Original Paper

Promoting Higher Order Thinking Skills in a Cross-Cultural Communication Project

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Abstract

Students are going to need skills for employment including: self-reflection, and cognitive skills, such as critical thinking, flexibility and creativity. Consequently, teachers need to provide opportunities for students to develop these skills in the classroom. Within teaching requirements, teachers have to be creative, and innovative. We propose that by implementing cross-cultural communication projects based on the revised version of Bloom's taxonomy, teachers can offer students opportunities to improve skills needed for employment in the future.

In this study, we implemented a project with tasks and outcomes based on Bloom's taxonomy. The aim was to provide a clear structure for students to gather new knowledge whilst encouraging the further processing of this knowledge and critical reflection. To accomplish the tasks, students used English as a common communication instrument. Using BT gave a theoretical foundation to the tasks through which the data could be examined. The data shows using Bloom's Taxonomy provided a way for students to strengthen cognitive skills and complete the tasks given. This study suggests cross-cultural projects combined with BT can be a powerful tool in helping students prepare for future employment.

Keywords

future skills, cross-cultural communication skills, cognitive processes, bloom's taxonomy, higher ordering thinking skills.

1. Introduction

This paper discusses the implementation of Bloom's Taxonomy as a framework which was used to underpin a cross-cultural online project in the spring/early summer of 2021. In total, four classes of students participated. Three were classes of Japanese students studying at one Japanese university (all

under the same teacher), and one more class was of international students who were studying at a German university. However, due to the pandemic, some students were studying online from their home countries; these students are called international students throughout this report.

1.1 Bloom's Taxonomy and Higher Order Thinking Skills (HOTS)

As teachers, we are tasked with preparing our students for an uncertain future. In their 2030 position paper, the OECD explain that there are fundamental changes affecting students today. They are: "facing unprecedented challenges—social, economic and environmental—driven by accelerating globalization and a faster rate of technological developments" (2019, p. 3). In schools and universities, teachers struggle to prepare learners for "jobs that have not yet been created, for technologies that have not yet been invented, to solve problems that have not yet been anticipated. It will be a shared responsibility to seize opportunities and find solutions" (ibid.). Therefore, teachers need to be creative in their teaching. They need to find ways to meet the needs of their students and equip them for their futures. Consequently, when faced with such enormous shifts in education, the focus of what is taught needs to shift, too. Therefore, rather than conveying specialized knowledge that may only be used for one particular job, students need to learn skills that will enable them to act, react and succeed in unfamiliar situations and environments. The World Economic Forum social mobility report states that "Education systems need to adjust their curricula to the reality of the Fourth Industrial Revolution to equip students with the skills needed to succeed. Among these skills of the future are digital skills, creativity, communication, critical thinking, complex problem-solving and emotional intelligence" (World Economic Forum, 2020a, p. 33). In other words, as the preceding quote points out, they need to be able to analyse situations, pre-empt problems, and create ways to work around obstacles. These are traits of HOTS.

The industry and other economic players also have a very clear vision of what they expect from their future workforce. In their 2020 Future of Jobs Report, the World Economic Forum has listed 15 top skills which they believe will be highly desired by 2025. Leading the list are: analytical thinking and innovation; active learning and learning strategies; complex problem-solving; critical thinking and analysis; creativity, originality and analysis (2020b, p. 36). In a matrix that is highly complex, Dondi et al. (2021) discern 56 skills that people will need in the future world of work. These skills fall into four categories: cognitive skills, such as critical thinking, communication and mental flexibility; interpersonal skills, for example, developing relationships or effective teamwork; self-leadership, i.e., having self-awareness and the ability of self-management or goals achievement; and finally, digital skills with digital fluency and understanding digital systems.

In light of these demands, education has been looking at so-called 21st-century skills for some time now. In 2012 Binkley et al. determined several categories and skills as basic requirements for lifelong learning. Among these skills are creativity, critical thinking, communication and collaboration as well as ICT literacy and competence in global citizenship (pp. 18-19).

Similarly, the Partnership for 21st-Century Learning (2019) sees 21st-century skills as consisting of

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three main categories, namely learning and innovation skills, life and career skills, and information, media, and technology skills. Learning and innovation skills are further broken down into "4Cs", which are communication, collaboration, critical thinking, and creativity skills. Life and career skills needed are flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership, and responsibility. Information, media and technology skills consist of information and media literacy.

In recent years, scholars have broadened this perspective and begun discussing future skills. Future skills are not a set of strictly defined principles. Rather, they include all skills that will enable students to deal with the unknown. Ehlers (2020) states that in order to master the challenges of the future "students must develop curiosity, imagination, vision, resilience and self-confidence as well as the ability to act in a self-organised way. They must be able to understand and respect the ideas, perspectives and values of others, and they must be able to deal with mistakes and regressions, while at the same time progressing with care, even against difficulties" (p. 3). Summarising, we can say that economic interests and education experts agree to a large extent on the type of skills that today's students need to have for a successful future: critical thinking, communication, self-management, teamwork and digital literacy.

Thus, the question that emerges is: how do we help our students develop such skills? One crucial method is to train Higher-Order Thinking Skills (HOTS). These skills are an integral part of the revised Bloom's taxonomy (BT) (Anderson & Krathwohl, 2001). In the cognitive domain, thinking skills are arranged in a pyramidical structure with the lowest on the bottom and the most difficult on the top. Those skills are, from lowest to highest: remembering, understanding, applying, analysing, evaluating and creating. Connected to this, but remaining out of the focus of this paper are four levels of knowledge: factual, conceptual, procedural, and metacognitive. In BT, the top skills of the pyramid are considered higher-order thinking skills. These are: analysing, evaluating and creating. Those three skills are the focus of this study.

Brookhart (2010) understands higher-order thinking skills to encompass three main areas: transfer of learning, critical thinking and problem-solving. One definition of transfer comes from Anderson and Krathwohl (2001):

"Two of the most important educational goals are to promote retention and to promote transfer (which, when it occurs, indicates meaningful learning) … retention requires that students remember what they have learned, whereas transfer requires students not only to remember but also to make sense of and be able to use what they have learned." (p. 63)

Critical thinking is difficult to define even though, as we have seen above, it is a highly sought-after skill in both education and industry. Behar-Horenstein and Liu (2011) define this skill as: "intellectually engaged, skilful and responsible thinking that facilitates good judgment, critical thinking requires the application of assumptions, knowledge, competence and the ability to challenge one's own thinking." When working across cultures, we need to be aware that the concept of responsible thinking

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may be interpreted differently depending on learned cultural norms. Nevertheless, "critical thinking skills require self-correction, monitoring to judge the reasonableness of thinking, and reflexivity. When using critical thinking skills, individuals are capable of stepping back and reflecting on the quality of that thinking" (p. 26).

Creativity and problem-solving have been recognised as critical to the future workforce. The two are related: problem-solving needs creativity since the direct path to a desired solution may not be obvious. Students need to be given opportunities to develop HOTS. However, with limited classroom time teachers will question how best to develop these skills. This project combined HOTS and BT in the English-language classroom with a view to training students' future skills.

1.2 The Cross-Cultural Virtual Project

This project started in May and finished in July 2021 during the pandemic when classes in both countries were online. Preparation for the project started in April (see Appendix A). The 86 Japanese participants were in three classes (two from the faculty of engineering, and one from the faculty of health sciences). All students were in their second year and the class was a compulsory general English class. While the students had been evaluated and assigned to the 'advanced' English class, their level of English varied from A1-B1. All but five students consented to their data being used for academic purposes. In Germany, 52 students from the international degree programme "Electronic Engineering" participated in the project. Since this programme is conducted entirely in English, a high proficiency at B2-C1 level is a prerequisite. Consequently, enhancing language aptitude was not an aim of the project but rather the improvement of intercultural communication, time management or problem-solving skills. The students participating came from about 20 different cultural backgrounds, e.g. India, Egypt, Bangladesh, Nigeria or Taiwan. Due to the COVID-19 pandemic, all classes were held online, and some students were participating from their home countries while others were participating from Germany. All participants agreed for their data be used for academic research.

In Japan, the students were put into groups by class (thus each group was working with students from the same English class, studying the same major) to facilitate group work. Each group had 2-4 Japanese students and they were mostly paired with 1-2 non-Japanese members from the university in Germany.

Students in Japan were given three weeks in April to start preparing for the project. This entailed creating a group on an App called LINE to which they added their international counterpart(s). LINE was chosen for several reasons: primarily, it is familiar to Japanese students, but also, no personal information needs to be exchanged as contact can be established via a QR code (Sato & Horn, 2020). The QR codes of the international students were collected by the teacher and sent to Japan so that the project groups could be initiated. Once the groupings were complete, the students could text, send audio messages, files, and photos as well as have group video calls, all in a safe environment and at no cost.

For the project, the teachers had determined three topics to guide conversation. The total time for discussions as well as a final summary in the form of a narrated PowerPoint presentation (see Appendix

A) was 9 weeks. At the beginning of the project, we held one joint Zoom meeting where each group was put into their own breakout room to meet and exchange information. Following this meeting, texting during the project would be asynchronous, but video chat would have to be arranged bearing in mind the time differences. Students were to have at least three video chats to discuss the topics and all team members were expected to participate in at least two of these chats.

Before the discussions started, both teachers had given a brief overview of HOTS to their cohorts. The international students were shortly introduced to the different BT and knowledge levels with examples based on the first discussion topic whereas the students in Japan were only provided with examples after they asked for direction towards the end of the first topic. This was done to encourage the students to ask questions, as this is not familiar to Japanese students. Thus, this difference was only due to the focus, culture and direction of each class. So, on both sides of the project students were told they would need to use higher-order thinking skills to complete the project; this meant that students were expected to reflect, reason, and make sound decisions, and not simply regurgitate information they had gathered from their overseas partners.

Integrating Bloom's Taxonomy for Evaluation

BT has attracted attention in the classroom as it calls on the use of cognitive thinking. Furthermore, it is easy to assess whether objectives have been achieved. Thus, using BT in the traditional classroom for evaluation is not new. Furthermore, in 2009, Halawi, McCarthy, & Pires evaluated the use of BT in e-learning. Their conceptual framework was based on both the theoretical perspectives of Bloom's taxonomy and Anderson and Krathworthl's (2001) revised version. Their findings purport that 'Bloom's taxonomy extends to other online learning environments' (ibid., p. 378). The limitation of their study was that it was not used in an international setting. Nevertheless, this made BT an attractive tool for us to use in our cross-cultural online project as we are able to add to their findings.

The original BT was comprised of six major categories, each with sub-categories. They were knowledge, comprehension, application, analysis, synthesis and evaluation in hierarchical order from simple to complex (Bloom et al., 1956). For our project, we chose to use Anderson and Krathwohl's (2001) table as a foundational framework. It is similar to the original taxonomy in that it has six categories but those are more complex. The revised version retains six categories: remember, understand, apply, analyse, evaluate, and create. These sets were tabulated so the categories are horizontal headers and are labelled as cognitive process dimensions. The vertical headers are labelled Knowledge Dimensions starting with factual knowledge, conceptual, procedural, and finally metacognitive. Tabulated in this way, objectives can easily be inserted into the table (Krathwohl, 2002) creating a tool from which a teacher can quickly determine objectives and progress of their students.

The objective of the project was for students to gain knowledge of a different culture on three topics: my neighbourhood, TV media, and food. The four knowledge levels, introduced above, were used as a framework on which the questions given to the students were created. Thus, based on these four dimensions, the students were asked questions to explore the topics as shown in Appendix B.

For this cross-cultural project, we examined how using BT as a foundational framework in a cross-cultural communication project in the English language classroom can promote the development of HOTS with the goal to equip students with skills for the future workplace.

Consequently, our guiding questions were:

1) What evidence of assessing, differentiating, and determining is in the data?

2) In what ways did the students critique and evaluate their partner's information?

3) To what extent did the students create potential working alternatives or unique adaptations to adapt their partner's information to their own culture?

2. Method

For each topic data were collected from the four classes: one set from the international students, and three sets from each of the classes in Japan. The data from the Japanese students were combined by topic resulting in one set of data from the Japanese students for each topic, and one set of data from the international students for each topic. Further data from the Japanese and international students were collected as feedback about the project after it had finished.

Both in Japan and Germany, data were collected using feedback modules on the classes' respective Moodle courses. The answers were then converted to an Excel sheet. Those Excel sheets were further translated into Numbers documents which were used for analysis.

In preparation for analysis, the data for the international students were organised in the following way: each student was assigned a number. This number was inserted into the spreadsheet along with the respondent's country of origin, or affiliated cultural background. The name of the respondent and other personal information was then removed to preserve confidentiality. For the data from the three classes of Japanese students the data were arranged by field of study (e.g., architecture) and by team. Subsequently, the name of the respondent was deleted.

After the data were prepared for analysis, they were printed out by topic. The data were analysed for evidence of the higher cognitive processes using the rubric below based on Clark and Ernst's (2010) descriptors, which the researchers have realigned for cross-cultural awareness. By topic, the data were imposed upon these frameworks to expose the evidence of cognitive dimensions.

Table 1. Rubric for Analysing the Fourth to Sixth Thinking Skills in the Data Based on Clark and Ernst (2010)

- **Analyse**: breaking down elements, facts and concepts into parts. Linking how culture, or cultural contexts are related to the topic at hand. **Differentiating**, **organizing**, and **deconstructing** differences and similarities.

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- **Evaluate**. Objectives that allow students to make **overall judgment**s based on set cultural norms, criteria or standards. Terms associated with this category or level are **checking, critiquing, judging, and testing.**

- **Create**. Putting cultural **elements together** and make a (new) whole or **reorganize** elements to realign cultural **concepts** or **values**. Words like **generating, planning**, and **producing** or **constructing** are associated with this cognitive process. The final video project would come under this category.

3. Results

As mentioned above, in this project, our goal was to determine how using BT as a foundational framework in a cross-cultural communication project in the English language classroom promotes the development of HOTS to equip students for the future workplace.

The guiding questions were:

1) What evidence of assessing, differentiating, and determining is in the data?

2) In what ways did the students critique and evaluate their partner's information?

3) To what extent did the students create potential working alternatives or unique adaptations to adapt their partner's information to their own culture?

For each of the topics discussed, i.e., neighbourhoods, TV programmes and food, students were given three questions reflecting different higher-order thinking skills, from the lowest to the highest level (see Appendix B). Below, the data is presented by topic as fluctuations between cognitive processes emerge within the data, and it was deemed important to preserve the context of the data as well as to illustrate linguistic authenticity by keeping the data unaltered. For the display of data, the international students are identified by number and then by cultural identity while the Japanese students are identified by field of study and the name, or number, of their team.

3.1 Neighbourhoods

In discussing the first topic, neighbourhoods, the students would have to discover facts about their partners' neighbourhood and then analyse them. The questions to be asked aimed at eliciting data for analysis, evaluation and creation (see Appendix B). The results are presented according to these three cognitive processes.

The data for the cognitive process analyse from the Japanese students included information pertaining to climate: *Just like Japan, Germany has four seasons* (Civil Engineering student: Team 9); *The fact that they have a custom of eating rice every morning made me think that the climate is similar to Hokkaido* (Radiology student: team SYL), and public services: *"I was surprised to find out that public toilets are charged for"* (Civil Engineering student: Team 8). Another example is from a Civil Engineering student (Team 8)

…They live in the center of town, so weekends are noisy. Also, public transportation is a bit expensive,

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and public toilets are hard to find with a fee. Cell phone companies are not good and quite expensive . Rent is very cheap compared to Japan.

Student 20 from Nepal pointed out the following differences in neighbourhoods, *"Houses are similar but comparatively ... they are built very near [*closer to each other than*] in my hometown so that It seems more crowd ...in my home town, there are very few parks, no amusement park and very few and unorganized playgrounds. ... Public transportation in my home town is only buses and taxis they are not very punctual . hence Worse than my partners' hometown."*

Data moving from analyse to evaluate was also evident, However, only a few Japanese students determined appropriate actions, or offered alternatives or solutions:

"[E]ducation and medical expenses are free in Germany, while they are both expensive in Japan, and that is where they differ" (Computer Science, Team Tomato). The same student evaluates, and goes on to offer a solution: *"I think that Japan should provide greater government subsidies like Germany does."* Likewise, Architecture student from Team 1 notes: "*Public transportation is convenient in Japan, but it is not so in the country they live in. I think it is necessary to have rules to make it smoother and more convenient".* Finally, Radiology student from Team Nanashi pointed out, "*In Japan, it rains more and the humidity is higher. So, don't hang your laundry in your room, but put a dehumidifier or something similar to prevent this from happening. If we do that, we can adopt brick houses in Japan."*

In the data from the international students studying in the German university, number 19 from Sri Lanka similarly analysed and evaluated the situation in their home country writing'

"The lesson we can learn from this is that any problem can be solved with good planning, unity and Correct political decisions. If we learn such lessons from Japan and apply them to ourselves, our country will soon become a developed country like Japan."

Data from student 34 (Taiwan) evidenced evaluating when mentioning, '"*my Japanese partner mentioned that a baseball park is going to be built in 2023, which I believe can boost the local economy and tourism. From my point of view, the status quo and the outlook for this town are good".*

Reflective thinking about where they lived also surfaced in the data. Student 37 from Bangladesh pointed out that theirs is "*a developing country. In recent time, it has shown a great improvement in infrastructure. But the public transport is not up to the mark*." They go on to say, "*I think public transport can easily be improved. The government should take it into thier account. They need to make a good and effective plan to root this issue out"* but this student also pointed out that this is a challenging issue for their government. Finally, there was limited evidence of creating in the data, student 35 from Bangladesh had a clear concept of what they would like,

"*The modification I want:—Organized transport system. E.g. Introduction of subway and different paths for Cycling and walking. It will enable safe traveling and save time.—Apartment should be built at a fixed distance to each other so that it's not blocked from any side—More parks and recreation centers in the neighborhood for children and elderly people*."

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3.2 TV Programme

The second topic the students discussed was TV media. Data from this topic evidenced the higher cognitive process dimensions apply, analyse, evaluate and create.

Analytical skills were evidenced in talking about a programme called "Dark"; "*make it less horror-like than the German version*" commented (Electrical Engineering Logistics Line). Opinions about comedy surfaced, "*In my opinion Germany and Japan have a very different view on comedy*" (student 16, Malaysia), showing analytical skills again.

Data showing evidence of evaluation includes this comment from a student in Japan who wrote, "*Many young people are watching. It isn't well known in the world. This is because the jokes of the country are not transmitted*". (Architecture, Group 4). Meanwhile one of the international students pointed out "*Japanese tv programs have a lot of complaints because of content. But the reason why Japanese programs like anime and cartoons are hugely popular around the world is that they offer content for every age of people. The quality of their content is very rich which is praiseworthy for children and adults*" (35, Bangladesh).

Evidence of evaluation emerged in reasons for popularity of media forms of entertainment which included logistics: "*That's because it's not distributed globally like Netflix, and can only be watched in Malaysia*" wrote Electrical Engineering Student from Logistics Line. Another example of evaluation was "*Most of the programs they watch on TV are news programs*" (Civil Engineering student, team 8).

In creating new TV programmes from their partners' information in order to apply it to a different cultural context, the international students had a number of suggestions. Student 29 from Bangladesh said, "*To summarize I would change the host and actors, language and content also to make this kind of show popular in my culture*." Vietnamese student, 43, suggested, "*Food shows: Change the food to beer and it will work in Germany.*" In adapting a Japanese TV programme to be shown in Germany Malaysian student 16 said,

"*I would include an interesting plot aside from the comedy, so that more people would be attracted to the programme if it has a solid plotline. I wouldn't remove the comedy because in tough times especially nowadays, comedy is so important to keep us laughing and happy. I would however include comedy that is suitable for german people, since in my opinion Germany and Japan have a very different view on comedy.*"

3.3 Food

With the third topic, food, evidence for analysing, evaluating, and creating were expected. From the Japanese participants evidence of analysing and evaluating their partner's dishes included this comment; "*the rice is cooked by coconut oil. So it is good for japanese to enjoy tasting new taste of rice*" (Radiology student, Team Nanashi). An Electrical Engineering Student from Logistics Line evaluated their partner's curry dish saying, "*We thought that the addition of cheese would soften the spiciness and make it more palatable to the Japanese.*" A computer science student from group 6 wrote, "*It looks very good and I don't feel the need to fix it.*"

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Creativity was found in another comment by a physical therapy student from team Potato Fry: "*If I were to make this dish, I would cook it with potatoes, tuna, and other ingredients that Japanese people prefer. This is because it comes closer to the taste of Japanese people*." Another physical therapy student, this time from team Fujiya, said: "*If I were to make a biryani dish, I would reduce the amount of spices a little. Because I think Japanese people are not used to spicy food like Indian people*. 'Finally, a computer science student from Team D showed creativity in substituting ingredients, '*Japanese people do not have the culture to eat crayfish, so shrimp or other seafood can be substituted.*'

Data from the international students were thicker, showing no lack of the cognitive processes. Data evidencing "evaluate" includes making no modifications as "*Japanese food is no.1 in the world*" (34, Taiwan), modifications for cultural or religious reasons, "*change the meat from pork to other kind of meat like lamb or chicken*" (student 33, Malaysia) and what a student might do if the original flavour did not suit their palate, "*I would prefer to get the genuine taste at first. If I don't like the taste, I would add some spices to it*" (29, Bangladesh). Furthermore, the international students were also creative with the dishes that their Japanese partners introduced. Student 1 from Bangladesh said they would add curry to ramen along with coriander and some local vegetables. Student 32, from the UAE, offered up adding a sour cream dip for soba noodles, and student 38, from Bangladesh suggested adding curry powder and tomato sauce to ramen.

4. Discussion

Using Bloom's taxonomy, we constructed questions, based around three topics, with the aim of promoting higher-order thinking skills in our students as they participated in a cross-cultural communication project. We hoped that through the experience, the students would be able to develop skills that have been predicted as important, or essential in workplaces in the future as outlined in the literature.

The category analyse is connected to our first research question, which was aimed at finding evidence of our students' assessment, differentiation and determination abilities. For this higher-order thinking skill, ample evidence was found in all three topics. Interestingly, data for this process seems to run along a spectrum and is often linked to data from another cognitive process. One example of this is, "*If I were to make this dish, I would cook it with potatoes, tuna, and other ingredients that Japanese people prefer. This is because it comes closer to the taste of Japanese people*" which evidences the ability to analyse, evaluate and then create. Consequently, having to assess information, recognise differences and determine results does not appear an extreme challenge, even when language proficiency is relatively low.

Our second research question was concerned with the ways in which the students would critique and evaluate their partner's information. While not as numerous as the evidence for analyse, there were several comments which showed that the participants in the project were able to evaluate the information they were given by their partners. We can see evidence of self-reflection, self-awareness

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and reviewing of facts. This led to forming an opinion about particular aspects of their own and/or their partners' neighbourhoods, about TV programmes and, of course, also about different foods.

The data shows reflection on one's own culture and consideration of necessary changes: Student 37 from Bangladesh demonstrated this when highlighting changes that they perceive are desirable in their hometown. According to the Partnership for 21st-Century Learning (2019), this type of critical thinking is pointed out as an important life and career skill. Another example is the Civil Engineering student in team 8 who said, "Cell phone companies are not good and quite expensive." These samples of data show the first step in picking out issues that can later be resolved in order to improve the environment people live in. Furthermore, student 37 from Bangladesh points out this may not always be straightforward, demonstrating the ability to factor in outside elements that may impact improvement.

Literature specifies that students need help to build certain skills for their future. They will need "to understand and respect the ideas, perspectives and values of others" (Ehlers, 2020). Student 19, from Sri Lanka demonstrates this respect saying: "If we learn such lessons from Japan and apply them to ourselves, our country will soon become a developed country like Japan."

Interestingly, the evidence for create was limited and mostly evident in the third topic: food. Reasons for this could be (a) it is easier to create something with food as it is more tangible, and (b) food was the third topic hence the students had more time and experience at answering the questions and therefore may have understood more fully what we teachers were expecting. Certainly, the responses in answer to the first topic indicate the students did not fully understand the question; the interpretations for neighbourhood included answers about the climate, and food eaten in that region, whereas we teachers were expecting more comparisons about the physical aspects of neighbourhoods including, but not exclusively, the public facilities that were located near to where the students were living at the time of writing. Reasons for the unexpected data in the first topic could be due to the limited linguistic competence of the Japanese students. Additionally, it is possible that the conversation strayed off the topic, but neither party wanted to correct it as it may have been deemed potentially damaging to the flow of conversation. Another possibility is the students had a wider interpretation of the question. As the reason was not sought this would be something to investigate in future studies.

Another attribute needed in the future workplace is the ability to adapt (OECD, 2019). This was evidenced through the topic on food where student 33 from Malaysia adapted a Japanese dish to accommodate for religious differences. Another student (29, Bangladesh) made suggestions due to personal preference of how they like their food. This also indicates self-awareness, which is another skill that is said will be needed in the future (OECD, 2019).

Good judgement is another skill that is deemed important for young employees (Behar-Horenstein & Liu, 2011). Team D illustrated this, along with creativity by suggesting substituting ingredients in a seafood dish, "*Japanese people do not have the culture to eat crayfish, so shrimp or other seafood can be substituted.*" This comment, and those in the paragraph above, illustrate flexibility on the part of the students, which, again is a skill that will be vital in their future careers (Partnership for 21st-Century

Learning, 2019).

5. Conclusion

This study investigates how using Bloom's Taxonomy as a foundational framework in a cross-cultural communication project in the English language classroom can promote the development of HOTS. The research questions looked at what evidence of higher cognitive processes (analyse, evaluate and create) could be gleaned from the data. The reason for using BT and examining HOTS is to ensure students are furthered in their development of skills that they will need in their future workplaces as shown in the literature.

The project took place online in spring/early summer 2021 during the Covid pandemic, between students studying at two science universities: one in Japan and the other in Germany. The exchange lasted 9 weeks during which the students were given three topics each with three questions to discuss. The eighty-six students in Japan were all Japanese, but the fifty-two students studying at the university in Germany were international, from about 20 different countries. However, due to the pandemic not all of the international students were studying in Germany during the project.

This project was part of classwork for all participating students. However, informed consent was requested after the completion of the project. In the few instances where student asked for their data not to be used, it was removed before analysis. The data were collected through the universities' Moodle courses and analysed through a rubric for analysing the fourth to sixth thinking skills in the data based on Clark and Ernst (2010).

Through the project we teachers aimed to encourage the further processing of knowledge beyond the given tasks and to produce a final critical reflection. Thus, we used Bloom's Taxonomy as a tool for strengthening the cognitive skills of our students. This gave the project a clear framework on which to base the assessment and to guide the students. It also provided focused goals which were easily understood by students.

Consequently, the students were able to focus on the tasks, gathering information, and then processing it as each task prompted. Throughout the three topics, comments from the students were collected. As mentioned above, it is beyond the scope of this paper to discuss these in full, however, it should be noted the project had challenges. Nevertheless, even while some students were challenged by logistical and linguistic barriers, they were exposed to a different culture from their own.

The data shows clear evidence for the three cognitive process dimensions: analyse, evaluate, and create. Therefore, it is clear that the experience the students gained from this project was invaluable. Not only were skills crucial for future employment exercised, but also, students were able to learn about other cultures around the world they would usually not have the opportunity to encounter first-hand. In other words, through this project, they were given the chance to respect ideas, perspectives and values of others. This project illustrates that teachers can find ways to promote skills for future employment with creativity and effort.

Nevertheless, this study does not examine the evidence for the knowledge dimensions, nor does it examine the hindrances to this project from the perspective of the students. It also does not explore how the questions impacted the outcomes, and how different wording may better promote HOTS. Furthermore, it would be of benefit to future projects to understand how students' prior knowledge of HOTS may help them further develop future skills through a project such as this. Being a small case study, findings cannot be generalised. Nevertheless, they may be of interest to others wishing to support equipping people with skills for future employment.

Declaration of Conflicting Interests

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Appendix A

Table 2. The Project Schedule

	Date of class m/dd	Project Flow	Groups' Goals
1	4/12	Project Starts - explanation	Japanese students make LINE groups
2	4/19		Japanese students download question sheet, (discuss the questions) and start to work out an action plan as to how to answer the questions.
3	4/26	Japanese students finish making groups. **Holiday in Japan**	Groups also decide a leader, and any roles they want, what troubles they foresee and how they are going to handle them.
4	05/06	Joint synchronous ZOOM: Japan + Germany (with teachers)	Groups get to know their members on line, discuss when and how to discuss topics. When done students inform teachers through a Google sheet all participants can access.
5	5/10	Topic 1	Video chat 1: Discuss topic 1

6	5/17		Submit answers questions to topic 1
7	5/24	Topic 2	Video chat 2: Discuss topic 2
8	5/31		Submit answers questions to topic 2
	6/7	**Mid-term exams (Japanese students)**	
9	6/12	Topic 3	Video chat 3: Discuss topic 3
10	6/14		Submit answers questions to topic 3
11	6/21	Audio PowerPoint	Finish final joint PowerPoint + audio -submit
12	6/28	Project ENDS	Project ENDS

Appendix B

Table 3. How Questions Were Embedded into Cognitive Processes and Levels of Knowledge Dimensions.

Knowledge Dimension	Cognitive process	Question(s) asked by Topic
Topic 1: A neighbourhood		
1. Factual	1. Remember/ Understand	1. Describe key features of your partner's neighbourhood
2. Conceptual	2. Apply/ Analyse	2. How do these features compare to yours of your neighbourhood
		3. What aspects of YP's neighbourhood would easily be applicable to yours? What would not? What
3. Metacognitive	3. Evaluate/ Create	modifications (changes) would you foresee as necessary?
Topic 2: TV media		
1. Factual	1. Analyse/ Evaluate	1. How popular is YP's T.V. programme in their culture? /Around the world? Give reasons why you think this is the case?
2. Conceptual	2. Understand/ Apply	2. What similarities/differences do you see in this T.V. programme to one in your culture? Explain.
		3. You are to make YP's TV programme popular
3. Metacognitive	3. Evaluate/ Create	in your culture. Explain any changes you would / would not make. Give two examples.
Topic 3: Food		
1. Conceptual	1. Understand	1. How is the dish YP explained different/similar to that in your culture? Give examples
2. Procedural	2. Apply	2. Do you understand how to make YP's dish?

	/ Analyse	Have you tried?
3. Metacognitive		3. If you made the dish/ were to make the dish, what modifications did you make/ would you recommend? Why?
	3. Evaluate /Create	
		*YP = Your partner