

Effects of Distance Education via Synchronous Video Conferencing on Attitude Changes of Korean and Japanese Students*

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This study seeks to prove three points through the research. The first point is to examine the changes of international attitudes with actual experiences using synchronous international distance learning. The second point is to examine the effectiveness of a synchronous international distance system. And the final point is to compare international attitudes among middle school and undergraduate school students in Korea and Japan. The study used the DVTS for audio and video communication tools and automatic translating chat as a text communication tool. This combination of communication tools was very effective for students from both countries to communicate for international collaborative learning activities. The study found several interesting patterns of attitude change from the results of the study. For whole category analysis, there are positive changes in four categories of international attitudes: consciousness to foreign countries, consideration for other's viewpoints, motivation for international education, and recognition for the counterpart country. However, there was no change in the nationality category.

Keywords : distance education, synchronous video conferencing, attitude change

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Introduction

One of the outstanding characters of the Information Age is globalization. The advancement of information and communication technology directly expands world-wide interaction and makes a single economic market. For example, the 1995 establishment of the World Trade Organization (WTO) indicates that transnational economic activities were increasing and creating interdependent relationships between even more countries (Fujikane, 2003). Globalization necessitates a greater understanding of other cultures. To live successfully in such a globalized world requires that its citizens develop a new level of cultural awareness and sensitivity including the ability to understand and to communicate with people from other cultures and nations.

According to Fujikane(2003), there is a new worldview. There is a stress on (1) the intensity of interdependence in all aspects of human life; (2) the changing pattern of actors on the world stage; and (3) the growing moral sense of “oneness” transcending national borders. Interdependence and interconnectedness are the key words of the new world. There is an inverse relationship between the rapidly increasing importance of other world regions and cultures to the economic prosperity of a country. Now we need world citizens who acknowledge interdependency and are constructing universal morality in order to create a more just global society.

The acknowledgement of the changing nature of the international system itself is generating educational imperatives to teach about the new world (Duffy, et al., 2005; Kagan & Stewart, 2004; Lee et al., 2005). One of the ways in which our formal schools have attempted to address this need is through International Education. The term of International Education has been referred to variously as Education for International Understanding, Global Education, Multicultural Education and so on. While each of these terms has a somewhat different meaning, this article deals with these terms as interchangeable because they have a common

core of concern with understanding and communication between culturally and ethnically diverse peoples.

International education may be viewed as a means of changing the world by increasing international understanding through shared experiences among people from many different countries (Alger & Harf, 1986; Kagan & Stewart, 2004; Sanders, & Stewart, 2004). There could be many purposes that should be achieved by international education such as the development of a broad understanding of the world, proficiency in other languages, knowledge of other cultures, enhanced cognitive development, increased self-reliance and coping skills, and commitment to internationality (Bachner & Zeutschel, 1994; Wheeler, 2000). One of the important purposes of international education is to change international attitudes. According to Bennett (1993), people are on a point of the continuum between ethnocentrism and ethnorelativism. Ethnocentrism has three subcategories of cultural acknowledgement: Denial of the existence of other cultures; defense, the begrudging acknowledgement that other cultures do exist; and minimization or tolerance of cultural differences. Ethnorelativism begins with the acceptance of and respect for cultural differences. Adaptation is the ability to present culturally appropriate behaviors in context whereas integration is the development of self beyond biculturalism through the internalization of attitudes and behaviors from another culture.

Tye (2003) surveyed the state of international education in 52 countries and found that throughout the world, schooling is still seen as a major force in the building of national loyalties. International education should be used to overcome ethnocentrism. International education should be used to reduce environmental conflicts, intercultural conflicts and negative attitudes to other countries. One of the challenges of international education is to create an environment that encourages students to look deeply at each of these sources of culture, their own and that of others, to reach integration and to change international attitudes. It is very difficult to change international attitudes because the method of attitude

education is different from other kinds of knowledge education. Attitude education needs internalization of values through actual experience instead of indirect experiences (Gagne et al., 1992). In this point of view, international education needs real exchanges of experiences with foreign students.

One way to provide students with real exchanges between two countries is to use new communication technologies. The enhanced telecommunication and computer networks in the 1990s dramatically increased the quantity and perhaps the quality of world communication (Cambridge & Thompson, 2004; Giddens, 1999). Many researches have been tried to provide international distance education with the new communication tools because the new communication technologies support realistic and synchronous exchanges.

This study seeks to prove three points through research. The first point is to examine the changes of international attitudes with actual experiences using a synchronous international distance system. The second point is to examine the effectiveness of a synchronous international distance system. And the final point is to compare international attitudes among middle school and undergraduate school students in Korea and Japan.

Methods

Subjects of research

As you can see in Table 1, two experiments were performed. The first subjects were middle school students and the second subjects were undergraduate students. Two experiments were performed with the same conditions, contents, instructional strategies, teachers, communication tools, and distance learning systems.

Table 1. Subjects of two experiments

Groups		Number
Middle school students	Korean	25
	Japan	38
Undergraduate students	Korean	30
	Japan	31
Total		124

Measurement of attitudes toward a counterpart country

To measure the attitudes of two countries' students, a self-report survey organized with five categories and 20 items was used. Hanvey(1982) insists that the curriculum of international education should include an awareness of various perspectives, understanding other cultures, awareness of globalization, knowledge about international dynamics, and awareness of human choice and behavior. Based on Hanvey's idea, this study developed a survey as in table 2. The reliability of the survey was .80, so that the result of survey could be interpreted as reliable.

Table 2. The categories and reliability of the survey

Categories	Items	Reliability
Consciousness to foreign countries	01 - 04	$\alpha = .80$
Nationality	05 - 08	
Consideration for other's viewpoint	09 - 12	
Motivation for international education	14 - 17	
Recognition for the counterpart country	13, 18-20	

Three locations of international classes

The international distance classes were organized into three venues to neutralize the effect of teacher. In the case of events for the middle school students, the

Korean students were located in Kwangju and Japanese students were located in Nagasaki. The teachers were located in a third site, Kyushu. In the case of events for undergraduate students, Korean students were located in Pusan and the Japanese students and teachers were located the same sites in Nagasaki and Kyushu.

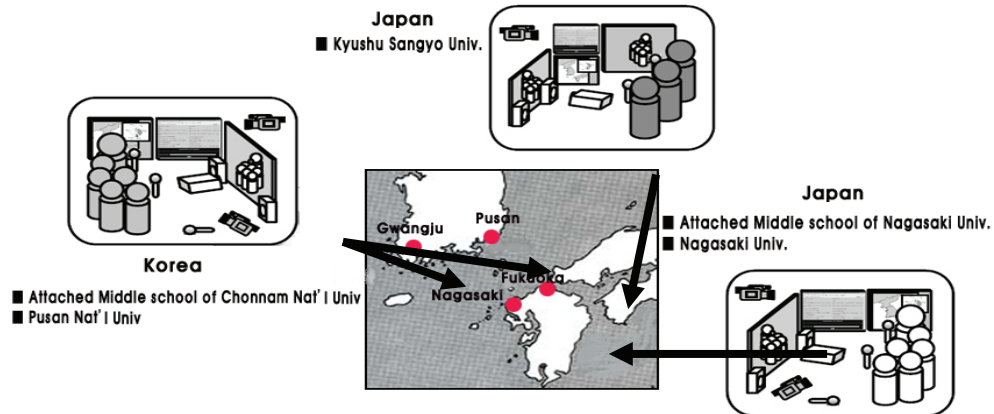


Figure 1. Three locations of international class

Contents and activities of the class

The contents and activities of the international class were the same for the two experiments. The international classes were conducted for two days. On the first day, there was introduction time. The students introduced themselves to the students of the counterpart country. They introduced their culture, school life, and hobbies to each other. On the second day, actual classes were conducted. The main content of classes concerned future energy. We thought that an international environment was a good starting point for international education because the international environment is one of the most important global issues (Kinep, 1986; Hanvey, 1982).

The main instructional strategy was lecture and discussion. The teachers provided basic information about the problems of fossil fuel and let the students

from the two countries discuss clean energy and the future of energy on the Earth. WebGIS was used for learning material. WebGIS is a software program that enables users to integrate local data sources with Internet data sources for display, query, and analysis in an easy-to-use Web browser (Jun, Lee, Fujiki, & Morita, 2005).

Video conference tools and networks

This study used DVTS (Digital Video Transport System) as the video conferencing system. Figure 2 shows how DVTS supports three-point communication. The DVTS has been proven as an effective video conferencing tool in several studies (Morita et al., 2003; Fujiki et al., 2005). The students' sites, which are Nagasaki University and Pusan National University, sent audio and video signals. Then Kyushu Sangyo University, in which the teachers were located, mixed the signals and sent audio and video signals to the opposite site.

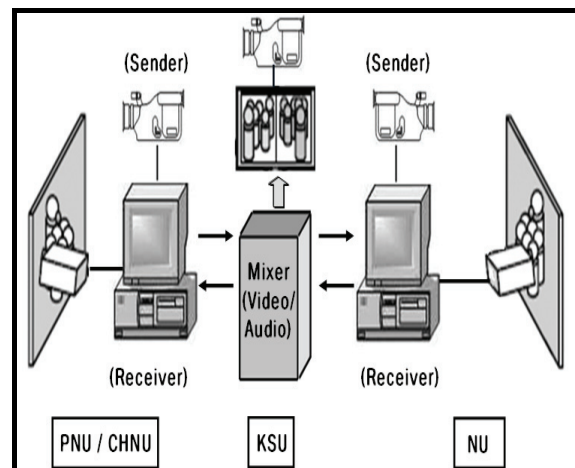


Figure 2. DVTS system

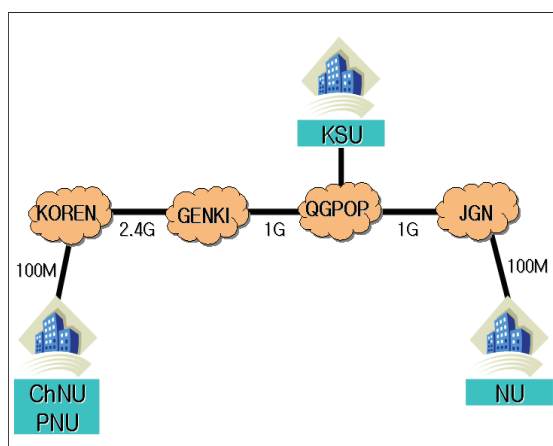


Figure 3. Network system

A network environment is shown in Figure 3. The Japanese site used the JGN (Japan Gigabit Network) and the Korean site used the KOREN (Korea advanced Research Network). To connect Korea and Japan, the GENKI (Genkai-Hyeonhae Gigabit Network) was used. To connect to the third site where the teachers were located, the QGPOP (Kyushu GigaPOP Project) was used. Every network had a connection was over 100 Mbps.

Translation systems

One of the problems for international education is translation between two countries. To solve this problem, the study used two kinds of translation systems. The first was a human translator. The Figure 4 shows how a human translator worked in the class. The human translator was located in the third site with the teachers and translated every voice. The second method of translation was an automatic translating chat program as you can see in Figure 5. When students interacted with students from counterpart country directly for group discussions, they used an automatic translating chat program which translated Korean into

Japanese and vice versa. The program showed some grammatical problems but was enough for effective communication.

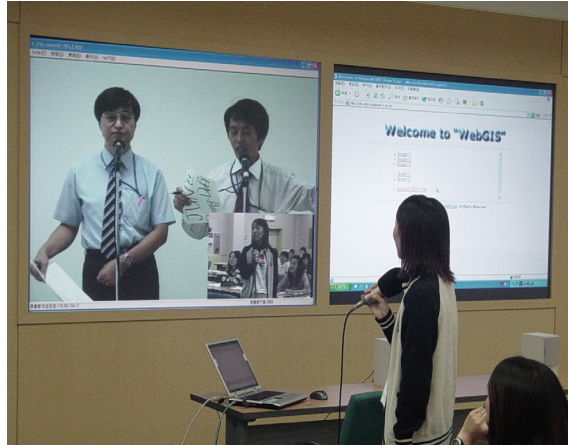


Figure 4. Human translation

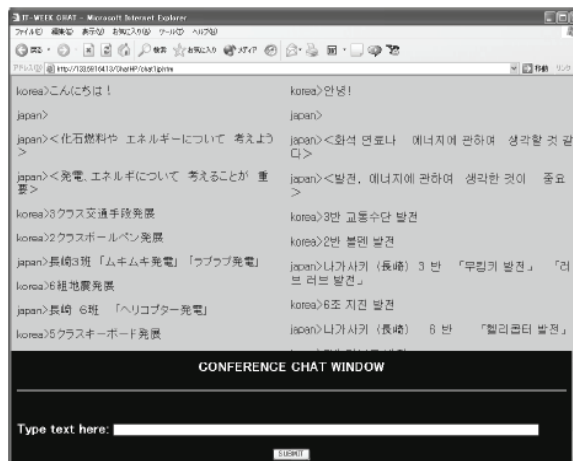


Figure 5. Automatic translating chat

Changes in International Attitudes

To measure the changes in students' international attitudes, the study measured students' attitudes before and after the international distance classes. The two sets of independent variables were "country" (Korea and Japan) and "student" (university students and middle school students). The dependant variable was "attitude changes" (pre and post test scores). "Country" and "student" were between subject variables and "change" was a within subject variable.

Consciousness to foreign countries

The result shows a significant main effect of the groups ($F=6.47$, $p<.001$) and measurement time ($F=15.92$, $p<.001$) but no significant interaction effect. The study conducted post-hoc analysis to find the differences among groups. The post-hoc analysis results show that Japanese university students show significantly higher scores than Korean university students and Japanese middle school students in pre-test scores. Also Japanese university students show significantly higher scores than the other all three groups in post-test scores. The results indicate that there are positive changes in the consciousness to foreign countries in all groups and as Figure 6 shows, Japanese middle school students show a very high increase in their scores. The results also indicate that Japanese university students already have a high consciousness to foreign countries.

Table 3. Analysis of consciousness to foreign countries

Source	Sum of Square	df	Mean Square	F
Groups (Between-Subjects)	136.90	3	45.64	6.47***
Error(1)	846.20	120	7.05	
Measurement Time (Within-subjects)	48.18	1	48.18	15.92***
Groups × Measurement Time	16.78	3	5.59	.14
Error(2)	363.07	120	3.02	

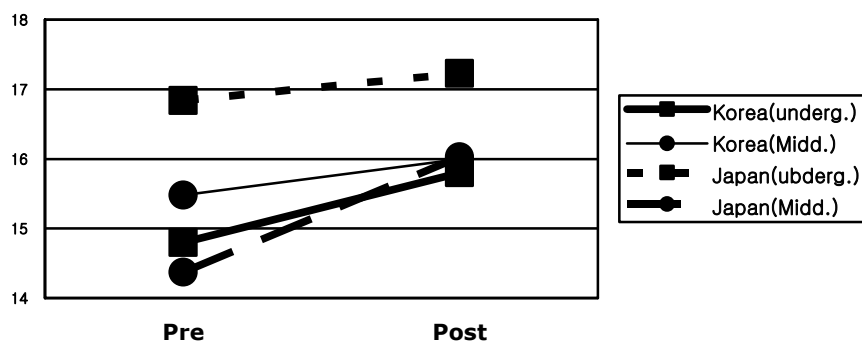


Figure 6. Diagram of change in consciousness to foreign countries

Nationality

The results show just a significant main effect of the groups ($F=5.78, p<.01$). The post-hoc analysis results show no significant difference in pre-test scores. In the case of the post-test, Japanese middle school students show lower scores than all of the other three groups. The results indicate no change in regards to the nationality after the international class. Figure 7 shows that Korean middle school students show a very high increase in their scores.

Table 4. Analysis of nationality

Source	Sum of Square	df	Mean Square	F
Groups (Between-Subjects)	149.36	3	46.79	5.78**
Error(1)	1034.48	120	8.62	.01
Measurement Time (Within-subjects)	7.65	1	7.65	1.98
Groups×Measurement Time	13.13	3	4.38	.34
Error(2)	464.64	120	3.87	

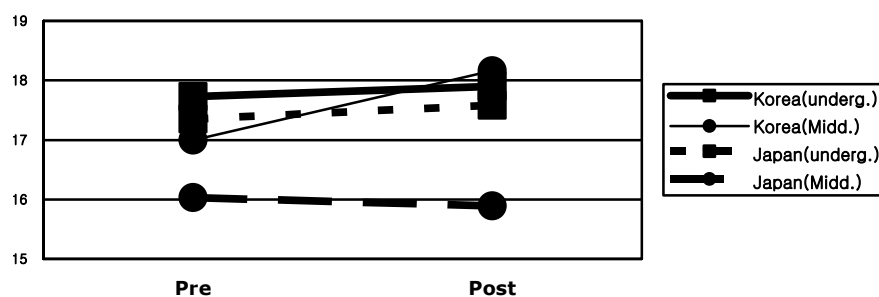


Figure 7. Diagram of change in nationality

Consideration for other's viewpoint

The result show a significant main effect of the measurement time ($F=15.64$, $p<.001$) but no significant group and interaction effect. The post-hoc analysis results show no significant difference in pre-test scores. In the case of the post-test, Korean undergraduate students show higher scores than Korean and Japanese middle school students. Figure 8 shows Korean middle school students show no change in consideration for other's viewpoint; otherwise, all other three groups show high a increase in their scores after the international distance class. The results indicate positive changes of students when it comes to consideration for other's viewpoint, with the exception of the Korean middle school students.

Table 5. Analysis of consideration for other's viewpoint

Source	Sum of Square	df	Mean Square	F
Groups (Between-Subjects)	54.24	3	18.08	1.83
Error(1)	1177.25	120	9.89	
Measurement Time(Within-subjects)	52.74	1	52.74	15.64***
Groups× Measurement Time	14.71	3	4.91	1.46
Error(2)	401.27	120	3.37	

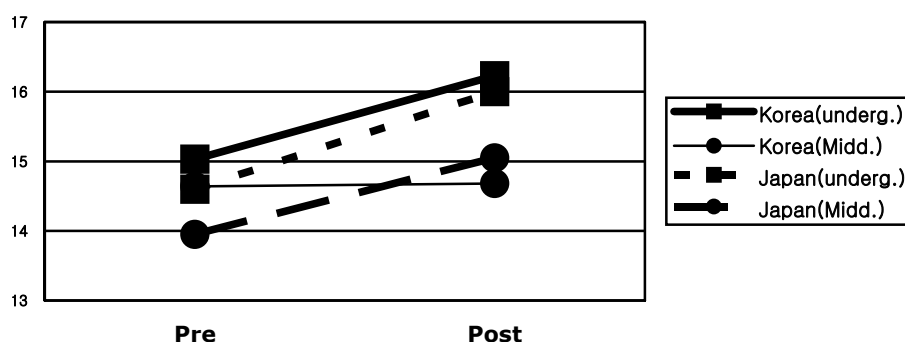


Figure 8. Diagram of change in consideration for other's viewpoint

Motivation for international education

The results show a significant main effect of the groups ($F=20.51, p<.001$), measurement time ($F=60.70, p<.001$), and interaction effect ($F=12.51, p<.001$). The post-hoc analysis results show that Korean middle school students show higher scores than Japanese university and middle school students in the pretest scores. Korean undergraduate students show higher score than Japanese middle school students and Japanese undergraduate students show higher score than Japanese middle school students in their pretest scores. In the case of the posttest scores, Korean middle school students show higher scores than the other three groups and Korean undergraduate students show higher scores than both groups of Japanese students. The results indicate that there are positive changes in the motivation for international education in all of the groups and, as Figure 9 shows, Korean middle school students show a very high increase in their scores. The results also indicate that Korean students already have high motivation for the international education.

Table 6. Analysis of motivation for international education

Source	Sum of Square	df	Mean Square	F
Groups (Between-Subjects)	958.65	3	319.55	20.51***
Error(1)	1869.90	120	15.58	
Measurement Time (Within-subjects)	315.38	1	315.38	60.70***
Groups× Measurement Time	194.96	3	64.99	12.51***
Error(2)	623.53	120	5.20	

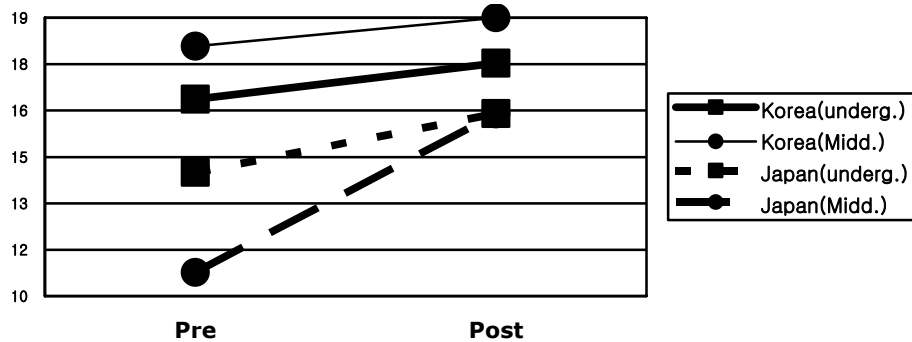


Figure 9. Diagram of change in motivation for international education

Recognition for the counterpart country

The results show a significant main effect of the measurement time ($F=7.23$, $p<.01$) but no significant group and interaction effect. The post-hoc analysis results show no significant difference in pre-test scores. In the case of the post-test, Korean middle school students show higher scores than both groups of Japanese students. Figure 10 shows all groups show a very high increase in their scores after the international distance class. The results indicate very positive changes in recognition for the counterpart country.

Table 7. Analysis of recognition for the counterpart country

Source	Sum of Square	df	Mean Square	F
Groups(Between-Subjects)	25.96	3	8.66	1.84
Error(1)	564.91	120	4.71	
Measurement Time(Within-subjects)	24.03	1	24.03	7.23**
Groups× Measurement Time	8.35	3	2.79	.84
Error(2)	398.84	120	3.32	

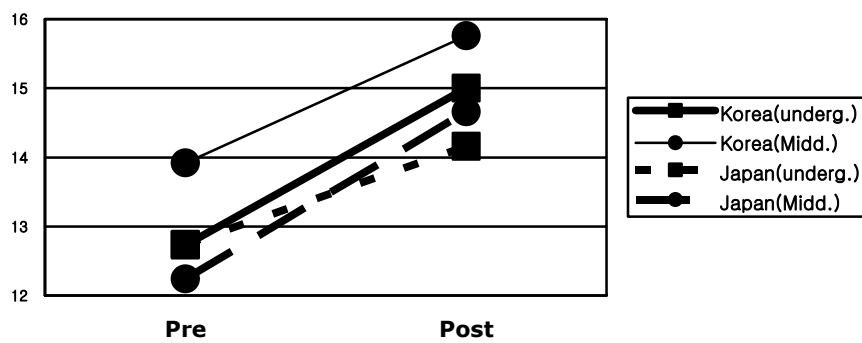


Figure 10. Diagram of change in recognition for the counterpart country

Conclusion

This study first examined the effectiveness of a synchronous video conferencing system for international education. The study used the DVTS for audio and video communication tools and automatic translating chat as a text communication tool. This combination of communication tools was very effective for students from both countries to communicate for international collaborative learning activities. There was a little problem with the network. The DVTS needed at least 30Mbps bandwidth. Every network used was over 100Mbps. However, there were some

internal traffic problems because the Korean middle school was not directly connected to the backbone.

Second, the study examined the possibility of international attitude changes through international education. The study found several interesting patterns of attitude change from the results of the study. For whole category analysis, there are positive changes in four categories of international attitudes: consciousness to foreign countries, consideration for other's viewpoints, motivation for international education, and recognition for the counterpart country. However, there was no change in the nationality category. Nationality could not be changed easily with a short period of international education. This result indicates that actual experiences with students of foreign countries using a synchronous video conferencing system could be an effective way of changing international attitudes. It is very difficult to change international attitude in a normal classroom setting. Duffy et al. (2005) insist that international education is one strategy to broaden cultural education by challenging student beliefs and attitudes. This study's results proved this opinion.

For each category analysis, the study also found interesting patterns. In the category of "consciousness to foreign countries," Japanese undergraduate students already had high consciousness to foreign countries. The international class had the biggest effects on the Japanese middle school students in the change of consciousness to foreign countries. In the case of "nationality," there was no change but Japanese middle school students showed very low nationality scores compared to the other three groups. In the category of "consideration for other's viewpoint," undergraduate students showed the highest increase in their scores regardless of country. That means undergraduate students can be affected in consideration for other's viewpoint through short international education classes. Middle school students may need more constant contact or experiences to change their viewpoints. In the category of "motivation for international education," Korean students showed higher scores than Japanese students. According to Korean teachers who support the international class, their introduction activity

already makes students have a high expectation for the class. In the category of “recognition for the counterpart country,” every group showed big changes. The international class in which students can have shared experiences with foreign students can easily change their recognition for the counterpart country. These patterns according to country and student types give us several results. When we design international education, we have to consider these patterns as important elements.

If we are to prepare our students with the skills needed to lead and succeed in the global age, we need to teach international knowledge, skills and attitudes. We especially need to teach attitudes of respect and concern for other cultures and peoples. This study show one effective way of teaching international knowledge and attitudes.

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