

Cultivation of Global Competence During the COVID-19 Era: Comparative Study in USA, South Korea, and Taiwan

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Abstract: This paper discusses whether university education aiming to provide students with global competencies (GC), built on the premise of free movement between countries, can perform the same function in the corona era as before. It will analyze an international comparative survey conducted in 2020, asking whether it is possible to acquire GC, a core objective of education, through online learning after COVID-19. COVID-19 is spreading all over the world. As of June 2021, vaccination levels vary from country to country, and the return to a situation centered on face-to-face university education is still uncertain. The impact of this unprecedented corona pandemic on higher education is enormous. The social transformation of the corona pandemic and post-corona is also one of the phenomena caused by globalization. Therefore, the spread of COVID-19 has significantly impacted higher education worldwide. Online education at the higher education level has suddenly spread worldwide, providing various possibilities and suggestions for the form university education should take. This study considers the ideal state and direction of university education with-corona and post-corona from the perspective of the “new normal” and the movement for university education fostering GC and internationalization. It will explore the new normal and the possibilities and challenges it brings concerning the development of GC through an international student survey centered on the US, South Korea, and Taiwan in 2020. As a result, it was found that in Taiwan, many face-to-face teachings were held, and the acquisition of GC has not decreased so much, but in the United States, and South Korea, where there were many online teachings, the acquisition of GC has decreased since COVID-19.

Key words: global competence, online education, COVID-19, comparative survey

1. Introduction

This paper will discuss whether university education aims to provide students with global competence or competencies (GC)¹ built on the premise that free movement between countries can perform the same function in the corona era as before. It will analyze an international comparative survey conducted in 2020, asking whether it is possible to acquire GC, which has come to be taken as an objective of face-to-face university education through online learning.

The novel coronavirus (COVID-19) spread worldwide, and the World Health Organization (WHO) declared on March 11, 2020, that it had reached the pandemic level. As of June 2021, vaccination levels vary from country

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¹ Global Competence and Competency are used with the same meaning in this paper.

to country, and the return to a situation centered on face-to-face university education is still being determined. This unprecedented coronavirus pandemic has had an inestimably significant impact on higher education institutions. This is because of changes pre- and post-pandemic to values and norms, constructed in response to the changing times while drawing on the past and the various systems people have built in recent years, and there may even be global-scale paradigm shifts. Although it is impossible to predict when the novel coronavirus pandemic will be resolved, countries everywhere are grappling with the complex problem of promoting economic activity and labor while working to prevent the spread of the coronavirus, given that the damage caused by bringing a halt to economic activity is also significant.

The social transformation of the coronavirus pandemic and post-corona is also one of the phenomena caused by globalization. Therefore, the spread of COVID-19 has significantly impacted higher education worldwide. This crisis has led to online learning spreading all at once at the level of higher education worldwide, providing various suggestions and possibilities for the form university education should take (Yamada, 2021). This paper considers the ideal state and direction of university education in corona and post-corona (hereafter referred to as the corona era). It will examine the new normal and its possibilities and challenges concerning the direction and development of GC through university education in three countries: the United States, South Korea, and Taiwan.

2. Learning Outcomes Relating to Globalization

Since the 2000s, countries worldwide have promoted the internationalization of higher education in response to the globalization of people, goods, and money. For example, the 300,000 International Students Plan was announced in Japan in 2008, proposing that Japan increase the number of international students enrolled to 300,000 by 2020 (The Ministry of Education, 2008). Other countries like the United States, South Korea, and Taiwan also have promoted campus internationalization and study programs in response to the globalization movement. So, there is progress in both inbound and outbound cross-border directions (hereafter referred to as “mobility”, where appropriate in the context). Most countries take globalization as a given, see freedom of movement as a positive aspect of that process, and have promoted shared concepts of global solidarity, collaboration, cross-cultural understanding, multicultural coexistence, and global citizens, as well as citizen participation and free movement of labor, on the premise that globalization will continue. However, is it possible to maintain or further advance these values and concepts against the background of the novel coronavirus pandemic, or might stagnation be unavoidable? Alternatively, can these learning outcomes, values, and concepts — that are supposed to be taught based on free global movement — be attained similarly through virtual programs carried out online, even without being premised on free movement as before? In the past 20 years, socio-economic globalization has made the qualities and competencies university students should acquire as learning outcomes an issue that transcends the peculiarities of educational systems in different countries. The nature of the qualities and competencies demanded of university graduates has influenced higher education in many countries, regardless of national borders. Taking the specific example of university education achievement indicators in the US, the Association of American Colleges & Universities’ Essential Learning Outcomes² influenced the performance of graduate attributes of many countries. The AAC&U defines the Essential Learning Outcomes as the knowledge

² According to https://www.aacu.org/sites/default/files/files/LEAP/EssentialOutcomes_Chart.pdf, the Essential Learning Outcomes were developed through a multi-year dialogue with hundreds of university staff and people from the business community, as well as analysis of the accreditation requirements for engineering, nursing, and teacher education, the findings of which are shown in documents issued by the AAC&U in 2002, 2004, and 2007.

and skills gained from a liberal university education. Specifically, the Essential Learning Outcomes are divided into the following four categories:

- 1) Knowledge of Human Cultures and the Physical and Natural Worlds
- 2) Intellectual and Practical Skills
- 3) Personal and Social Responsibility
- 4) Integrative and Applied Learning

The third category, Personal and Social Responsibility, includes civic knowledge and engagement—local and global; intercultural knowledge and competence; ethical reasoning and action; and foundations and skills for lifelong learning (AAC&U, 2020).

These outcomes are globalized countries' shared ambitions for university education, including the ability to identify problems through discussion and collaboration with diverse people, consider and solve problems logically, and apply these skills in practice. Many studies have identified university education as global learning to acquire GC (Suematsu, 2018).

It has been pointed out that the OECD's 21st-century Skills (Ananiadou & Claro, 2009; OECD, 2018; 2019) influence higher education in the EU and Asian countries, and the nature of the competence demanded by university graduates is globally interconnected. These concepts of competence have been called for under various names (such as Generic Skills or Transferable Skills). They include not only knowledge and skills in each specialized field but also the ability to communicate, solve problems, and think logically, as well as attitude, direction, and the practical application of these abilities. The nature of the competencies demanded of university graduates is globally interconnected (Takenaga & Yamada, 2022). These competencies, often considered generic or transferable, include not just specialized knowledge and skills but also the ability to communicate, solve problems, and think logically and the attitude, direction, and practical application of these abilities.

Regarding the AAC&U and the OECD's 21st-century Skills, this paper defines Global Competence(GC) — this 21st-century style of liberal education symbolized by learning outcomes for students such as “knowledge about different cultures”, “the value of multicultural coexistence”, “cross-border solidarity,” and “collaboration with diverse types of people”, ambitions for university education that have come to be shared by many countries regardless of the particularities of each country's educational system, since the advance of globalization — as the ability to identify problems through discussion and collaboration with diverse types of people, to consider and solve problems logically and the skills to put such behaviors into practice. Furthermore, this paper identifies university education with the objective of GC acquisition as Global Learning. The premises of Global Learning are the free movement of students across borders and regions and collaboration with and education alongside people from different and varied cultures. In circumstances where physical and practical deglobalization has been forced on the world by the coronavirus pandemic, however, universities around the globe are providing online learning. This paper will examine the transformation caused by the coronavirus crisis. Whether online education can provide students with learning outcomes as before or whether online education can make students interested in or concerned with GC, producing those outcomes. In other words, this paper examines whether university education geared towards acquiring GC, built on the premise of free movement across borders, can continue to perform a similar function considering the coronavirus crisis.

3. Research Outline

This paper has defined GC — a learning outcome considered essential for students to acquire through

university education in many countries, regardless of the particularities of local educational systems, since the advance of globalization — as the ability to identify problems through discussion and collaboration with diverse types of people, to consider and solve problems logically, and the skills to put such behaviors into practice. Having done so, the paper will go on to an empirical investigation conducted by an online questionnaire that surveyed the following: whether university education tailored to the acquisition of GC and organized on the premise of free movement across borders, namely study abroad programs and overseas internships conducted face-to-face, can perform the same function in the corona era as before; and whether GC and 21st-century values, sought across so many countries, are transforming.

The survey targeted bachelor's degree students in their second year or higher and graduate students in the US, South Korea, and Taiwan; first-year bachelor's degree students, who matriculated during the coronavirus crisis, were excluded.

The criteria for selecting four countries can be explained as a following. Taiwan has been successful in controlling the COVID-19 pandemic in 2020. The USA has not necessarily successfully controlled the COVID-19 pandemic in 2020. Korea was positioned somewhere between Taiwan and USA in 2020.

The survey (a questionnaire survey conducted via an internet research company) was implemented nationwide in those four countries from September until the end of November 2020. There were 2266 respondents, who can be categorized as follows: 824 in the US, 824 in South Korea, and 618 in Taiwan; 1746 bachelor's degree students and 520 graduate students; 569 bachelor's degree students in their second year, 504 in their third year, 552 in their fourth year, 121 in their fifth year or later, 383 master's degree students, and 137 students on doctoral programs; 1133 male respondents, and 1133 female respondents; 176 respondents between 10 and 19 years old, and 2090 respondents between 20 and 29 years old.

4. Comparative Analysis of GC During the Coronavirus Crisis in the United States, South Korea, and Taiwan

Table 1 shows the acquisition status of GC before and after the pandemic in Taiwan, Korea, and the United States. It was found that the acquisition status of GC after the COVID-19 pandemic was generally lower than before the corona. In the United States, 21 out of 24 items are down, and in South Korea, 23 items are down.

In Taiwan, items related to actual cross-cultural practices (behaviors) tend to decrease, but items related to knowledge acquisition and attitudes tend to increase. This background is also related to how online and face-to-face lessons are related.

Regarding the acquisition status of GC in each country before and after corona, we verified whether there was a statistically significant difference in each item by t-test. In Taiwan, there are some differences in the items related to knowledge, such as knowledge of humanities, STEM, and computer sciences, utilization of multiple languages, practices related to different cultures, and items related to innovation, but they were not statistically significant. In South Korea, the three items of knowledge of STEM, computer sciences, and utilization of multiple languages were the same. However, it was confirmed that it was statistically significant that all the remaining items decreased after the COVID-19 pandemic. In the United States, the value of knowledge of humanities, social sciences, STEM, computer sciences, utilization of multiple languages and presentations in multiple languages, openness to new fields, and challenges for innovation has declined, but they were not statistically significant.

Table 1 Acquisition of GC before and after the COVID-19 Pandemic

Learning outcomes of GC	Taiwan		Korea		USA	
	Pre COVID-19	Post COVID-19	Pre COVID-19	Post COVID-19	Pre COVID-19	Post COVID-19
Can thrive in different cultural environments	2.89	2.95	2.84	2.67	3.15	3.07
Curious about foreign countries	3.07	3.14	3.05	2.77	3.09	3.03
Can approach different cultures with an open mindset	3.20	3.18	3.07	2.74	3.16	3.07
Can work with people of different cultural backgrounds	3.10	3.03	2.97	2.64	3.16	3.01
Can befriend people of different cultural backgrounds	3.09	3.05	2.87	2.58	3.15	3.06
Motivated to challenge the new and unknown	3.07	3.07	2.91	2.68	3.07	3.02
Can attain goals waking with people of different cultural backgrounds	2.94	2.90	2.80	2.60	3.22	3.08
Can positively engaged in matters concerning foreign countries	2.78	2.82	2.69	2.50	3.08	2.98
Can communicate with people of different cultural backgrounds	2.88	2.86	2.90	2.61	3.13	2.98
Have a broad perspective on the world	3.02	3.08	2.92	2.74	3.10	2.99
Have interest in topics related to sustainable development goals (SDGs) on a global scale	2.73	2.82	2.57	2.49	2.90	2.88
Can present material in multiple languages	2.69	2.71	2.36	2.38	2.49	2.54
Can develop new perspectives and ideas based on previous studies and research	2.85	2.96	2.67	2.60	2.99	3.01
Open to perspectives related to new fields and areas	3.01	3.05	2.86	2.74	3.07	3.03
Can innovate using perspectives from new fields and areas	2.96	2.99	2.72	2.63	2.96	2.95
Can overcome differences in opinions or positions	2.93	2.95	2.83	2.68	3.03	2.95
Can think, judge and act to the best of your ability based on principles	3.01	3.05	2.91	2.79	3.08	3.00
Have special knowledge related to your area of expertise	3.05	3.06	3.14	3.01	3.03	2.96
Can apply special knowledge from your area of expertise	3.00	3.02	3.02	2.94	3.06	3.00
Have knowledge of Humanities	2.77	2.80	2.82	2.74	2.97	2.92
Have knowledge of Social Sciences	2.71	2.75	2.77	2.71	2.92	2.90
Have knowledge of the STEM	2.53	2.56	2.53	2.50	2.90	2.86
Have knowledge of the Information Sciences	2.57	2.58	2.58	2.57	2.75	2.75
Can use languages other than your mother tongue	2.75	2.72	2.57	2.49	2.61	2.56
1. not at all 2. not really 3. to some extent 4. very much						

Next, Table 2 indicates how classes were conducted in the Corona disaster in three countries. In Taiwan, which succeeded in controlling the corona pandemic in 2020, as shown in Table 2, the proportion of face-to-face teaching style was around 26 to 52% in small-scale, medium-scale, and large-scale lessons with experiments/practices and exercises. The proportion of online classes (including complete and almost complete) was around 35% in large-scale cases.

Table 2 Class Type During the COVID-19 Pandemic Era

	Taiwan	Korea	USA	Taiwan	Korea	USA	Taiwan	Korea	USA	Taiwan	Korea	USA	Taiwan	Korea	USA
Class format after COVID-19 pandemic (%)	Small scale (1-20)			Middle scale (21-100)			Large scale (over 100)			Experiments and practical training			Classes involving seminar		
Completely face-to-face	43.8	4.5	7.0	32.8	2.5	5.6	26.3	2.6	6.3	52.4	10.1	13.5	47.0	8.9	9.4
Mostly face-to-face	16.7	8.7	10.0	19.6	5.0	9.1	19.2	5.0	12.5	19.2	18.2	18.2	18.4	17.2	12.0
Half online and face-to-face	15.6	22.0	15.2	21.1	14.9	18.8	19.0	12.3	19.8	14.7	25.1	17.1	16.0	25.3	19.8
Mostly online (partially face-to-face)	11.3	26.0	18.2	14.4	27.5	23.7	14.1	18.1	19.3	7.2	23.2	19.5	10.7	24.6	17.4
Completely online	12.5	38.7	49.5	12.1	50.1	42.7	21.4	62.1	42.1	6.5	23.4	31.7	7.9	23.9	41.5

On the other hand, in the United States, it is shown that the online type (including almost complete) is about 60%, and the face-to-face type is low in all the lesson styles. In South Korea, the delivery status of face-to-face style is lower than in the United States, and online delivery is high.

We compare full-face and full-online lesson styles in three countries' medium- and large-scale classes and explore the relationship between the degree of interest in global events and matters. When we focus on the decline after the COVID-19 pandemic, the rate of decline in online lessons is lower than in complete face-to-face style lessons in Taiwan. In South Korea, fully online lessons are generally less interested in global events and matters. In the United States, as in Taiwan, the rate of decline is lower for online lessons than for face-to-face lessons.

When we focus on improvement, in Taiwan, online lessons have considerably improved the degree of interest in global events and matters. In South Korea and the United States, on the other hand, the proportion of improvement after COVID-19 through online lessons is lower than that of face-to-face lessons. Although the percentage of fully face-to-face lessons style is highly introduced in Taiwan, it is speculated that the evaluation of fully online lessons is also high.

Table 3 shows the results of seven question items about how the degree of interest in global matters changed after the COVID-19 pandemic (based on September 2020). Although there are differences depending on the country, the overall result is that the percentage of interest in global matters that "has decreased" is low when compared to those who "have not changed" or who have "increased". When comparing the three countries, the country with the lowest overall rate of decline is Taiwan, followed by the United States and South Korea.

The rate of decline in South Korea is slightly higher than in the other two countries. The trend of respondents who answered "no change" is similar in the US and South Korea. Overall, there were many responses that the United States "increased" in 4 items and Taiwan in 3 items. South Korea has the lowest rate of increase. As of September 2020, the ban on overseas travel had not yet been lifted, so the percentage of respondents who answered that "intentions and plans for overseas travel" had declined among the seven question items in all three countries was the highest.

Regarding "interest in global issues and challenges", the response "Increased" was the highest among the seven items in all three countries. It shows that global issues and issues can be fully learned even in online classes. All items are statistically significant in the chi-square test at 0.001 level.

Table 3 Interest in Global Matters After the COVID-19 Pandemic

	After the Pandemic								
	The United States			Korea			Taiwan		
%	Decrease	No change	Increase	Decrease	No change	Increase	Decrease	No change	Increase
Interest in global issues and challenges	14.1	27.1	58.9	20.2	31.7	48.2	8.3	22.0	69.8
Intentions and plans for studying abroad at university level	24.9	30.2	44.8	39.6	33.5	26.9	27.5	36.7	35.8
Interest in overseas training and internship	24.5	37.3	38.2	40.7	32.3	27.1	28.2	38.0	33.8
Willingness to learn languages other than mother tongue	18.2	36.5	45.3	20.0	38.2	41.8	9.4	42.2	48.4
Interest in cultures other than home country	16.9	35.8	47.3	20.6	38.1	41.3	8.7	39.6	51.7
Familiarity and understanding of foreigners	17.8	36.9	45.3	25.4	39.0	35.7	16.2	42.2	41.6
Intentions and plans for overseas travel	27.2	31.4	41.4	42.0	24.5	33.5	29.6	29.6	40.8

p < 0.001

5. Discussion and Summary

This paper conducted an online questionnaire survey on whether university education aiming to provide students with GC can perform the same role following the coronavirus crisis.

Regarding GC acquisition pre- and post-coronavirus, most markers declined in the US and South Korea. In Taiwan, a country that has controlled the coronavirus crisis, although there were categories relating to practice where a certain level of decline was observed, some categories also increased.

As a result of comparing the levels of interest in global matters and whether classes were provided face-to-face or online during the coronavirus crisis in three countries, it was found that in Taiwan — which has controlled the coronavirus, and which offers the highest proportion of full face-to-face classes among the three — the level of interest in global matters rose for those taking online classes. In the US and South Korea, the increase for online classes was relatively low compared to face-to-face classes.

Looking at the relationship between class format and class size, statistically, significant differences were confirmed for medium and large classes depending on whether they were primarily face-to-face, half of online and face-to-face, or mostly online. In large and medium-sized classes, there was a decline in interest and motivation relating to global affairs, where classes were mostly online compared to mostly face-to-face or half online and face-to-face.

Online classes were rolled out worldwide in 2020 during the coronavirus crisis. The quality of these classes varies, and even though high-quality online classes have been rolled out, there are also instances of lesser quality. It would not be accessible at present to state that there is uniform quality assurance. In Taiwan, a country that has controlled the coronavirus, it was found that online classes did not necessarily have adverse outcomes, even though classes were also carried out face-to-face. The positive evaluation of online classes, even in an environment where face-to-face classes are also provided, may be due to the guarantee of educational quality in Taiwan, which includes the online format.

Regarding interest in global matters, if it is possible to acquire information and knowledge through online classes, or if communication overseas is possible, it will be possible to acquire knowledge, and interest will not decrease. Instead, it was found that their interest in the problems and challenges they face increased. In addition, in Taiwan's series of question items, the total result of the percentage of respondents who answered, "No change" and "Increase" was the highest among the three countries. The success in controlling the COVID-19 pandemic in Taiwan contributed to offering face-to-face classes and continued acceptance of international students from some countries. After all, even when national borders are closed, it is possible to maintain or even increase interest in GC matters by ensuring online classes and online communication.

This research confirmed that while the acquisition of learning outcomes relating to GC also declined in three countries post-coronavirus crisis, interest and motivation concerning global matters were not significantly affected, with most responses indicating more interest. These results have shown that online learning does not necessarily harm acquiring knowledge relating to GC and that it seems possible to ensure that learning outcomes relating to GC are achieved through quality assurance based on intelligent lesson formats, interactivity in online classes (such as a more active learning style) and so on. Accordingly, from this point on, it is hoped that this will lead to the next stage in online education.

Going forward, it will be necessary to clarify empirically the questions of how society responds to this crisis in which the values relating to GC might collapse, having been premised on free movement fostered in an environment that affirms globalization and whether university education can perform the function of providing students with GC. There is an urgent requirement for higher education institutions to deliberate on and respond accordingly to the following questions: whether the global solidarity and cosmopolitan values that the international community has traditionally endeavored to build will retreat, hold their position, or deepen in the "with corona" era, in which traditional unrestricted face-to-face interactions are impossible?; if it is possible for these values to hold their position or deepen, what form should university education take — or, in other words, education aiming to foster GC online — and how should it be constructed?

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