

Longitudinal Research for the ISN1.0 participating students  
who worked on globally collaborative PBL

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## Chapter 1 Summary and purpose of this report

This report describes the research result on effects of globally collaborative PBL (Project-Based-Learning) contributing to glocal (global + local) human resource development, sponsored by MEXT (Ministry of Education, Culture, Sports, Science and Technology). The research consists of the following 2 parts:

- ① To conduct a longitudinal research for the ISN 1.0 students who have been working on the globally collaborative PBL contributing to glocal human resource development (A mid-long term effect verification).
- ② To conduct a research for the ISN2.0 participating schools which work on globally collaborative PBL associating with the OECD Education 2030 project<sup>1</sup>. (A short term effect verification).

This report corresponds to the research result for ①. The purpose of this research is to verify how ISN1.0 was effective for the participating students in and outside of Japan and to utilize their feedbacks to the ISN2.0 project.

This report specially focuses on analyzing the awakening and the development of the Student Agency<sup>2</sup>. As Student Agency and Co-Agency are described as key competencies on the Education 2030 Learning Framework, this research aims to verify how the Student Agency was nurtured through the globally collaborative PBL in the ISN1.0, and to provide basic ideas about activities in the ISN2.0 to possibly nurture Agency at schools.

For this reason, this report specifies main results based on the following 3 viewpoints:

The first viewpoint is the growth, i.e. competency development, of students through global collaborations.

The second viewpoint is the growth, i.e. competency development, of students by analyzing

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<sup>1</sup> OECD's The future of education and skill : Education 2030 : <http://www.oecd.org/education/2030/>

<sup>2</sup> The definition and Japanese translation for Agency vary. (One translation is "the ability to be responsible for participating in the society to create the better future".) Based on the OECD issued Position Paper in Japanese (provisional), this report interprets the meaning in the wider manner and finds the connection to the real images of students in order to build the actual image for the concept of Agency.

The future of education and skill : Education 2030 Position Paper (provisional translation)  
[http://www.oecd.org/education/2030/OECD-Education-2030-Position-Paper\\_Japanese.pdf](http://www.oecd.org/education/2030/OECD-Education-2030-Position-Paper_Japanese.pdf)

their suggestions and advice for the ISN2.0 participating students.

The third viewpoint is the demonstration of Agency which focused on students' activities after the ISN1.0.

## **Chapter 2 Method of the longitudinal p research**

The longitudinal research was conducted in the following 2 steps. In the first step, the overall trend of students was captured through a questionnaire on paper or on-line. In the next step, interviews are conducted for students who answered to the questionnaire in order to deepen the understanding about their feedbacks on the questionnaire. .

### **Section 1 Research by the questionnaire**

The survey respondents are all students in and outside of Japan who participated in the ISN1.0. The questionnaire was given by a paper-base or Web-base. The survey period was set from March to November 2018. The questionnaire respondents totaled 71 (58 domestic students and 13 foreign students). The items on the questionnaire are described below:

- 1 People who impressed you through ISN activities and any ongoing interaction with the person(s). (Free-style answer)
- 2 The Ego-Resiliency Scale (Five point scale) (Used 7 items of self-efficacy which were extracted from Hata/Onodera (2013) <sup>3</sup> and partially changed)
- 3 Your thoughts or activities carried out in order to achieve "Student Declaration" presented at the International Student Innovation Forum 2017 in August 2017 (Free-style answer)
- 4 "If you have a chance to give some advice to junior students who will join further ISN activities, what would you like to convey based on your own experience?" (Free-style answer)
- 5 Comments, opinions and requests regarding attitude, mentorship and interaction of adults such as teachers, business persons and university students through ISN activities (Free-style answer)

### **Section 2 Research by the interview**

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<sup>3</sup> Hata, Onodera (2013) "Ego-Resiliency Scale (ER 8 9) Japanese translated version and its reliability and relevance" personality research 22, 37-47

Students who agreed on the questionnaire to participate in the follow-up research were interviewed to explore and collect more concrete and detailed students' voices. The interviews were conducted either in face to face or through an on-line tool. We carefully planned the interview with students not to give much stress and work load to them. We often consulted schools to coordinate the interview with students.

For the domestic students in Japan, 3 university students during the time of the ISN1.0 conducted the interview. We formed this setup with university students because the role of university students is clearly important to draw out candid opinions from the students as the questionnaire paper indicated. For the students in other countries, a staff member at the ISN secretary office conducted interviews through on-line tools. A total of 36 people were interviewed (28 domestic students, 7 international students and one international teacher).

### **Section 3 Analytic view and method**

As the new OECD Learning Framework suggests, ISN aims for developing Student Agency; thus, the research focused on verifying data indicating the awakening of Student Agency.

The results were sorted in the following 3 points. The first point is the global collaboration and the growth in students, based on an analysis of the results from the questionnaire and the interview. The second point is the feedback from the students for the ISN2.0. This feedback reflects the students' growth through the ISN1.0 in a paradoxical way. The third point is how students applied their experience during ISN1.0 activities to their own actions. The awakening to Student Agency and its form, i.e. how it looks like, are identified from this third point, which can be transformed to concrete suggestions for the research in the ISN2.0.

## **Chapter 3 Result and consideration**

### **Section 1 Global collaboration and the growth in students**

Clause 1 The relationship between the Resilience points and international exchange/collaboration

The globally collaborative PBL requires students to be responsible for confronting various difficulties. Numerical data related to resilience was obtained based on their experiences to have risen above and overcome difficulties.

**【Items related to the growth of Resilience】**

Please tell us how you developed in collaboration with a diverse mix of people through ISN activities. Please choose a number that best represents your feelings from “1 = Strongly disagree” to “5 = Strongly agree”.

- 2-1 I felt that I could manage the work that people assumed impossible.
- 2-2 When I was engaged in difficult work, I could find (a) suitable way (s) forward.
- 2-3 I could make myself actively work on tasks that I have to, even though I did not like.
- 2-4 I attempted a number of solutions to a problem.
- 2-5 When I was engaged in difficult work with unexpected stress, I could cope one way or another.
- 2-6 When the work looked difficult, I felt that I could manage.
- 2-7 I felt that I could change my plans according to situations.

Figure 1 shows the graph for the average points of each item. Table 1 shows the standard deviation and frequency of each item.

Fig. 1 Average point of Resilience items

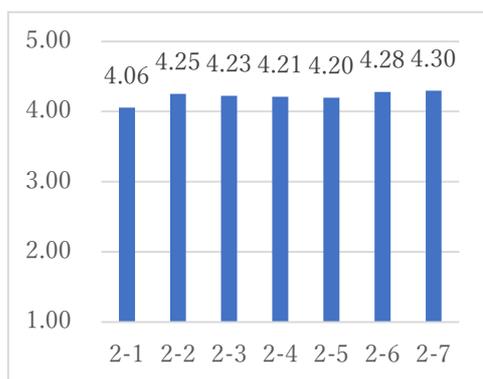


Table 1 . Standard deviation and frequency of each item

	2-1	2-2	2-3	2-4	2-5	2-6	2-7
SD	0.86	0.75	0.76	0.79	0.71	0.74	0.78
Frequency							
5	24	30	29	29	25	31	33
4	31	30	30	30	36	30	28
3	12	10	11	10	9	9	8
2	4	1	1	2	1	1	2
1	0	0	0	0	0	0	0

The average value exceeded 4.00 for all 7 items. The total average amounts to 4.21. This indicates that the feeling of growth related to Resilience among students is high. The item with the lowest average value and the largest standard deviation (SD) was 2-1 “I felt that I could manage the work that people assumed impossible.” It is possible that the

interpretation of “the work that people assumed impossible” might be different among students.

This result shows the actual feelings of students after the completion of project learning through ISN1.0. The interpretation of the result has to be made cautiously as there was no pre-project research to compare the changes and the evaluation was conducted by students themselves. However, it seems that the project learning led to the strong confidence and growth of students based on their experiences of facing complicated issues even when anticipated issues seem to be difficult to overcome.

What kind of incident led to the growth of students as mentioned above? It is clearly shown that the exchange of heterogeneity (the exchange with people came across during activities) contributed to the growth of students in OECD Tohoku School.<sup>4</sup> Based on this, the detail consideration on what kind of people impressed the students during the ISN1.0 was made. Table 1 shows the classification of students’ answers for Question 1 (free-style answer) into the “Same cluster”, “Other cluster”, “Local area”, “University student”, “Business”, “Teacher (including an instructor introduced by a teacher)” and “Overseas”. When a student listed multiple persons in the same attribute, only 1 was counted. For a different attribute, each person was counted in.

Table 2 Classification of people who impressed students

	Same cluster	Another cluster	Local	Uni student	Business	Teacher	Overseas
Total	15	21	8	9	4	12	28
Ratio	21.7%	30.4%	11.6%	13.0%	5.8%	17.4%	40.6%

Table 2 shows that over 30% of students chose “Other cluster” and over 40% of students chose “Overseas”. On the other hand, about 20% of students chose “Same cluster”. This shows that meeting with people in different areas or countries impressed students through the activities. According to the result of Chi-square test, the significant deviation was recognized ( $\chi^2(6) = 29.641, p < .01$ ). Based on the multiple comparison using Ryan’s Nominal Level, it became clear that “Other cluster” had more than “Business” and “Overseas” had more than “Local”, “University students” and “Business”. This means that the students were more impressed by meeting with people who are most culturally different. This result coincides with that of Tohoku School.

<sup>4</sup> Fukushima University (2015), “OECD Tohoku School Report (2011–2014)”

Regarding any ongoing interaction with the person(s) who impressed the students, 3 types of answers (in free-style) were given as shown in Table 2. About 30% of students are currently interacting with the person (s). Some students didn't mention about any interactions. The question was not asking students to freely describe how the ongoing interaction is, therefore if some students purposely described it, it means that those students are actively interacting with the person(s). It should be noted that it doesn't mean some students who didn't describe the ongoing interaction are not interacting with the person(s).

Table 3 Frequency of interaction

Item	Frequency	Ratio
1 The ongoing interaction is not particularly described	41	57.75%
2 Contact details are known but no other descriptions	7	9.86%
3 There is ongoing interaction	21	29.58%

The relation between the Resilience point and the ongoing interaction and the attribute of person(s) who impressed the student was considered. The ongoing interactions were categorized into 1~3 as the frequency of interaction as above. Table 3 shows the categorisation of Item 1 and the correlation factor of Resilience point. It is N=55 at \*.05 level, †:.10 level which proves its significance.

Table 4 Relationship between the Resilience point and different types of person(s)

	1	2	3	4	5	6	7	8	9
1 Same cluster	1.00								
2 Another cluster	-.04	1.00							
3 Local area	.03	-.04	1.00						
4 University students	.00	-.07	.13	1.00					
5 Business	-.13	-.16	-.09	<u>.27*</u>	1.00				
6 Teachers	-.06	-.14	.07	.16	.05	1.00			
7 Overseas	<u>-.22†</u>	-.10	-.02	<u>-.23†</u>	<u>-.21†</u>	-.15	1.00		
8 Ongoing interaction	.09	.07	.07	.08	-.06	-.06	<u>.23†</u>	1.00	
9 Resilience point	.00	.14	.14	-.03	.08	.14	<u>-.27*</u>	.05	1.00

Students who were impressed by university students also chose business person(s). The correlation with teachers was significant among those domestic students ( $r=.28, p<.05$ ).

Therefore, it is suggested that university students may act as a mediator for business person(s) or teachers. On the other hand, the negative trend can be seen in the exchange between overseas students and university students/business person(s). It is assumed that neither business person(s) nor university students were involved in the exchange of overseas students which allowed the students to have exchanges with overseas students by themselves.

Students who were impressed by overseas students tend not to choose “same cluster” and to be still interacting with the overseas students. Their Resilience point is low. The negative correlation between the “Overseas” category and the Resilience point shows that the self-assessment standard might be raised as the student’s view has widened through the active involvement with overseas students. More detailed analysis is made by classifying students’ answers on this point from the interview research following the questionnaire paper.

## Clause 2 Consciousness formation of issues by the exchanges with overseas students

The following answers from domestic students show that they haven’t given up the exchanges with overseas and the resilience nurtured by PBL supported them.

Student X : The Education Board was taking a survey regarding our competency. The survey taken just after coming back from overseas showed the increase in competency in many people. However, the survey taken later showed that the competency has dropped to the previous level. As I was feeling a sense of loss for not being able to speak English after coming back from overseas, I was surprised at the result being different from my experience.

Student A : I felt frustrated contrarily. When I previously went to Australia for the “Meeting Japanese working for international organizations” training organized by Prefecture A, I felt like failure as I couldn’t speak English. So, I didn’t really want to go to the forum. I tried my best to speak at the forum but I couldn’t communicate. I was shocked to get a reaction like “Forget it” which made me feel pressured to study harder.

Student B : The language skill was too high. I felt inferior to the other persons no matter how hard I tried. I avoided conversation and got scared of being involved.

The Student International Innovation Forum gave the latter student mentally stressed experience in which the student developed a feeling of fear on the difference in language ability of overseas students. However, the student talked about the “ability you wanted to acquire” through ISN activities as below.

Student B : The ability you wanted to acquire...English: English education in school just focuses on “Reading”, “Writing” and “Listening” (especially junior/high school) but the communication skill in English (Speaking) cannot be obtained. I want more opportunities to speak.

### Clause 3 Awakening to the Agency by the exchanges with overseas students

The answers previously listed are not common and there were more answers indicating the exchanges with overseas students led to the development of resilience. Some answers are extracted and analyzed as follows. First case shows the loss of resisting feeling toward English by the active exchange with overseas students.

Student C : I am not good at conveying my thoughts to others even in Japanese so it was even harder to communicate in English. However, I tried to speak as much as possible in the environment where I had to speak English even though I knew I wasn't good at it. With that effort, my resisting feeling toward English disappeared. I am still contacting the overseas students I got to know through the ISN. I am so glad that I still have a connection with them even after the completion of school.

Student D : I thought the communication with overseas students would be difficult at first. I managed to say hello and say the minimum required. While doing so, I realized that a language is a tool and my thought can be conveyed even in gestures. We all have the same sense of humor and I realizes that I was the one who was creating the resisting feeling toward foreigners. I thought any person is the same human being as others so we can understand each other though “communication”. We can all share our thoughts. I started to think about “making the better world as a global citizen with others” without holding any bias. I am still interacting with overseas students through SNS and contacting them at their birthdays.

Student E : As overseas students could speak English quite well, I felt the difference

in English ability. Even though my grammar was bad, I could make myself understood with gestures which gave me courage. I thought reactions are the same all over the world during lectures.

(Underlined by the author. The same hereinafter. )

Answers such as “I tried to speak as much as possible in the environment where I had to speak English even though I knew I wasn’t good at it. With that effort, my resisting feeling toward English disappeared” or “I realized that a language is a tool and my thought can be conveyed even in gestures. We all have the same sense of humor and I was the one who was creating the resisting feeling toward foreigners” or “Even though my grammar was bad, I could make myself understood with gestures which gave me courage” are highly suggestive in terms of the motivation for language study. It is often discussed that motivating students to learn a foreign language is a challenge for the language education. Reflecting on the students saying the problem being the resisting feeling created by the learners themselves, it is very important to ease the resisting feeling which can be achieved through experiencing the possibility to be connected to overseas people through other factors (not just by language).

Overcoming the situation where Japanese cannot be understood seems to make the student grow. Answers like “I am still interacting with overseas students” or “I started to think about “making the better world as a global citizen with others” without holding any bias” suggest that those experiences to overcome cultural barriers awaken the Agency of students who will be involved in issues of the globalizing society in the future.

Student F : I noticed that Japanese tend to give up because they cannot speak English while overseas people try hard to speak Japanese which is unfamiliar to them. I learned that you can convey your messages if you are willing to communicate with them even though you speak a different language.

Whether a student can have “the willingness to communicate” becomes important. Therefore, it might be important to let students have messages that they want to convey to overseas students or to nurture resilience to overcome barriers through PBL for the success of global collaboration.

Clause 4 Effect on pathways by global collaborations

There were some cases that the global collaboration nurtured the confidence of students and influenced their pathways.

Student G : My dream to be a nutrition educator hasn't changed before and after ISN. However, I came to realize that anything can happen if you try through the exchanges with students from other schools/countries in the forum. Since then I decided to apply for the admission to an university based on recommendation. If I hadn't participated in ISN, I wouldn't have written the application based on self-recommendation. Moreover, I wouldn't have had a courage to taken on the challenge.

As seen in the answers above, the global collaboration triggered the exertion of Agency in relation to the pathway of the student.

The interview suggests that overcoming the "barrier" within one's own self and the various opportunities being opened by global collaboration lead to the appearance of Agency in students. It seems that the widening of students' views through the global collaboration works paradoxically to the Resilience point as a negative correlation. Communicating with overseas students with desire by utilizing some tools even with the lack of language ability leads to the Co-Agency to influence the society with the international cooperation to solve various issues and it also leads to the Agency to set own pathways influencing the society. The interview by the students suggests that a global collaboration is beneficial to the awakening of student's Agency.

#### Clause 5 Comparison with overseas students

Similar answers were given from overseas students in terms of overcoming the language barrier during the cross-cultural exchanges.

Student H (Indonesia) : I had a great time in communicating with overseas friends. I couldn't sometimes understand the ideas they explained due to my English ability. Specially, I found it hard to communicate with native speakers.

Student I (Germany) : Even though there was a language barrier, I didn't feel any difficulties. We can communicate with gestures.

As for the statement “I didn’t feel any difficulties” from the student above, there is a subtle difference in how Japanese students answered. There was another interesting answer as below:

Student J (USA) : About the WW2. It was good for me to learn about the war and peace from the Japanese point of view. This was not conducted in an American classroom. I can now accept and respect the differences by overcoming different cultural values. In addition, I can now discuss with others not just insisting on my views.

The students from the Hiroshima cluster seem to have similarly mentioned the exchanges of different viewpoints. However, Japanese students are not clearly saying that they could overcome the differences in cultural values to make discussions and respect others. This student also left the comment regarding the “acquired skill” as below:

Student J (USA) : I acquired the public speaking skills. At first, I was concerned about how people with different backgrounds judge me. I also acquired listening skills. I also acquired the listening skill. I can now lend my ear to opinions of people with various social and political backgrounds.

While Japanese students seem to have strong awareness toward English, overseas students candidly mentioned public speaking skills and the uneasiness in how others judge them. Overseas students seem to have felt uneasy when they talked to people with different cultures and values. That uneasiness seems to partially represent what Japanese students are feeling as “a barrier”. As to the skill for people with different cultures and values to equally talk to each other, a further verification is required on how English ability and those skills are linked or separated within the recognition of Japanese students. Other students were stating the similar thoughts. It is considered that students can realize how great their own countries are as well as their issues by widening their views through global collaborations.

Student K (Turkey) : I could brush up my social skill by meeting many people. I learned a lot from different cultures, countries and histories. That also made me better understand my own country at the same time.

## Section 2 Opinions of students toward the ISN2.0

This section analyses on advices to students who will participate in the ISN2.0 and feedbacks to business people and teachers described on the questionnaire, in order to obtain suggestions for the ISN2.0 activities.

#### Clause 1 Advices to students who will participate in the ISN2.0

The advices were divided into 2 types. The first type represents instructive advices. They are “advices and expectations for engaging in the ISN activities”. Some examples are written below:

- Don't be afraid of making mistakes in communicating in English.
  - Any activities cannot be successful without the cooperation among the team.
- Support each other among members to be the best team.

The second type represents suggestive advices. These are the statements “to recommend the participation in activities by indicating what you can do through the ISN activities”. An example is written below:

- You will be able to see the wider world than what you are seeing now.

The instructive advices were sorted by the predominant phrases and categorized by descending order shown in the Table below.

Table 5 Categorized analysis of instructive advices

Category	# of opinions
The ability to deal with people and importance of team activities	16
Go forward through talking and conveying	14
Remember this when you feel negative	10
English is not the aim but a method	8
Don't be afraid of making mistakes. Be courageous. Don't limit yourself. Be active.	9
The importance of having your own opinions and thoughts	7
Tips for planning and preparation	4
The importance of taking action first	3
Balance between study and extracurricular activities	2

What is distinctive about the instructive advices is that most students mentioned the importance of communication.

About 60% (34 students) mentioned the importance of communication among all respondents (58 students). (Some key words: talking, conveying, English as a method and dealing with people)

It is interesting to see about 30% (6) of junior high students are giving advices based on their own difficulties, hardships and what they couldn't do (only 10% or 5 high school students are in this category).

On the other hand, some statements for suggestive advices which are "to recommend the participation in activities by indicating what you can do through the ISN activities" are written below:

"You can grow." (4 respondents)

Example : " When I completed activities with everyone not just by myself, I felt satisfaction I've never felt before and that feeling was indescribable. I know I have grown as I am now able to think that even a failure can lead to a success."

Other statements also mention about their own growth.

"You can expand your view and you get to know the world you have never seen before." (2 respondents)

## **Section 2 Feedback to teachers, business person (s) and university students**

Next, the feedback to teachers, business person (s) and university students in the questionnaire paper (free-style answers) are examined. The largest number of students are favorably evaluating and giving importance to the fact that adults and university students "provided support and foundation to allow the students to work independently" (19 respondents. Nearly the half of total respondents of 42 who specifically answered the question). Many left the words of appreciation to them (13 respondents). "The minimum help" from adults and university students are highly regarded. That is seen in words such as "backseat player", "behind the scene" and their work "where we didn't see".

Next largest number of opinions is directed to how equally adults and university students treated the students (7 respondents). They said when the division between adults and students existed or "the discussions moved on without the involvement of students", the

motivation of students and progress of activities became negative. They requested not to let that happen again.

As to the questions for business person (s), students requested more chances to receive lectures by business persons at school (2 respondents). The junior high school student who wants to receive more lectures by business persons said “I could deeply think of the system of society and modern society which I thought was unrelated to me” even as a junior high student.

Students want to see a system where they can get in touch with university students more often. The comments regarding university students were favorable due to the support from university students described at the beginning of this report (8 respondents). This result corresponds to the role played by university students who connected the students to teachers or business persons as mentioned earlier.

A student commented the role of university students as below:

Student L : (As the ability acquired through ISN activities) I can now convey my feelings. I was always worried about how people see me and tried to adjust myself to others. It was triggered by meeting a person of strong personality. Additionally, <u>an university student made me realize what kind of person I was by drawing out my true feeling.</u>
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The description within ( ) was supplemented by the author.

One example of support from university students was to allow students to speak up to people in different positions such as teachers through the communication activities with university students whose position are much closer to students.

Students highly regard the fact that teachers, business persons or university students give recognition to a student as an independent person. There is an additional factor: the motivation of students and progress of activities can be influenced by the student’s feeling on how equally adults communicate with the students (this will eventually influence the learning) .

The ISN2.0 focuses on university students EP and the system is in preparation. For example, the high school students who participated in the ISN1.0 joined as university students EP. In

this case, they are utilizing the abilities they acquired through the ISN experiences.

Student D : As I wanted to continue the ISN activities as an university student, I joined the start-up of university student EP for the ISN2.0. I could involve not only the students who had previously joined the ISN but also other members I met in the university who never had the experiences.

This student comment displays the awakening of Agency to improve the society by one's own action by utilizing the framework rather than exercising PBL as the framework prepared by some adults. It is obvious that the ability acquired through the ISN is utilized as seen in this student's comment below:

Student D : I am now able to act based on communication with people in different positions such as teachers, adults in the local area and junior students while recognizing the interests held by each other. While analyzing the position and idea of the opponent, I can act based on my position.

Among 15 requests, multiple students had other comments than those mentioned above. Those comments include the lack of communication among adults and all members and said "there should have been more information sharing" (4 respondents). 2 responded that they wanted more time for event preparation and activities.

### **Section 3 Awakening of Agency**

This section focuses and discusses the items related to the Student Agency from the interview research. Main questions in the interview are written below:

#### **【A question on innovation】**

The Student Declaration presented at the end of ISN activities clearly states the will to create the future on your own. Did you take any actions to make the declaration happen, i.e. creating the future you want by cooperating with others? Or will you have any plans?

#### **【A question on pathway】**

Please let me know if there is any change in your opinions about your future and career path before and after joining the ISN.

Students who took some own actions were chosen from the follow-up interview related to activities after the ISN1.0. There were 2 students who were influencing others around them for their activities. There were 4 students who changed their own career path (pathway) after joining the ISN.

#### Clause 1 Influencing others around them by their own initiatives based on the ISN experiences

One of the two students who influenced others by their own initiatives is Student M. The student is in the first year of high school and joined the ISN activities when the student was in junior high school. After joining the ISN activities, the student who was influenced by the ISN “planned the activity to think what each student can do to improve the school and implemented the plan. The activity was conducted in a small scale at first but the whole school became involved at the end”.

As to the ability acquired by the ISN, the student says “I joined the ISN as a leader where I realized that it is important to strike a balance between the team leading and the expression of my own opinions. Previously, I couldn’t express my opinions to lead the team. On the other hand, I couldn’t focus on leading the team while expressing my opinions. However, I could acquire the ability to strike a balance between the two in the ISN”. As seen in this case, the fact that this student influenced the school (society close to the student) by own initiative using the ability acquired through the ISN activities and expanded the plan to the whole school indicates the successful exertion of Student Agency.

The other student is Student N. The student is in the third year of high school and joined ISN during the high school. “I joined the ISN symposium held in Fukushima in February 2018. I thought we shouldn’t finish our PBL just by being forced to research. I thought we should come up with the solutions to the issue and present them to the government”. The student involved other students to do the presentation in the extracurricular activity. The Student B talks about the ability acquired in the ISN as follow, “I realized from the presentation that I shouldn’t just stop at the research level and I need to find out what I can do to solve the issue”.

With the awakening of intention to solve problems during the ISN, the student was stimulated by the exchange with different areas and moved on to the execution of problem-solving by involving other people.

Clause 2 Involving school and community by the team

The clause above focused on the individual actions. There are multiple cases in which the students formed the teams to influence the society in various manners. These cases indicate that the Co-Agency nurtured in the ISN is exercised. In addition to the activity of university student EP mentioned earlier, some students in Fukui were influenced by the forum they had joined and formed their own organization where they interact with each other and exchange their opinions.

Students in Fukui (Multiple answers) : Having joined the forum, I realized that students need the place to interact with each other, so we formed FLIA. We created the forum where more students can join. At the first forum held in Fukui, we discussed why and how we learn under the theme of “What is MANABI (leaning)?” We presented the result in the poster session. We didn’t have enough time for preparation and all we could do was to listen.

Students from Futaba Future School connected to their own school’s curriculum and involved themselves to solve problems in the area.

Student O : As the story teller for the exploration activity, I planned a bus tour wishing that the tragedy like the earthquake disaster will never occur. We visited primary schools within the area of Hirono – Naraha that our members graduated from. A part of this bus tour was created with the people in the area while another part was created just by us. It was jointly created. I also had a chance to join as a story teller for a tour organized by a company. I would like to continue this exploration activity in some manner even in the university.

They also planned and run the “Fukushima High School Students Festival” in Fukushima. While succeeding the stream from the ISN activities, their organization has developed by changing the leaders and other aspects.

Student L : We asked people from Taiwan to visit us in November 2017 to deepen our exchanges. We visited Taiwan in January 2018 and proposed to think “Collaboration” together. We formed “FCN (F-city Creators Network).

Student B : At the High School Student Festival, I became the leader at the first time. It was difficult for me to oversee the entire festival. As I never had the experience, the planning process was extremely hard but the joy I felt exceeded the hardship.

The Kesenuma team among the same Tohoku cluster conducted a sightseeing tour.

Student P : We conducted the sightseeing tour for a 2-day trip targeted young people (university students or young full-time workers) at the beginning of April 2018. The reason why we targeted young people is that they have the ability to convey messages by uploading photos or something noticeable on SNS.

The Germany team established a corporation body called GGB to develop an application. This application displays the sustainability assessment on the map. This activity is very interesting as other teams in and outside Japan weren't actively involved in continuous activities utilizing IT.

Student Q & Student I (Germany): They are influenced by ISN and started a project to make local shops sustainable. Student Q, Student R, Student S and Student I started the organization called GGB. These 4 students came to Japan. The organization is legally established and raising funds too.

(Email response after the interview regarding GGB)

GGB Stands for Green Guide Bodensee. In Germany the lake of Constance is called "Bodensee" so the Name is a mixture between German and English. It basically is an App, like a Map, where You can find Cafés, Restaurants, Shops...etc. And They all have a ranking After their sustainability. At the Moment we just Cover the Area of the lake of Constance but we want to expand the Map in the Future.

Thank You, even though the App is Not finished yet and There Are many points we want to improve About certain things, I think I can say we Are all Very proud of creating this App and having the possibility to work on it in the Future too :)

This case indicates the awakening to Agency for being actively involved in the society.

Clause 3 Pathway changes influenced by the ISN activities

There are several students who actually changed their own pathways on their own initiatives.

Student G : My dream to be a nutrition educator hasn't changed before and after ISN. However, I came to realize that anything can happen if you try through the exchanges with students from other schools/countries in the forum. Since then I decided to apply for the admission to an university based on recommendation. If I hadn't participated in ISN, I wouldn't have written the application based on self-recommendation. Moreover, I wouldn't have had a courage to taken on the challenge.

Student T : When I was in the second year of high school, I never thought about my pathway. Since I interacted with people from other countries at the forum for the first time, I am now wishing to study International Relations.

Student U : I was looking for SGH designated high school. I came to know the school (the high school I am attending) at the international forum and I really wanted to go to the school. I had not been interested in the school but the international forum changed my view on the school. Students from the school seemed to be enjoying the poster session and I had a chance to speak to one of them. If I hadn't participated in ISN, I would have never known the school. So, I can say ISN had an impact on me.

All students are saying that the global collaborations such as the Student Innovation Forum was the trigger. They mentioned the communications and exchanges with students from different schools and overseas. It is safe to say that the expansion of student's view or the experience to overcome the cross-cultural barrier enhanced the Agency of students.

There were students who changed their own pathways based on the overall ISN activities.

Student V : I have changed a lot. Before joining ISN, I thought I would go to the local public university to become a primary school teacher. Right after I started the ISN activities, I began to look into another university where I can be involved in international activities. I am still interested in education so I decided to major in International Education at the early stage. I previously wanted to be a primary school teacher but I am not sure about it now even though I will be studying education.

Student W : I saw a change. I had a vague idea for what I wanted to do in the future. I set a specific goal for myself after attending IWG during the latter period of third year in high school. I want to work for the UN in the future.

Student X : I chose the pathway to join another program introduced by the project or directly utilizing the ISN. I wrote a thesis regarding the ISN and went on to ○○ University by the admission based on recommendation. I wanted to be a teacher when I joined ISN. I still want to be involved in education but I want to be involved in education in the wider area but not in the actual classroom. The Education Board is the secretariat for the Hiroshima Cluster. I guess I was motivated by a variety of teachers there. I think the ability to look at things in a natural manner has been nurtured during the ISN. I still want to be a teacher, specially a high school teacher. Again, ISN has influenced my decision. I think a high school teacher suits me because high school students are appropriate for exploration activities as they have basic knowledge. It can be done in a junior high but I would like to work in a high school. As I have experienced and am still researching ISN, I think it is beneficial for a school to have someone like me who wants to keep experiencing. Now, I would like to think about how I can contribute to the school as a teacher.

Student Y : It changed me 360 degree. Through HIS (Hiroshima Innovation School), I met people from IT/venture businesses and gained inspiration from them. When I thought about the university cost and so on, I came to realize that I was seeking stability. Now, I would like to be a public servant. I was thinking about the occupation (public servant) even before joining HIS. So, I think there was 360 degree change in me. I also realized that there are so many other occupations. I want to work in the welfare field as a public servant (e.g. a support for allowing refugees in Japan to receive services) or in the sightseeing field. I want to be a cool public servant. My role models are the teachers from the Education Board such as Mr. ○○ and Mr. ○○.

By contrast, the changes in recognition such as the expansion of views were seen in the statements of overseas students but any clear change in pathways was not indicated.

#### **Chapter 4 Summary of this report**

Based on the result above, this chapter explains a hypothesis regarding the Student Agency.

The follow-up questionnaire and interviews showed the awakening and forms of the Student Agency nurtured by the ISN1.0 activities.

Firstly, it shows that the intention to spread the individual challenge to the entire school was generated. Secondly, students didn't only complete the learning at a research stage but also explored to solve the issues. Influencing society and involving others to their own activities by utilizing the abilities acquired through the ISN1.0 indicate that the development of the Student Agency leads to the Co-Agency.

These are considered as the awakening to "Creating New Value" indicated in the OECD Learning Framework. These initiatives by students are supported by the change of awareness which made them think that they should take their own actions to create the society; this change of awareness was made by the experiences that the students overcame the language barriers and communicated with students from other cultures in the student forum as well as the experiences of working in the different fields.

If those factors such as overcoming barriers on one's own, enhancing self-efficacy by certain achievement, knowing the advance model resulted from the achievement and meeting/interacting with others in action can nurture the Agency of students, it coincides with the importance of the heterogenicity exchange indicated in the OECD Tohoku School project. Some students said the experiences allowed them to discuss with others from their perspectives. That awakening leads to "Reconciling Tensions & Dilemmas".

Third point is related to the students' identities. Some of the students' answers showed that there were enormous changes in their pathways or their own perceptions through the ISN activities. It can be interpreted that reconsidering how the students should be through reviewing the relationship with the society and becoming aware of the social issues represents the awakening of "Taking Responsibility". The result also shows that the university students played a great role in supporting the students as familiar existence.

This report is concluded by giving some examples for situations where the Student Agency can be awakened.

- The scene where students meet students from different schools, areas and cultures outside of school

- The scene where students meet adults in the local area, the Education Board and business people outside of school
- The scene where students overcome “barriers” within themselves and expand their views through communicating with different people on their own contents and collaborating with them
- The scene where each student within the team tries to come to an agreement on difficult issues related to the real world through some arguments and to collaborate while realizing their own roles
- The scene where students do not just obey the adults or react against what adults say, control their own motivations and emotions and try to realize what they want to do with the support of various people (in the scenes described above).

In order to further explore how to develop Student Agency at schools, it is expected to capture (record) scenes in which Student Agency are demonstrated in real time, and to analyze to understand the learning effects through PBL as well as how teachers can help students demonstrate Student Agency.