purpose of education and the teleconferences.

Another challenge was in the shifting interests of the students. Yumegakuen is a mix of high school and adult learners. Some of the adult students were mainly interested in learning about foreign cultures and English rather than mechanical projects such as the space station. The JFTMP program shifted with the American teacher from Ridgewood High School to Marchman Technical Education Center beginning with the 2002-2003 school year. The newly linked Marchman class was television production so the teachers agreed to focus JFTMP ideas towards video projects. This shift appeared to satisfy the interests of the adult and high school age students at both schools.

Due to a lack of curriculum materials on international collaborations at the secondary level, the teachers found that they had to develop and write the curricula themselves. Plans are underway to expand the core schools to include more Florida and Japanese high schools into a larger JFTMP consortium. This will expand the curriculum resources for all teachers through the sharing of ideas and experiences.

Information Technology Education in Japan

> According to Miyakawa (1998), current advancement in communication technology is allowing for ever increasing access to information. This not only promises to change people's life styles, but also may change the value system of society itself. In such a "technological" society, those who can readily adjust to these changes into technology will do very well while those less able to adjust may be left behind in the information revolution. (p. 29)

The information society is highly advanced in Japan as it is in the United States. The information technology revolution in Japan is pressing leaders to consider how to manage the information society in all fields including industrial technology, business, society, and home. Schools are no exception and are now trying hard to adjust to the information society. School computers are becoming networked so the worldwide Internet is becoming more available. It is therefore important for the education field to promote effective and efficient use of computers and to develop new learning content and curricula.

Information technology education in Japan began in 1985. It has been promoted aggressively and continuously since then. Various policies have been adopted such as distributing money to school education budgets and training teachers through in-services. As a result of this investment and the support of Japanese parents, almost all Japanese students take information technology education, a lowersecondary level elective.

In 1999, surveys conducted by Monbusho showed the state of information technology and computer usage in Japanese schools. Ninety-nine percent of the 39,096 schools had computer equipment. Of those schools, 22,449 were connected to the Internet. Internet guidelines have been established in 9,477 schools. The number of schools with their own Web site was 7,850. Among the 38,829 schools with computers, 27,205 were connected by LAN.

Of the 886,768 Japanese teachers, 66% can operate computers and 32% can teach using computers. The subject area with the highest usage and ability to teach using computers is in technology education. Of the 10,541 technology education teachers, 94.5% of these use computers.

There are issues that affect the ability of Japanese schools to participate in collaborative projects with schools overseas. Monbusho is addressing these with the following implementation schedule for information technology:

1. All public elementary, lower secondary, and upper secondary schools were connected to the Internet by the end of 2001.
2. By 2004, LAN networks will be installed in all public schools.
3. By 2004, all private schools are targeted

for Internet connection.

4. All 900,000 public school teachers took an in-service Project for Enhancing Teacher's Information Literacy by the end of 2001.

In addition to Monbusho's plans, Japanese leaders in the technology education field have raised seven other information technology issues that should be addressed by educational institutions. Hardware that has functions required for school education should be equipped in all classrooms that need it. It is necessary to make computer equipment available for anytime, anywhere, and anyone. Effective and efficient educational software should be researched, developed, and distributed at low prices to schools. Educational objectives about information technology should be clarified and all teachers should examine the new content and methods. Connection charges to Japanese schools should be substantially reduced. Teachers and students should be thoroughly taught ethics and morals in the appropriate use of the Internet. Finally, teacher training in information technology should be planned and conducted according to the needs of teachers. Steps like these can lead to more connections between technology education classrooms in Japan and the rest of the world.

Benefits of Collaboration

There are two major benefits of international collaborations: the learning is authentic and contextual-based, and student motivation to learn increases substantially. Authentic instruction is a way of linking classroom work to real work situations that employees face out of school. Blank (1997) referred to authentic instruction as "any instructional strategy, model or technique that involves students in learning something that is useful or important beyond the school setting and that engages them in a manner that helps them construct new knowledge or develop deep understandings or insights" (p.15). It is a teaching strategy and project-based curriculum that mirrors work that adults perform in their employment, home, or community. Weinbaum and Rogers (1995) pointed out that situating education in real-life contexts is an answer to the concerns of vocational program critics who feel there is a gulf between what is in education and what the actual human resource needs are of the U.S. economy. Resnick (1987) concurred by recommending that schools concentrate on teaching people to be adaptive learners able to negotiate the inevitable transitions that occur in the workplace.

High school graduates will be facing a far different work world and will therefore need to learn in far different ways in the classroom. Global education was chosen as an overall theme to enable students to work on real-life projects that increase problem-solving skills, create unique team settings, and help students become better communicators and international citizens. The two JFTMP teachers directly observed many benefits to the students and schools from participation in collaborative projects.

For students:

- Increased technical skills.
- New understandings of applied math and science.
- Better writing and communication skills.
- Increased technological literacy.
- Increased classroom motivation and excitement about learning.
- New concepts of what a "team" means.
- Less stereotyping of other cultures.
- Broadened student views and perspectives.
- Understanding on the implications of the global economy.

For schools:

- Enhanced parental support.
- Opening communication lines with other education systems.
- Awareness of the advantages of using new technologies.
- Promotion of new and creative school curricula.
- Raised education standards at local schools.

Planning an International Collaboration

High school teachers interested in initiating an international collaboration with a school in a different country face many challenges. Using the Decide phase of the DDD-E model (Barron & Ivers, 1998), teachers can systematically develop authentic learning, multimedia projects

with teachers from other countries.
The broad challenges that face teachers during the planning section include:

- Fitting the project within the scope of district and state curriculum mandates.
- Finding a sister school with similar interests, curricula, and distance learning technologies.
- Assessing their school's distance learning technologies.
- Developing the prerequisite skills to use these technologies.

Setting Instructional Goals

The first task for the teacher is to set instructional goals. According to Barron and Ivers (1998), instructional goals may include responding to different student learning styles, promoting cooperative learning, enhancing vocational-academic integration, developing critical-thinking and problem-solving skills, and fostering presentation and speaking skills.

Broad and content-specific instructional goals were developed for the JFTMP collaboration. The first goal of the collaboration was to prepare students for careers in the global economy by having the project mirror projects done in the workplace. Broad instructional goals for this collaborative effort were to teach students in both countries to be more respectful of each other's cultures; to be more aware of the cultural differences; to create long-term friendships between the teenagers, families, schools, communities, and countries; and to see the relevance of studying global issues and perspectives.

Deciding on the Project

After developing the instructional goals, the teacher now selects and designs a multimedia classroom project. International collaboration projects are complicated and require comprehensive preparation and design. Teachers have the choice of joining an education-based network with developed curricula, projects, and preselected international classrooms or develop their own original international collaboration. According to Bradsher (1996), "identifying overseas schools with the means and desire to pursue a project that fits your curriculum and students' needs and interests can take a lot of time" (p. 50). Before contacting a teacher from overseas, the American teacher should study the culture and education system of the country he or she wishes to collaborate with. Initial studies will help to increase the teacher's cultural sensitivity, knowledge of the other education system, and make for a more polished introduction.

It is important for teachers to communicate openly and clearly about goals and project ideas with their partners. Projects will need to be started in incremental steps for several reasons. Overly enthusiastic American teachers may be intimidating to teachers from other cultures. Education systems in other countries may have their coursework rigidly set by a national curriculum that makes it difficult to accommodate comprehensive collaborative projects. Finally, other cultures may be used to thoughtful, team-based decision making. American teachers will need to be aware of and respectful of these differences.

Development of Prerequisite Skills

The third stage of the decision process is to develop the prerequisite multimedia skills within the teacher and the students to improve the project's success. These skills may be technological and related to global communication. Thach and Murphy (1994) found that

> the distance learning instructor needs skills and knowledge in eight major areas: 1) communication and feedback, 2) promoting interaction between and among learners, 3) teamwork and collaboration, 4) administrative and support services, 5) conducting learner needs assessments, 6) distance learning technology and its impact on learners, 7) identifying learning styles, and 8) developing a systems perspective of thinking. (p. 16)

Distance learning technologies include Internet (research, e-mailing), desktop teleconferencing (NetMeeting, CUCMe), video teleconferencing (Picture-Tel, ISDN lines), and interactive multimedia (PowerPoint, Web page design). The teacher should take in-services or classes or use study time to master these technologies before attempting to teach them to students. Fortunately, American students have been exposed to and have access to many of these technologies. In some cases, the students will be the expert and the teacher the learner. All students should be familiar with basic computer skills and the skills required for the specific multimedia project.

American students will need an introduc-

tion to and practice in global communication skills. Their written communication with partners through e-mails will need to be clear, concise, and punctuated properly. During the video teleconferences, normal American teenage habits of wearing baseball caps, having arms folded, using slang, or wearing provocative clothing may be seen by foreigners as extremely rude and offensive. When speaking with non-native English speakers, it is important to slow down, not raise voices, and give plenty of time for translation. Students will need to be made aware of these communication skills. The importance of projecting a friendly, team-oriented image with respect for cultural diversity can not be overstated.

Assessing Resources

At this fourth stage, teachers begin looking at their classroom resources to see if there are hardware or software gaps. They would begin by thinking about how many computers they will need to keep the students productive. They will need to know how many of the computers will have Internet access. What level of Internet access should the teacher allow the student is another important question. If Web sites with classroom photographs are being considered, a copyright talent release form will have to be written and distributed to parents. Teacher funds may need to be set aside for the cost of the ISDN lines used during teleconferences. Overseas mailing costs for curriculum materials will have to be arranged. Software might have to be installed and tested. If the computer and distance learning technologies are outside the classroom, the teacher will have to set exact times and schedule these with the schools in both countries. The teacher will also need to investigate educational Internet sites for resources. The technology studies teacher spent countless hours looking at NASA sites on the international space station. Before writing URL addresses into student handouts, a teacher should check all to make sure they are still operative.

Conclusion

The use of computer-mediated communication is increasing exponentially in the United States. Whether schools realize it or not, this increased use of technologies works to engage learners in ways that increase understanding and student success. When instructional techniques enlist more than a learner's logical/mathematical intelligence, student motivation to learn increases. Students experience success and conclude that school is relevant in their lives.

When global education, international collaboration, and authentic/applied learning projects are incorporated with increased use of computer-mediated communication technologies, student interest and motivation to learn is enhanced. All students, gifted to specific learning disability, can benefit from exposure to this instructional strategy. The role of the teacher is crucial. Instructional strategies should be designed to include computer-mediated communication technologies. The benefits to students far outstrip the planning that is required. Computer-mediated communication can form a powerful integrated model of human learning and intelligence. This model provides teachers with the tools to meet high standards. The outcome of comprehensive planning is students with better attitudes and understandings of the cultures and values of students in other parts of the world. Students will become lifelong learners, adaptable to change, and better prepared for their future work and careers.

In the initial phase of an international collaborative project, the teacher will need to work diligently to plan and organize before presenting the project to their students. This planning stage includes setting the instructional goals, deciding on the project, developing prerequisite skills in themselves and their students, and assessing their resources. The benefit of this planning will be an international collaborative project that affects learners and teachers in profound ways. According to Jensen and Loveland (2000), "when learning environments mirror the restructured work that students will eventually enter, they provide students with opportunities to see how what they are learning in school adds value to their lives" (p. 371). The new interconnectedness of the world is a reality that teachers can utilize to develop projects that will prepare their students for the career world they will be facing upon graduation. According to Thach and Murphy (1994):

> Suddenly, separate cultures, laws, regulations, and customs have been brought together in a kaleidoscope of learning. The result is chaotic, fun, challenging, and anxiety-producing; it challenges all of those who work in the field of distance education

to broaden their perspectives, to strive for the implementation of best practices; and to encourage collaboration while respecting individual, group, and institutional integrity. (p. 17)

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References

Barron, A., & Ivers, K. (1998). *Multimedia projects in education: Designing, producing, and assessing.* Englewood, CO: Libraries Unlimited.

Blank, W. (1997). Authentic instruction. In W. Blank & S. Harwell (Eds.), *Promising practices for connecting schools with the real world* (pp. 15-21). Tampa: University of South Florida.

Bradsher, M. (1996). Making friends in the global village: Tips on international collaborations. *Learning and Leading with Technology, 23*(6), 48-51.

Branson, M. (1998). International education, citizenship, and national standards. *Social Studies Review, 37*(2), 18-21.

Fish, L. (1982). *Alternative patterns of international collaboration for school improvement: An analysis of activities of the OECD/CERI Pacific Circle Consortium.* Portland, OR: Northwest Regional Educational Laboratory. (ERIC Document Reproduction Service No. ED 214 827)

Franks, P. (1998). The world association for cooperative education: Filling a need for a strong global partnership. *The Journal of Cooperative Education, 33*(2), 68-73.

Hughes, S., & Ortero, G. (1989). Global education for the secondary and college student. *The Political Science Teacher, 2*(1), 21-23.

Jenkins, J., & Loveland, T. (2000). Educational opportunities in the global village. *International Journal of Educational Reform, 9*(4), 369-372.

Lauda, D. (1992). Internationalizing the curriculum in technology education. In D. Blandow & M. Dyrenfurth (Eds.), *Technology literacy, competence and innovation in human resource development* (pp. 464-470). Weimar, Germany: Thuringer Algemeine.

McLaughlin, C., Jr. (1996). Implications of global change: Technology education's role. *The Technology Teacher, 55*(5), 14-18.

Miyakawa, H. (1998). Study on the fostering of self-educability in technology education: A consideration about practical teaching materials in "information technology" area. *The Bulletin of Center for Research, Training and Guidance in Educational Practice, 1,* 29-37.

National Advisory Board on International Education Programs. (1983). *Critical needs in international education: Recommendations for action.* Washington, DC: Department of Education.

Resnick, L. (1987). Learning in school and out. *Educational Researcher, 16*(9), 13-20.

Scarborough, J. (1991). International perspectives on technological literacy. In M. Dyrenfurth & M. Kozak (Eds.), *Technological literacy* (pp. 54-55). Peoria, IL: Glencoe.

Thach, L., & Murphy, K. (1994). Collaboration in distance education: From local to international perspectives. *The American Journal of Distance Education, 8*(3), 5-21.

Weinbaum, A., & Rogers, A. (1995). *Contextual learning: A critical aspect of school-to-work transition programs* (Report No. RR1172012). Washington, DC: Academy for Educational Development, National Institute for Work and Learning. (ERIC Document Reproduction Service No. ED 381 666)