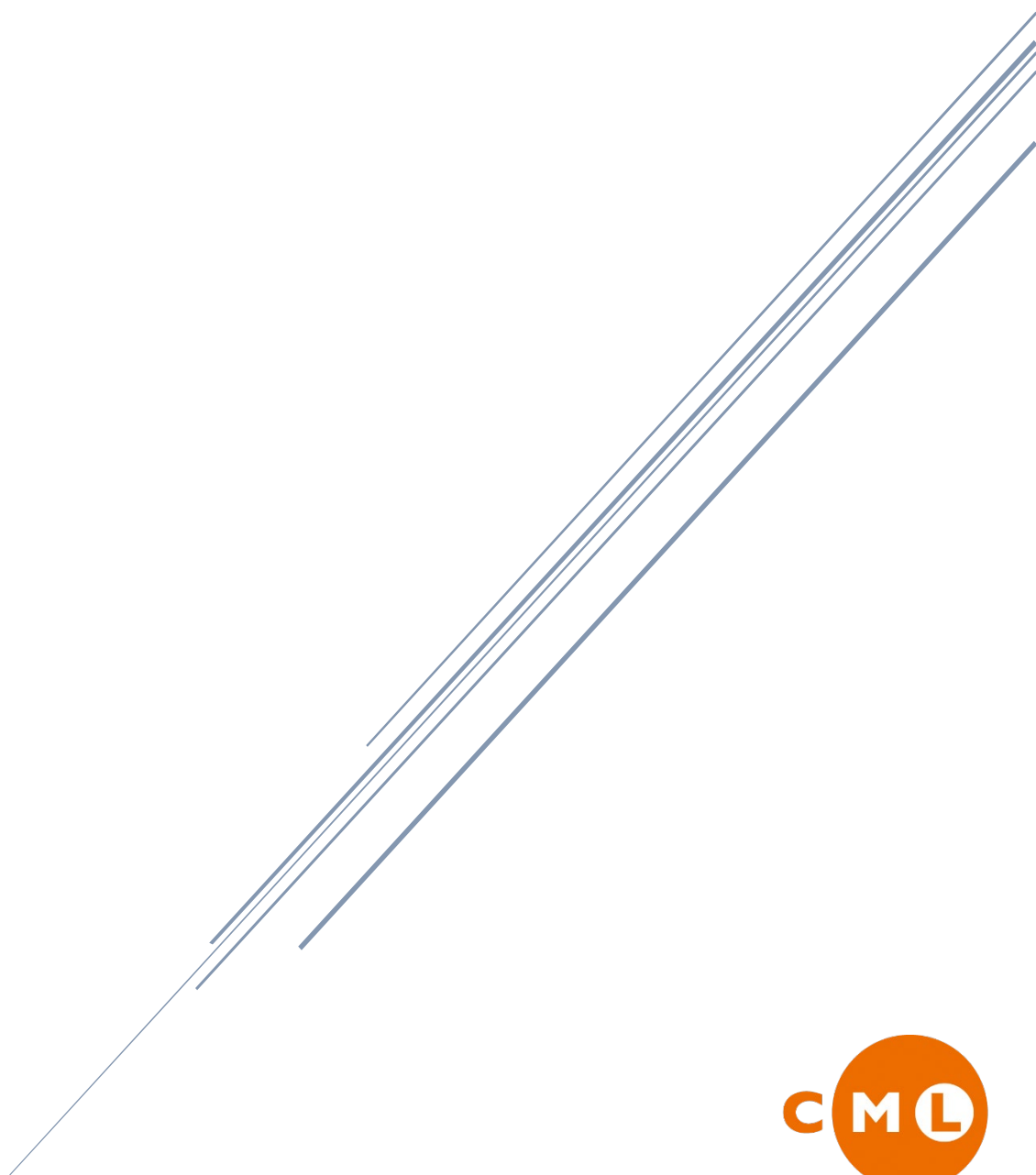


2022年度公立はこだて未来大学 メタ学習センター活動報告

Future University Hakodate Center for Meta-Learning
Report 2022 - 2023



メタ学習センター
Center for Meta-Learning

Think reflectively. Act collaboratively. Design the future.

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1. メタ学習センターについて
Basic Information of the Center for Meta-Learning

1-1. 設置目的/Aims of CML

※平成 20 年公立大学法人公立はこだて未来大学規程第 30 号「メタ学習センター規程」より

* Regulations of the Center for Meta-Learning at Future University Hakodate/Act No.30 of 2008

「目的(第 2 条)」/Aims of CML is to advance (Article 2)

センターは、情報技術分野の専門教育の基礎として、大学における学習方法の教育を主たる目的とし、特に総合的なコミュニケーションの能力および幅広い教養と多角的な視点から物事を判断する能力の養成を中心として、将来にわたり持続的に発展していく社会に資する人材を輩出するための活動を実施する。

Future University's strategic education and learning within the professional and academic disciplines of Information Technology. Through educational programs, CML will foster students' communication ability and thinking through a wide range of Liberal Arts subjects offering multilateral points of view. Our goal is to develop human resources who will continually contribute to developing society in the future.

「業務(第 3 条)」/Initial Roles of CML (Article 3)

(1) リベラル・アーツ教育のカリキュラム開発および実施の企画

Supervising curriculum of Liberal Arts and Communication and feedback to Faculty who teach the class

(2) 新入生の導入教育の企画

Planning introductory education

(3) FD(教育・研究・運営に関する人材育成および組織改革)の企画

Planning faculty development

(4) 教育研究、学習研究に関わること

Matters relating to research of teaching and learning

(5) 大学の教育活動を中心とした建学理念の教員や職員との共有化に関わること

Matters relating to sharing FUN educational philosophy with faculty and staff

(6) その他、未来大学における教育、学習活動に関わること

Miscellaneous matters relating to activities of teaching and learning at FUN

1-2. 沿革 /History

2007 年 CML 準備委員会発足/Preparatory committee for organizing CML started

2008 年 CML 設置(センター長 美馬のゆり教授)/CML started (Chair of CML Prof. Noyuri Mima)

2011 年 CML 専任教員の雇用開始/Employment of full-time faculty for CML started

2012 年度～2013 年度 センター長 片桐恭弘教授/Chair of CML Prof. Yasuhiro Katagiri

2014 年度～2015 年度 センター長 マイケル・ヴァランス教授/Chair of CML Prof. Michael Vallance

2016 年度～2017 年度 センター長 平田圭二教授/Chair of CML Prof. Keiji Hirata

2018 年度～2021 年度 センター長 富永敦子教授/Chair of CML Prof. Atsuko Tominaga

2022 年度～センター長 宮本エジソン正教授/Chair of CML Prof. Edson T. Miyamoto

1-3. 2022 年度委員会メンバー/2022 Committee Members

所属(コース) Department (Course)	氏名 Name
センター長 Chair of CML 2022-23	宮本 エジソン 正教授 Edson T. Miyamoto (Professor)
メタ学習センター Center for Meta-Learning	富永 敦子教授 Atsuko Tominaga (Professor)
	スミス アダム准教授 Adam Smith (Associate professor)
	辻 義人准教授 Yoshihito Tsuji (Associate professor)
	工藤 充准教授 Mitsuru Kudo (Associate professor)
コミュニケーショングループ Communication group	ジョンソン アンドリュー准教授 Andrew Johnson (Associate professor)
	バゲンダ ドミニク准教授 Dominic Bagenda (Associate professor)
	ルースベン・スチュアート ピーター准教授 Peter Ruthven-Stuart (Associate professor)
情報システムコース Information Systems	寺沢 憲吾准教授 Kengo Terasawa (Associate professor)
	石田 繁巳准教授 Shigemi Ishida (Associate professor)
情報デザインコース Information Design	竹川 佳成教授 Yoshinari Takegawa (Professor)
複雑系コース Complex Systems	田中 吉太郎准教授 Yoshitaro Tanaka (Associate professor)
	加藤 譲准教授 Yuzuru Kato (Associate professor)
CML 委員会庶務 CML Committee Admin	事務局教務課 Department of Education Affairs
CML コーディネーター CML Coordinator	木下 葉月 Hazuki Kinoshita

2. 2022 年度 CML 活動報告
CML Activity Report on AY2022

2-1. Foundation for Meta-Learning

2-1-1. Meta-Learning Lab

1. Program description

The Meta Learning Lab (MLL, hereon) is a learning support system outside of core courses that aims to improve the basic academic skills of the university’s students, and their knowledge and behavior regarding study habits and learning strategies. In AY2022, the MLL had 13 peer tutors (2 of which were newly hired), including both undergraduate and graduate students, who supported independent learning, mainly in the core courses for first and second year students.

Since 2015 MLL has been accredited as an “International Tutor Training Program, Level 1” by CRLA (College Reading & Learning Association) certifying the quality of tutoring and encouraging tutors’ self-development. MLL certifies tutors who meet the requirements for Level 1 of the CRLA/ITTPC. CML has certified 17 tutors at Level 1 according to the CRLA/ITTPC criteria, including two tutors in AY2022.

2. Overview of AY2022 activity and Outcomes

(1) Implementation period and number of tutoring sessions

In AY2022, there were 190 tutoring sessions. By discipline, programming was the most frequent at 62% (118 sessions), followed by math at 25% (47 sessions).

Table 1 Number of tutoring sessions per academic term and number of peer tutors

	Implementation period	No. of possible sessions per week	Total no. of sessions	Number of peer tutors
First semester	18 April 2022-27 July 2022	30 sessions/week	131	13 (M2: 3, M1: 1, B4: 6, B3: 2, B2: 1)
Second semester	3 October 2022-24 January 2023	21 sessions/week	59	12 (M2: 2, M1: 1, B4: 6, B3: 2, B2: 1)

(2) User satisfaction levels

Survey responses were collected for 189 sessions and results are summarized in Table 2. The ratio of “Strongly agree” and “Agree” was more than 93% for all questions, pointing to a high level of user satisfaction.

Table 2 Results for 189 survey responses

	Strongly agree	Agree	Disagree	Strongly disagree
1. The tutor listened to what I said and understood my problems.	172 (91%)	14 (7%)	3 (2%)	0 (0%)
2. The tutor was approachable and easy to talk to.	172 (91%)	14 (7%)	3 (2%)	0 (0%)
3. The tutor’s explanations were easy to understand and useful to me.	149 (79%)	37 (20%)	3 (2%)	0 (0%)
4. The issue I sought to address through this consultation was resolved through tutoring.	116 (61%)	59 (31%)	12 (6%)	2 (1%)
5. I received tips and advice related to independent study.	145 (77%)	38 (20%)	6 (3%)	0 (0%)
6. Through tutoring, I found out about resources and teaching materials that I will be able to use on my own.	129 (68%)	54 (29%)	5 (3%)	1 (1%)
7. Overall, I was able to obtain the learning support that I required.	151 (80%)	34 (18%)	4 (2%)	0 (0%)

(3) Implementation of in-person tutoring

In AY2022, the goal was to resume in-person tutoring to ensure efficient and effective operations.

One of the concerns with the existing system was the low utilization rate (number of sessions conducted divided by the number of sessions available). Therefore, it was decided to close the morning sessions, which had relatively few reservations, and open only the afternoon sessions (3rd to 5th periods). Tutors were stationed during open hours for walk-ins. As a result, the average utilization rate for the first semester of AY2022 was 45.7% (AY2021: 27.8%), with 9 out of 15 slots having a rate of 50% or more (AY2021: 5 out of 25), 5 slots with a rate of 20% to 50% (AY2021: 10 slots), and 1 slot with a rate of less than 20% (AY2021: 10 slots). Moreover, 131 sessions were conducted in the first semester of AY2022 (compared 107 sessions in AY2021). By concentrating human resources on the afternoon sessions, not only did the average utilization rate increase, but the number of sessions conducted also increased over the previous year.

Similarly in the second semester, only afternoon sessions were offered with tutors stationed for walk-ins. The average utilization rate was 23.7% (AY2021: 2.8%), with 1 out of 15 slots having a rate of 50% or more (AY2021: zero out of 25 slots), 5 slots with a rate of 20% to 50% (AY2021: zero), and 9 slots with a rate of less than 20% (AY2021: 25 slots). Fifty-nine sessions were conducted, thus increasing both the average utilization rate and the number of sessions conducted from the previous year (10 sessions were conducted in the second semester of AY2021).

(4) Implementation of tutor-led training sessions

Tutor-led training sessions, which were started in AY2020, were also implemented in AY2022. The purpose of these sessions is for tutors to gain a deeper understanding of the training topics, and acquire teaching skills and methods by teaching in a variety of situations. For this academic year's tutor-led sessions, the faculty did not suggest any of the topics, and let new and old tutor leaders come up with drafts of the training programs. Three tutor-led sessions were held, one in the first semester and two in the second semester. The sessions followed the CRLA standards, so that based on the CRLA training objectives, the tutors acquired the skills to design a two-part course on "understanding the theoretical concepts and applications of tutoring." Improvements were observed regarding the quality of the activities used to translate the learned concepts into tutoring skills. As a result, the quality of training deliverables and discussions improved, as well as the acquisition of meta-perspectives and verbalization skills in tutoring. The sessions were particularly effective for the newly hired tutors.

Staff: Atsuko Tominaga, Edson T. Miyamoto, Hazuki Kinoshita

2-2. Preparatory Education

Preparatory Education for Students Selected through the Comprehensive and Recommendation Exams

2-2-1. Preparatory Education in English

1. Program description

The Preparatory Education program is provided to students who have successfully taken the Comprehensive Entrance Exam or the School Recommendation Entrance Exam. The primary aim of the English section is to help students practice their English language skills in the three months preceding the start of the academic year.

This year's English section used a timed reading program (TRP, hereon; see Chang, 2010; Tran & Nation, 2014; and references therein for discussion and previous evaluations of such programs). TRPs use short texts to improve reading fluency by emphasizing reading speed rather than perfect comprehension. The goal is to practice physiological (*e.g.*, eye movements) and psycholinguistic (*e.g.*, lexical access) processes that can improve the overall reading experience in the target language (Nation, 2005, for discussion).

A secondary goal of this year's program was to encourage students toward a more self-regulated style of learning. Students chose how often they wished to spend time in each activity setting priorities according to their personal needs. To counterbalance the free format of the mathematics section, in which students could access activities in any order, the TRP was structured sequentially with feedback at the end of each activity.

2. Overview and AY2022 activity

Of the 95 students accepted to the university through early entrance exams, 92 requested and were registered in the Preparatory Education program on December 20, 2022. Materials were made available in a single Moodle course on the HOPE website and were accessible until April 3, 2023. The single-course format, with a section for English and a section for mathematics, was used to facilitate students' access to the materials.

The English section consisted of a practice text and quiz followed by the six blocks of the TRP. Each block had 20 texts (117 from Millett, 2017; 3 from Spargo, 1998). Texts in a block had about the same number of words (300 to 550) from controlled vocabulary lists, as it is commonly recommended that the texts be easy to promote rapid reading. Texts were shown in a fixed order with the blocks in increasing level of difficulty. Each text was followed by a quiz (from the same sources). Feedback for each quiz included the student's score and a suggestion on how to read the next text as follows (partially based on Nation, 2005): to read faster if the score was 80% or higher, to keep the current speed if the score was around 60 to 80%, and to read more slowly if the score was below 60%. Weekly individual graphs were provided to emphasize the gamified nature of the feedback (see Figure 1 for an example). Frequent short sessions rather than sporadic long ones were recommended.

The highly structured sequential access to the texts in the TRP contrasted with the free format of the math section, in which students could access activities in any order they wished. In other words, the TRP was organized to promote regular access to the course, thus providing a scaffold to potentially nudge students to access the mathematics activities more often than in previous years.

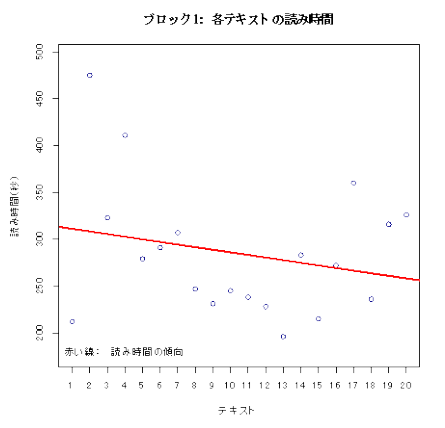


Figure 1. Feedback provided to a participant showing their RTs for the 20 texts in Block 1 (the red line is the trendline).

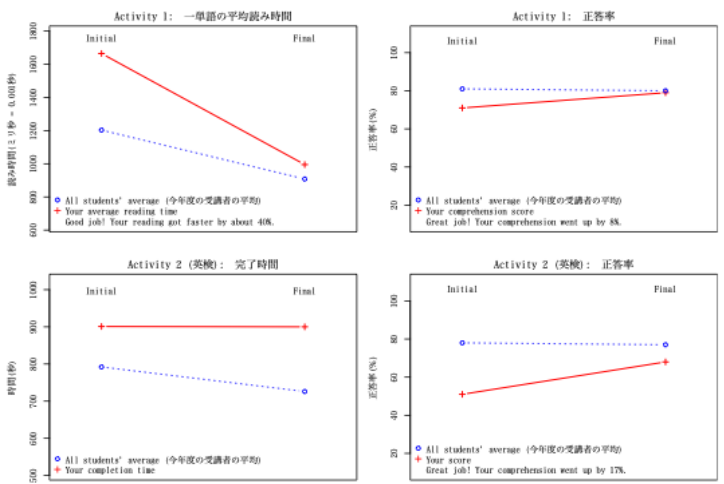


Figure 2. Feedback for the pre- and post-tests. (Top graphs: Task 1; bottom: Task 2. Left: RT; right: comprehension. Blue dashed lines: overall trends for all submissions; red solid lines: trends for one participant.)

3. Outcomes

Six students at the university were paid to participate in a pilot of the TRP that lasted for 19 days from the beginning of December. Based on their comments, adjustments and corrections were made.

Measuring the effectiveness of the TRP on reading fluency

Two tasks were used as pre- and post-tests to measure the effects of the TRP (see Figure 2 for an example of individual feedback provided to students at the end of the program). In Task 1, a non-cumulative moving-window self-paced reading study conducted on PCIBex (Zehr & Schwarz, 2018) presented 48 sentences one word at a time as the student pressed the spacebar of the computer keyboard. Each sentence was followed by a true/false comprehension question. In Task 2, participants had 15 minutes to answer 41 questions from the four lowest levels of a standardized English test (<https://www.eiken.or.jp>). Each participant saw a different set of materials in each test session, with the order of the sets counter-balanced across participants.

Results for the incoming students were as follows. At least 12 students could not submit Task 1 because they did not have access to an internet-connected computer; future iterations of the program should take this into consideration. According to the results for the 29 students who submitted both sessions of Task 1, reading times per word in the post-test were 300 milliseconds faster than in the pre-test (mixed models: $p=.024$; functions *lmer* and *step* in the package *lmerTest*, Kuznetsova et al., 2017; in R, R Core Team, 2022) without affecting comprehension scores (pre 81.32%, post 80.1%, $p=.253$; mixed-effects logistic models, function *glmer* in the package *lme4*, Bates et al. 2015). Restricted to the matrix verb of the sentences, the speedup in the post-test increased along with the number of texts the students read in the TRP ($\beta=-115, p<.001$), suggesting that the more texts were read, the more their reading fluency improved at crucial points in the sentences.

In Task 2, no effects on completion times or scores were observed in the results for 38 students. This is perhaps because the measurement was too coarse, and improvements are only observed in fine-grained measures as those collected in Task 1.

These results will be reported at the 24th annual conference of the JSLs 2023 (Japan Society for Language Sciences) at Chuo University in July 2023.

Measuring engagement in the online course

Figure 3 summarizes students' activities in the course. The dip in the week around February 26 was due to system maintenance during which the course was unavailable. Access increased in March as the approaching end of the course was announced, and persisted into April as some students submitted the post-test late, and checked the final feedback for the post-test compared to the pre-test (Figure 2, for a sample).

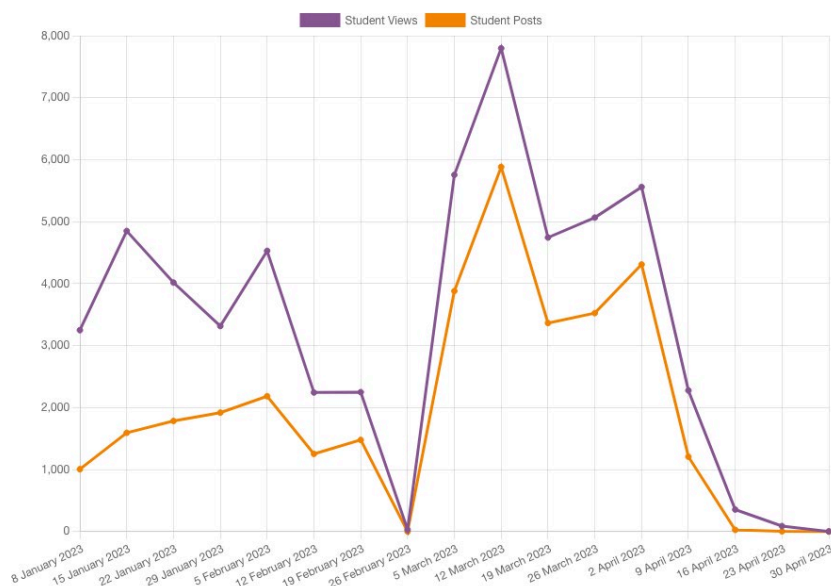


Figure 3. Activities in the HOPE course.

Of the 92 students registered, one never accessed the course. The remaining 91 students viewed the course 58,653 times and posted 34,289 times from the last week of December 2022 until the end of April 2023.

The breakdown for the English and math sections was as follows. There was an average of 23 submissions for the 121 English quizzes ($SD = 44.31$; $Mdn = 5$), but only 5 for the 60 math exercises ($SD = 10.53$; $Mdn = 0$). Of the 91 students who accessed the course, 24 never submitted or accessed any of the math or English activities, 55 did not submit or access any math activity but did submit some (between 1 and 97) of the English activities, the remaining 10 submitted more English than math activities, and 2 submitted more math than English activities. Thirteen students (14%) submitted all 121 English quizzes suggesting that the goals set in the program were achievable within the period of time available.

In sum, students were far more likely to submit the English activities than the math activities. In particular, 79 students (86.81%) did not access any of the math activities online. This is in stark contrast to two math activities that were sent by mail, which all but one of the 92 students submitted (see the report on the Preparatory Education Program in Math). Perhaps students assumed that submitting the mailed activities was enough, and did not see the need to review the math materials online. Future iterations of the program should provide more explicit guidelines explaining the limited scope of the mailed activities and emphasizing the importance of reviewing the online materials.

Survey

A survey was conducted in Japanese to collect students' reflections at the end of the program. The questions measured the students' opinions about the English section of the program (questions Q1 to Q8), about their attitude toward English after attending the program (Q9 to Q12), and about their activities in English outside the program

(Q13 to Q17; one question, Q18, was about the number of hours they dedicated to such activities, but a formatting mistake in the alternatives made the results uninterpretable and are not reported). See Table 1 for the results for 33 respondents (translations of the questions were based on <https://www.deepl.com/translator>).

Table 1 Preparatory Education Program (English) survey results

Questions	Median	Mean	SD	N
Q1. In this program, it was important to do the tasks regularly, rather than doing them all at once in one session. I was able to complete the tasks regularly every day.	3	3.09	1.03	32
Q2. It felt like a burden to do the tasks every day.	3	3.33	1.14	33
Q3. The teaching materials were well designed and their explanations were easy to understand.	5	4.61	0.70	33
Q5. The program's methods were appropriate to help students achieve learning objective 1 of the course. Objective 1: Practicing autonomy and independence to study.	5	4.85	0.62	33
Q6. The program's methods were appropriate to help students achieve learning objective 2 of the course. Objective 2: Practice English reading.	5	4.82	0.77	33
Q7. After entering university, I would like to continue to practice English reading using a program like this one.	5	4.56	0.98	32
Q8. I would recommend this program to future university freshmen.	5	4.82	0.92	33
Q9. It has increased my motivation to read English.	4	4.18	0.98	33
Q10. It has increased my interest in reading English.	4	4.42	0.87	33
Q11. It has increased my confidence in reading English.	4	3.69	0.82	32
Q12. I enjoy reading English more.	4	4.21	0.86	33
Q13. I studied English outside of this program.	4	3.88	1.29	33
Q14. I watched films, dramas, and so on in English.	4	3.55	1.89	33
Q15. I read books, magazines, articles, and so on in English (including those on the internet).	3	3.12	1.65	33
Q16. I chatted in English using an app.	2	2.18	1.31	33
Q17. I had conversations in English (including phone calls, video chats, etc.)	2	2.24	1.32	33
Q3. The texts became more difficult along the blocks. Was the difficulty level of each block appropriate?	3	3.48	0.67	33
Comments				10

※ Q3: 5-point scale (1: very easy ~ 5: very difficult)

Q1-Q2, Q4-Q17: 6-point scale (1: Not at all ~ 6: Very much)

For the last question, participants were free to type further comments about the program. Ten students provided the following comments (translations based on <https://www.deepl.com/translator>).

1. *There were periods when I couldn't continue every day, but I think I was able to decide in my mind how many sentences I would read each day and work on the program. The time each day varied, so I will decide when and to what extent I will work on my English and other studies from now on. The content of the texts was also very interesting and I think I learnt a lot more than just English. Thank you very much for organizing these programs.*
2. *The tourist attractions in the program content were not only fun to read about, but also motivated me to read English texts. It was difficult to remember what the historical figures did when they were mentioned in the program.*
3. *I was often not able to study effectively because I was busy moving, getting a driver's license, etc., but I have always liked English, so I was able to continue to be motivated to learn.*
4. *I would like to read the texts again to review the questions I was unable to answer.*
5. *I am sorry that I was not able to work on the assignment at all.*
6. *My difficulty with long sentences has eased a little.*
7. *I was resistant to reading English sentences. Rather than taking the time to understand all the English sentences perfectly, I will now focus on developing the skills to understand them to the best of my ability using the vocabulary I have. I am aware that not being able to finish the whole program was a major flaw of my being loose with time, and I will improve.*
8. *It was difficult to translate sentences with conjunctions*
9. *It was a very user-friendly program. I regret that I didn't finish all of Block 6 due to my lack of planning, but I want to continue to study English a lot and make the most of it in the future.*
10. *To be honest, at first I couldn't read well and stopped halfway through. But in the second half, I got motivated to try the program and I started to get the general flow of the texts, and from that moment on I really enjoyed it. But I couldn't finish it all because I didn't realize it until it was too late. I would like to do a program like this again, and now I wish I could do the questions I did this time even without feedback.*

Conclusion

The results of a timed reading program suggest that it can help improve participants' reading fluency. Its sequential structure with feedback at the end of each activity was likely easy for students to follow, but its effects, if any, on the submission rates of the math activities were modest given that close to 87% of the students never accessed any of the math materials online. Future iterations of the program should provide more explicit guidelines emphasizing the importance of reviewing the math materials online.

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Staff: Edson T. Miyamoto, Adam Smith

2-2-2. Preparatory Education in Math

1. Program description

One of the fundamental abilities demanded of students enrolling in this university is a basic competence in mathematics. Students are expected to understand high-school mathematics such as Mathematics III, (differentiation/integration), which is directly related to the mathematics studied at the university. There is a tendency for students enrolling via the Comprehensive or the Recommendation exams (*early exams*, hereon) to have a lower level of competence in mathematics when compared to students enrolling via the General entrance exams. Although some students who enroll via the General First exam do not sufficiently understand the content of Mathematics III, among those selected via the early exams there are students without sufficient understanding of the even more basic contents in Mathematics II and Mathematics B, as well as Mathematics III. This tendency is especially pronounced for students enrolling through the Comprehensive exam. To address this concern, the university provides pre-enrollment education for those selected via the early exams, with the following purposes:

- To re-emphasize the importance of high-school mathematics, solidify the basics, and provide a review of Mathematics II, B, and III.
- To return to a stance toward studying in which elements that are not understood are not simply ignored, and that understood content is written in appropriate language.
- To steel oneself through engagement with university mathematics and get into the habit of studying continuously and independently.

2. Overview of AY2022 activity

(1) The distribution schedule and aims of the assignments

a. Assignment 1

- Schedule: Instructions were mailed out around December 19th, 2021. The deadline was January 13th, and feedback was returned together with the instructions for Assignment 2.
- Content: Review of high-school mathematics (Mathematics II, Mathematics B)
- The online distribution of lecture videos and materials for the special course in Mathematics II and B: For students who have not acquired the basics of Mathematics II and B, and for those who find it difficult to study on their own, recorded lecture videos and materials for the special lectures in Mathematics II and B were uploaded to the learning management system HOPE. In addition, students could only view the answers to the assignments after uploading a photo of their own answer.
- Aims: To review content that will be particularly needed immediately after enrollment from among the basic content of high-school mathematics (complex numbers and equations, trigonometric functions, exponential and logarithmic functions, differentiation, integration, and sequences). In doing so, areas where understanding is ambiguous or insufficient will be identified prior to enrollment, solidifying the fundamentals.

b. Assignment 2

- Schedule: Instructions were sent out on January 31st; the deadline was February 28th, and feedback was returned with the instructions for Assignment 3.
- Content: Review of high-school mathematics (Mathematics II, Mathematics B, and Mathematics III)
- The online distribution of lecture videos and materials for the special lectures in Mathematics III: For students who have not acquired the basics of Mathematics III, and for those who find it difficult to study on their own, recorded lecture videos and materials for the special lectures in Mathematics III were made available on HOPE. Students could only view the answers to the assignments after uploading a photo of their own answer.
- Aims: To engage with content of high-school mathematics (Mathematics III) centered on calculations

(limits, sequences, differentiation, integration) highly linked to Analysis I and Analysis II, which are compulsory courses in the first academic year. In doing so, students who have not covered this coursework in high school will become accustomed to the content of Mathematics III, which will assist them in understanding Analysis I and II.

c. Assignment 3

- Schedule: Instructions were sent out on March 13th. There was no required submission. Answers were distributed after enrollment in early April.
- Content: Preparation for Analysis 1
- Aims: By studying university-level materials in advance, students should understand how the content of high-school mathematics is deeply linked to university mathematics and realize how important it is to solidify the basics of high-school mathematics. Another aim is enabling students to steel themselves by engaging with the university-level mathematics and getting into the habit of studying continuously and independently, so that they will not fall behind in math classes after enrollment.

(2) Leveraging HOPE in interactive dialogues, feedback, and the construction of an environment for taking special classes in Mathematics II, B, and III.

We built an environment for pre-enrollment education using HOPE.

- Distributing comments (explanations of each question, advice, the rate of correct answers) from faculty members according to the status of the assignment
- Setting up a forum for dialogue between students, and also between faculty members and students
- Carrying out a “Questionnaire regarding Pre-enrollment Education” targeted at students
- Accumulation of detailed data on the responses to each question
- Distributing lecture videos recorded in 2020 and materials for the special courses for Mathematics IIB and Mathematics III.

3. Outcomes

The schedule for the three assignments was similar to that of the previous academic year. Of the 95 students who enrolled for AY2023 through the **early exams**, 92 registered. All 92 submitted Assignment 1, and 91 submitted Assignment 2. Ten students in Assignment 1 and ten students in Assignment 2 scored less than 60 % correct (see Figure 1), suggesting that more assistance should be provided once they enter the university.

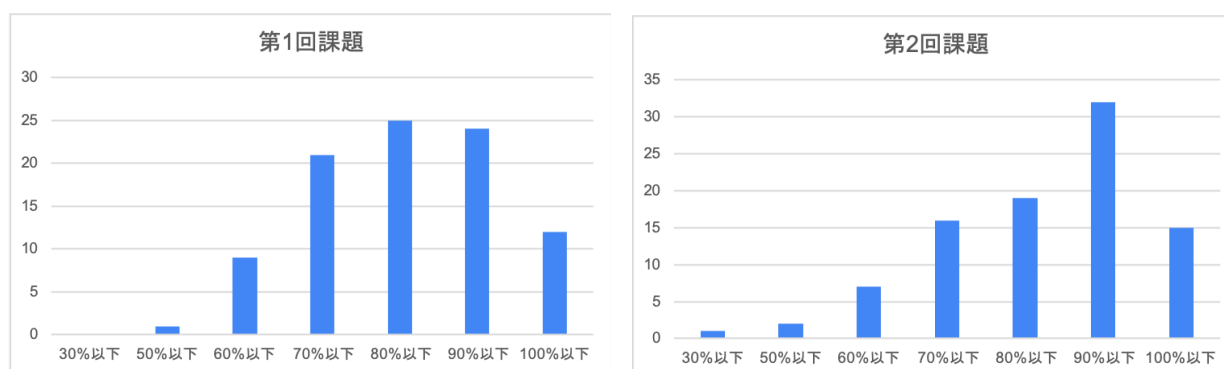


Figure 1. Distribution of scores (in percentage correct) for Assignments 1 (left) and 2 (right)

This year, assignments were made available online on HOPE and were also mailed in paper format to promote the revision of assignments and to make it more convenient to do so. The HOPE online system allowed the creation

of an environment in which feedback is received from faculty members, and interactive dialogue is engaged between faculty members and students, and between groups of students. But there was no spontaneous leveraging of this interactive dialogue. Consideration of the use of the dialogue function is required.

According to a survey answered by all 92 students, 20% were accepted to the university through the Comprehensive exam and the remaining 78% through the Recommendation exam. The percentage of students who took high-school math courses was as follows: 100% for Math 1, 100% for Math A, 99% for Math II, 99% for Math B, and 76% for Math 3. Ratings for high-school math aptitude on a 5-point scale (1: extremely inept; 5: extremely skillful) had a mean of 3.4 (SE 0.09). Ratings for whether they had a good understanding of high school math for their college studies on a 5-point scale (1: not at all; 5: very much so) had a mean of 3.1 (SE 0.08).

In summary, materials and lecture videos recorded for the special lectures for Mathematics IIB, and Mathematics III were uploaded to HOPE. The aim was to provide learning support to those students who have not grasped the basics of Mathematics II, Mathematics B, and Mathematics III as well as those who find independent learning difficult. Although the number of video views was not large, we believe that we were able to provide learning support to some students. Answers to the individual questions of each assignment are being analyzed (see the Pre-Enrollment English Section Report for a preliminary summary), and ways of using the results in the future are being considered.

4. Implementation and results of a survey

Led by associate professor Tsuji, a survey was administered to students after the end of the program. Of the 92 registered participants, 59 answered the survey, which was collected between April 11 (Tuesday) and 14 (Friday). There were 19 questions about the Mathematics section of the program. See Table 1 for the results.

Table 1 Preparatory Education Program (Mathematics) Survey Results

Question	Median	Mean	SD	N
Q1: Aptitude with high school mathematics	3	3.24	0.96	59
Q2: Your comprehension of high school mathematics courses	4	3.56	0.77	59
Q3: Confidence in learning mathematics at the university	2	2.34	0.89	59
Q4: You made steady efforts in the program	4	3.88	1.11	59
Q5: It was difficult for you to maintain a steady effort in the program	3	3.27	1.18	59
Q6: The difficulty level of the assignments was appropriate	5	4.44	0.85	59
Q7: The explanations for the assignments were well thought out and easy to understand	5	4.61	0.66	59
Q8: The program provided training for autonomous and independent learning	5	4.68	0.70	59
Q9: The program provided training to deepen your understanding of mathematics	5	4.73	0.63	59
Q10: You would like to use the materials in the program after entering the university.	4	4.27	1.07	59
Q11: You would recommend the program to future university entrants	5	4.92	0.77	59
Q12: The program has increased your motivation to study mathematics at the university	4	4.24	0.96	59
Q13: The program has increased your interest in studying mathematics at the university	4	4.25	1.02	59
Q14: The program made you feel more confident in your ability to study mathematics at the university	3	3.31	1.09	59
Q15: The program has increased your enjoyment in learning mathematics	4	3.90	1.08	59
Q16: Apart from this program, you studied mathematics on your own	4	3.88	1.19	59
Q17: The program has deepened your understanding of high school mathematics	4	4.47	0.79	59
Q18: You are satisfied with the program	4	4.29	0.86	59
Q19: Comments				5

※ Q1: 5-point scale (1: very inapt ~ 5: very apt)

Q2: 5-point scale (1: I don't understand at all ~ 5: I understand very well)

Q3: 5-point scale (1: Not confident at all ~ Very confident)

Q4-Q18: 6-point scale (1: Not at all ~ 6: Very much)

Staff: Yoshitaro Tanaka, Kengo Terasawa, Yuzuru Kato, Yoshihito Tsuji, Edson T. Miyamoto

2-3. Supplementary Education

2-3-1. Supplementary Math Lectures (Math II B, Math III)¹

1. Program description

The Supplementary Math Lectures have been made available to students taking “Analysis I” and “Analysis II”, which are compulsory subjects for 1st year students. The exercise-style special lectures cover high-school level topics from Mathematics III and Mathematics IIB (Math III and Math IIB, hereafter). These lectures continue to be conducted every year.

2. Overview of AY2022 activity

The Supplementary Math Lectures from AY2020 to AY2021 were conducted online, however in AY2022, we returned to the previous method and were conducted in face-to-face.

(1) Math IIB supplementary lecture

Target: In “Analysis I”, a basic scholastic exam is administered immediately after the first semester begins. Based on the results of it, faculty in charge of each class required students who were judged to have not reached a certain level of understanding of high school mathematics to take the supplementary lectures in Math IIB. For the second semester “Analysis II”, the attendees were determined based on the grades in the first semester and the score of the basic scholastic exam.

Period: 8 times from May to July, 7 times from October to November (one and a half hour per lecture)

Place: Room791

Number of participants: 32 in the first semester and 42 in the second semester.

Lecturer: Mr. Kazuyuki Konno (former teacher at Hakodate Ryohoku High School)

(2) Math III supplementary lecture

Target: open to all interested students attending “Analysis I” and “Analysis II”

Period: 8 times from May to July, 7 times from October to November (one and a half hour per lecture)

Place: Lecture Hall

Number of participants: First semester average 77, Second semester average 58

Lecturer: Mr. Takayuki Hatazawa (teacher at Hakodate High School)

<Activities>

- AP Tanaka and AP Terasawa coordinated the contents of each session, adjusting to the students’ progress in Analysis I & II.
- The exercises of the Math IIB supplementary course were marked by the students (self-assessment), and the teacher did a final check. Attendance management was done by AP Tanaka and AP Terasawa.
- Students were informed that the attendance in the Math III supplementary course would affect their grades in Analysis I & II.
- At the beginning of the year, we purchased Math III textbooks for Math III supplementary course.
- The exercises of the Math III supplementary course were marked by the students (self-assessment). Model answers were explained in the course, and PDF files were made available using HOPE, the learning management system (LMS) at FUN. In the second semester, attendance management was done by a TA.
- All faculty in charge of Analysis, Linear Algebra, and Mathematics Practice, which are compulsory subjects for 1st year students, are allowed to use the videos and assignments created online in AY2020 and AY2021

¹ This is a translation from the Japanese report partly based on output from DeepL and Google Translate.

as supplementary teaching materials.

- We shared the attendance status and graded results of each class for the Math IIB course, and the attendance status for the Math III course with the faculty in charge of Analysis I and II.

3. Outcomes

(1) The effect of supplementary lecture (Math IIB)

The Math IIB course has been changed from a face-to-face format (2019 and earlier) to an online format (2020-2021) and again in a face-to-face format in AY2022. Here, we focused on the format of the Math IIB course and examined the differences in learning effects between each year. As an indicator of learning effectiveness, we used academic deviation for each year (2018-2022), for each course period (first and second semester), and for the subjects (participants and non-participants) of the Math IIB course. The results of the three-factor analysis of variance showed no main effect for the year factor (*n.s.*). A main effect was observed for the semester factor (*first semester > second semester, $p < .01$*). A main effect was observed for the subject factor (*non-participants > participants, $p < .01$*). In addition, a significant interaction was observed between the semester factor and the subject factor (*$p < .01$*).

Therefore, a simple main effect test was conducted. The results showed that in any academic years, the academic deviation of the course subjects decreased from the first to the second semester (*$p < .01$; Fig. 1*). Also, the effect was comparable for the face-to-face format (2018, 2019, 2022) and for the online format (2020, 2021). This result suggests that the students who were instructed to take the Math IIB course in the first semester had a further decline in class performance in the second semester. It is considered necessary to expand learning support throughout the year when conducting Math IIB course in the future.

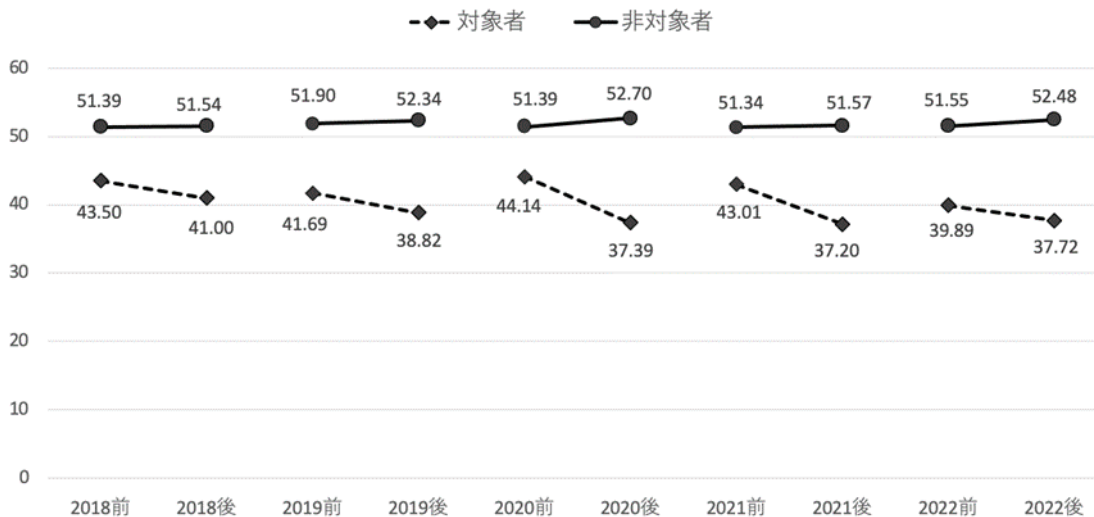


Figure 1. Academic deviation of Math IIB course participants in face-to-face (2018, 2019, 2022) and online (2020, 2021) formats.

In addition, a survey was administered to the participants at the end of the supplementary Math IIB course (17 items, 5-point scale) and responses were obtained from 13 of the 32 participants in the first semester and 11 of the 41 participants in the second semester. As a result, the comprehensibility of the Math IIB course was evaluated as 4.3 (*$SD = 0.91$*) in the first semester and 4.9 (*$SD = 0.29$*) in the second semester. This indicates that the Math IIB course was easy for the participants to understand. Similarly, the ease of viewing the materials (first semester: *$M = 4.2, SD = 1.05$* ; second semester: *$M = 4.3, SD = 0.75$*), and the ease of listening to lectures (first semester: *$M =$*

4.6, $SD = 0.49$; second semester: $M = 4.6$, $SD = 0.64$), which are likely to be a problem in the face-to-face format, were also highly evaluated. The overall satisfaction rating for the Math IIB course was 4.0 ($SD = 0.96$) for the first semester and 4.3 ($SD = 0.96$) for the second semester. It indicated that the participants rated the Math IIB course highly in terms of comprehensibility and satisfaction.

(2) The effect of the supplementary lecture (Math III)

In AY2022, the Math III course was offered as a free-participation subject. Students chose whether or not to take the course according to their own level of understanding. The total number of subjects in AY2022 was 241. The Math III course was offered eight times in the first semester and seven times in the second semester.

The attendance rates for each session are shown below (Fig. 2). The results indicate that the average participation rate for the first semester was 29.7% and for the second semester was 21.3%. The AY2022 Math III course was offered in a face-to-face format. In AY2021, the course was offered in an online format, with participation rates of Math III Course A = 33.7% and Math III Course B = 29.6%. The results indicate that there was a decline of 5% to 10% in the attendance of the Math III course. However, a high level of satisfaction was observed in both the first and second semesters of the questionnaire for those who took the Math III course (on a 5-point scale, first semester: $M = 4.3$, $SD = 0.80$, second semester: $M = 4.8$, $SD = 0.43$). It is desirable to continue to encourage more students to take the course.

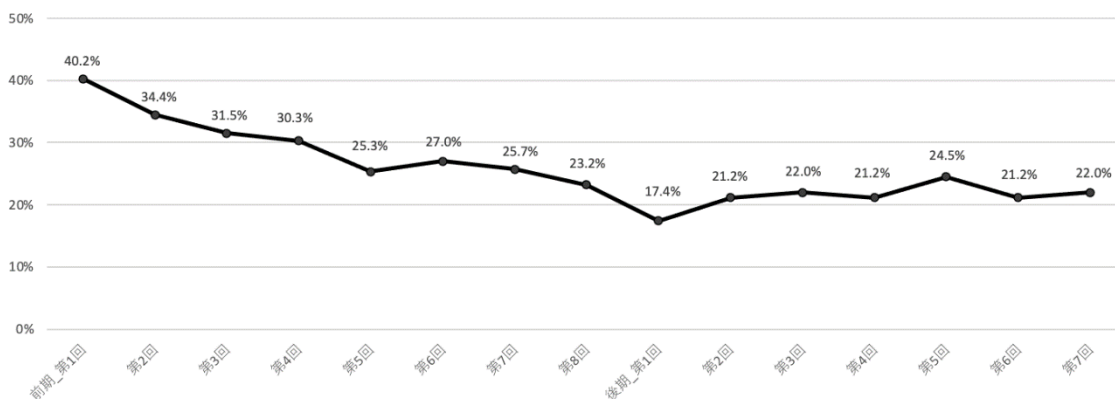


Figure 2. Attendance rates at each of the lectures of the Math III course

Staff: Yoshitaro Tanaka, Kengo Terasawa, Yoshihito Tsuji

2-3-2. Connections Café

1. Program description

The aims of Connections Café are to:

1. create a positive environment where students are able to speak in English without fear of making mistakes;
2. help students see the value of learning English as a communication tool, and
3. offer students new perspectives of the world.

Connections Café offers students opportunities to practice speaking and listening to English in small-group sessions. These sessions are led by a part-time facilitator who speaks English fluently and held 3 or 4 times most days during the semester (up to 17 times per week). Each session lasts 40 minutes.

2. Overview of AY2022 activity

Table 1 gives an overview of the 2022 small-group sessions. After two years of Zoom sessions, Connections Café was able to resume these sessions face-to-face at a reduced capacity of four students per session. In addition to small-group sessions, the following summarizes the activities done:

Preparatory

- The physical location of Connections Café was moved in April 2022 from outside of room 529 to a space on the fifth floor behind the lecture hall Kujira (講堂). This new space is separated from faculty offices, and sound from Connections Café is less likely to disturb others.
- The Connections Café course page (<https://hope.fun.ac.jp/course/view.php?id=1286>) was moved from FUN Moodle to HOPE. Students can use the course to access Connections Café information and attendance records.
- The online resources section of the course page was updated.
- The facilitator documentation for managing small-group sessions was updated.
- The annual facilitator orientation was held.

Session activities

- A series of 6 ‘Skills and Resources’ sessions was offered to students.
- A series of 7 TOEIC sessions was offered to students (twice each).
- Two special sessions involving international students were held.

Feedback

- A survey on English goals and Connections Café was conducted.
- Interviews with seven students were conducted.
- Observations of 13 small-group sessions was done.

Information on Connections Café was presented to all first-year students during Orientation Week. All FUN students were emailed information about how to join Connections Café ahead of its opening. This information was also shared on the Virtual English Program (VEP 1 and VEP 3) course announcement forums.

Table 1. Overview of Connections Café small-group sessions

	Spring 2022	Autumn 2022
Open	Weeks 2-15	Weeks 2-15
Style	In-person	In-person
# of small-group sessions	17x / week	17x / week
# of seats per session	4	4

3. Outcomes

Table 2 shows the 2022 spring and autumn attendance data for Connections Café. For small-group sessions, a total of 1,109 sessions seats were filled for 440 sessions, for an average of 2.52 students per session. While attendance has not returned to pre-pandemic levels, data from 2022 shows a marked increase (171% and 156% in the spring and autumn semesters, respectively) compared with the previous year.

Table 2. 2022 Attendance data

	Spring	Autumn
Small-Group Sessions Attendance	719	390
Special Sessions Attendance	0	32
Total Session Attendance	719	422
# Unique Students Attended	82	65
Avg. # Sessions Attended / Student	8.8	6.5
Avg. # Students per Small-Group Session	3.2	1.8
Max # Sessions Attended by a Student	25	29
# Students Attending 5+ Total Sessions	60	25
# Students Attending 15+ Total Sessions	13	9
# Students Attending 25+ Total Sessions	1	1

Two hundred and eleven consenting students took an online survey on English education and Connections Café. Fifty-five respondents (26%) attended at least one small-group session and 156 (74%) had not (results from the survey will be made available in a document entitled “Spring 2022 Survey on English and Connections Cafe Summary”).

All 2022 Communication 1 students were asked to do a pre and post speaking task. Of them, only 119 students did both. In this task, students were asked to make an audio recording of themselves talking for up to one minute using one of three randomly assigned prompts. They were given three minutes to complete this. After both the pre and post recordings were completed, they were anonymized and randomly allocated among four graders. Each grader received both the pre and post recording of the same student. Sixteen of these students attended Connections Café and 103 did not. For the attendees, the average number of sessions attended was 9.2. Although the average increase for Connections Café attendees ($M=16.6$, $SD=16.3$) was 7.4 points higher than non-attendees ($M=9.1$, $SD=17.2$), an independent samples t-test did not find a significant effect ($p=0.105$).

Permission to return to the pre-pandemic capacity of 8 students per small-group session was granted from the Covid-19 committee in March 2023. Lunchtime activities such as lunchtime presentations, TOEIC sessions and

Skills and Resources sessions will resume from the beginning of the semester. A new session type, Speaking Training sessions, aimed at students lacking in speaking confidence, will also begin in the spring of 2023.

Staff: Andrew Johnson, Peter Ruthven-Stuart, Mitsuru Kudo

2-3-3. International Study Support

1. Program description

The goal is to encourage FUN students to sign up for study abroad programs (SAPs). SAPs are known to develop intercultural competencies (ICs)¹. Development of ICs is a desirable outcome of transformative learning experiences² and one of the goals highlighted in the FUN Diploma Policy (<https://www.fun.ac.jp/en/diploma-policy>). Of 234 year-one students surveyed during the 2022 TOEIC bridge exam, only 4 showed intentions of studying abroad (unpublished data). In 2022 - 2023, the International Study Support Group (ISSG) therefore focussed on increasing awareness about 'self' and 'cultural others' through intercultural events and giving students opportunities to have their ICs objectively assessed using the Beliefs, Events and Values Inventory (<https://thebevi.com/>).

2. Overview of AY2022 activity

On-campus intercultural interaction events included a welcome event (spring semester) as well as a Q&A session by international students (autumn semester). Assessments of ICs were also done for 179 year-one students, of whom 103 completed both the pre- (May 2022) and post- (Jan 2023) experience survey enabling longitudinal comparison of their ICs.

3. Outcomes

For intercultural events, a welcome event for international students was held on April 28 and attended by about 30 participants. Four international students gave presentations about their home countries. A study abroad Q&A session was held on December 20. International students studying at FUN were invited to share their experiences with FUN students interested in studying abroad. Eight international students, four members of faculty and two FUN students joined.

For longitudinal comparison of ICs, assessments were based on four domains of Hoggan's typology of the transformative learning model². Scores from a published dataset (n=25,751) were included for comparison³. Each student received a detailed report and two radar charts showing changes in their ICs during the learning experience. It was hoped that the experience of entering FUN and taking new courses, including an international virtual exchange with 10,000 students from 28 countries (Eric Hagley IVE Project, personal communication, March 9, 2023), would result in meaningful changes in ICs. Results are shown in Table 1.

Table 1. Effect of two learning experiences at FUN on Intercultural Competencies

Hoggan’s Domain (example of what domain measures)	Published dataset (mean score)	FUN year-one	
		Pre-experience (mean score) <i>May 2022</i>	Post-experience (mean score) <i>Jan 2023</i>
Worldview (understanding of the world and its workings)	59.4	45.5	39.4
Epistemology (understanding of how to construct and evaluate knowledge)	57.2	41.2	37.8
Self (self-efficacy, empowerment, understanding of one’s identity)	45.1	47.2	48.2
Ontology (how much one values the expression of affect)	63.0	48.6	47.6

Note. Measurements were consented to by respondents and done using the Beliefs, Events and Values Inventory (BEVI). The BEVI-Hoggan Crosswalk³ was used for conversions .

Compared to the published dataset, scores for all domains (except ‘Self’) are significantly lower for FUN students. (Differences of 5 points or more on BEVI scales are usually considered to be statistically significant⁴.) Also, year-one study at FUN did not result in meaningful changes in scores (except for a significant decline in ‘Worldview’). Although data on longitudinal assessment of ICs during year-one is lacking, declines in academic achievement have been reported. For example, of 600 students joining six Canadian universities, 435 declined in their average achievement by at least one letter grade in their first-year⁵. To improve ICs at FUN, it is important that the superficial practice of “counting noses”³ is replaced with longitudinal assessments that identify truly transformative learning experiences for scaling out. To this end, the ISSG will continue with longitudinal assessment of ICs at FUN (possibly including other learning experiences such as the Project-Based Learning during year-three and student trips abroad) and sharing information about the need for FUN students to improve their ICs by signing up for cross-cultural learning experiences.

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Staff: Dominic K. Bagenda, Andrew Johnson

2-4. First-Year Education —

English Communication Skills

1. Program description

The goals of this group are to measure changes in students' English communication skills and to propose ways of improving such skills.

2. Overview of AY2022 activity

The AY2022 first-year Communication courses' primary aim was to improve students' English communication skills, with a particular focus on listening and speaking skills in Communication 1 and on reading and writing skills in Communication 2. Both courses were centred around textbooks from Oxford University Press' Q: Skills for Success series which target the CEFR A2 level. Textbook activities were supplemented with participation in an online international exchange as well as goal setting and reflection activities.

The four instructors used a single Moodle course for presenting information, giving assignments and online tests, and collating grades. The same set of assessment items was required of all students, and each assignment was graded using a single rubric.

In order to identify changes in their English communication skills, students were asked to complete a skills assessment at the start and at the end of each course.

Communication 1 – listening and speaking

The skills assessment for Communication 1 consisted of two parts: Part A and Part B. In Part A, students were instructed to complete a 45-minute online test during the second lesson (pretest) and again during the final lesson (posttest). The test was created by Oxford University Press (OUP) and covered all of the textbook units taught during the course. It had eight sections: listening, vocabulary, note-taking skills, listening skills, pronunciation skills, vocabulary skills, speaking skills and grammar. All questions were multiple-choice and submissions were automatically graded. The Part A posttest was worth 2.5% of the Communication 1 final grade.

Part B was a speaking test. To complete it, students recorded a 60-second response to a question that was related to one of the topics in the textbook. Students were instructed to complete it in their own time between lessons 2 and 3 and again between lessons 25 and 28. After the posttest deadline, the Communication 1 instructors assessed all submissions using a grading rubric that was based on the grading rubrics used for speaking assignments in the course. The voice recordings were downloaded, anonymised and randomised. Each instructor was randomly allocated an equal number of students, and they assessed both submissions for each student. They were not informed whether a submission was a pretest recording or a posttest recording. The Part B posttest was also worth 2.5% of the Communication 1 final grade.

Communication 2 – reading and writing

Students were instructed to complete a 45-minute online test during the second lesson (pretest) and again during the final lesson (posttest). The test was created by OUP and covered the first four of five units taught in the course. It had six sections: reading comprehension, vocabulary, reading skills, vocabulary skills, writing skills and grammar. The posttest was worth 5% of the Communication 2 final grade.

3. Outcomes

Communication 1 – listening and speaking

Results for students who consented to the use of their data are reported. Figures 1 and 2 show the results of students who completed the pretests and posttests. For both Parts the mean posttest scores were higher than the mean pretest scores. A paired samples t-test was performed to compare the pretest and posttest results for each Part. There was a significant difference in mean grade between the Part A pretest ($M = 71.49$, $SD = 11.48$) and posttest ($M = 80.13$, $SD = 9.11$); $t(232) = 17.375$, $p < 0.001$, and between the Part B pretest ($M = 58.95$, $SD = 16.43$) and posttest ($M = 69.03$, $SD = 16.23$); $t(118) = 6.40$, $p < 0.001$.

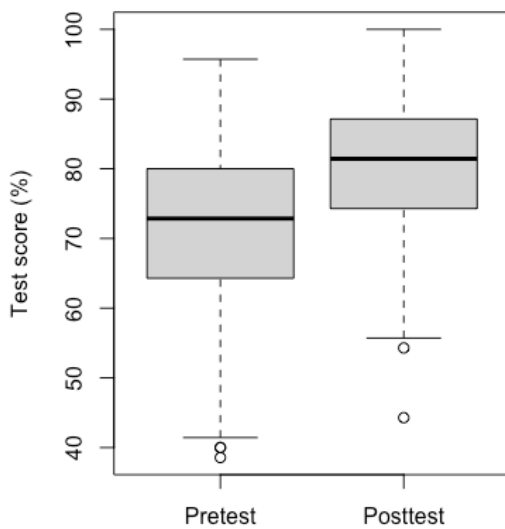


Figure 1. Results of Part A (n=233)

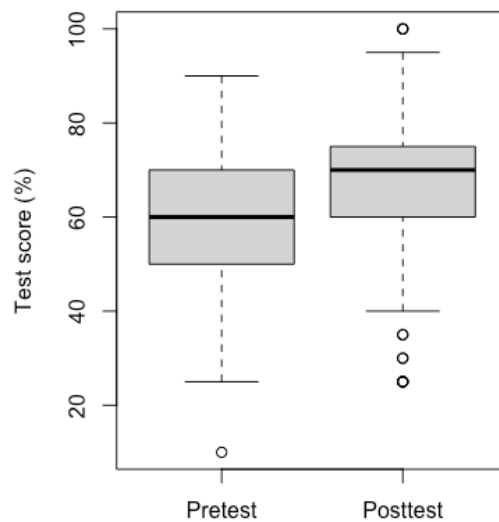


Figure 2. Results of Part B (n=119)

Communication 2 – reading and writing

Figure 3 shows the results of students who completed both the pretest and posttest. A paired samples t-test compared the pretest and posttest results. There was a significant difference in mean grade between the pretest ($M = 67.22$, $SD = 11.76$) and the posttest ($M = 75.78$, $SD = 10.21$); $t(211) = 10.87$, $p < 0.001$.

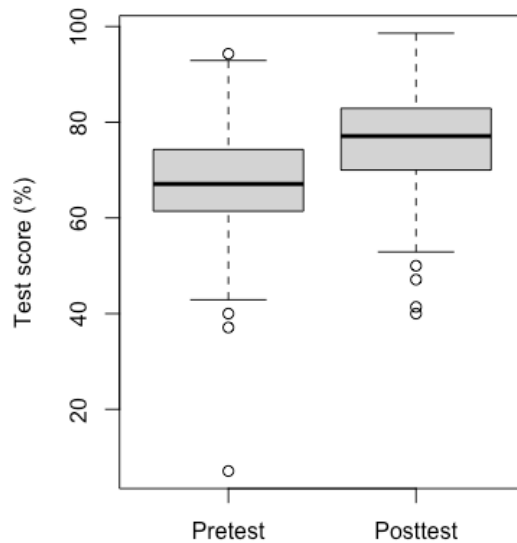


Figure 3: Results from the Communication 2 English skills assessment (n=212)

The above analyses indicate that AY2022 first-year students' English skills improved during the Communication 1 and 2 courses, and provide evidence of the success of Future University's first-year English program. In AY2023, the instructors will make an effort to encourage a larger proportion of the first-year cohort to complete the skills assessment, especially the speaking test.

The recent releases of AI technologies such as ChatGPT have prompted the instructors to reconsider the need for students to specifically focus on improving English reading and writing skills. The AY2023 Communication 1 and 2 courses will focus solely on listening and speaking skills, although students will develop their reading and writing skills by engaging with the course's online content and textbook, and by participating in the online international exchange (see the section on International Study Support in this report).

Staff: Adam Smith, Dominic Bagenda, Andrew Johnson, Peter Ruthven-Stuart

2-5. Professional Development Activity²

1. Program description

In FY2022, the PD/Hokkaido FD/SD/CCH Group (hereafter referred to as the PD Group) held a workshop on the current status of first-year education at the university, with the aim of promoting PD (Professional Development) activities at the university. In this workshop, faculty members in charge of introductory education for first-year students (especially in the areas of English and mathematics) presented reports on their efforts, which prompted discussion among the faculty members of the University.

This report also describes the Hokkaido FD/SD efforts in this group and the efforts of the Campus Consortium Hakodate (CCH).

2. Overview of AY2022 activity

The activities of each section in FY2022 are described below.

- Professional Development (PD) Activities

The PD workshop was held as an initiative to promote the improvement of faculty members' qualifications at the university. This year's PD workshop was held to share the current state of extra-curricular education at the university and to discuss the future of such education among faculty members. The workshop was open to all faculty and staff at the university. The workshop was held in an online format due to the need to take measures to prevent the spread of COVID-19 infection.

- Hokkaido FD/SD Council

In AY2022, Future University Hakodate served as the secretariat and steering committee member of the Hokkaido FD/SD Council. In addition, we participated in the "Hokkaido FD/SD Forum" organized by the Hokkaido FD/SD Council and made a presentation and exchanged opinions on the content of introductory education at our university.

- CCH (Campus Consortium Hakodate)

CCH faculty members attended the Campus Consortium Hakodate management meeting. Faculty members in charge of CCH also took charge of "Introduction to Science and Technology Communication (summer intensive course)," a joint course with Campus Consortium Hakodate. The results of the questionnaire survey regarding this subject were reported to the CCH office.

3. Outcomes

- PD Activities (Professional Development Activities)

The PD workshop was conducted in an online format on Thursday, December 8, 2022, from 10:40 to 12:10. Ten faculty members from the University participated in the workshop. The theme of this year's PD workshop was to share the current status of out-of-class education (first-year education) at the university and to discuss future activities. The presenters were Associate Professor Tsuji (who reported on the results of the effectiveness verification of mathematics introductory education) and Associate Professor Johnson (who reported on the efforts

² This is a translation from the Japanese report partly based on output from DeepL.

and results of the effectiveness verification of the Connections Café). Based on the results of these reports, discussions were held among faculty members.

- Hokkaido FD/SD Council

A faculty member (A/P Yoshihito Tsuji) attended the Executive Committee meetings of the Hokkaido FD/SD Council (June 8 and August 23). In addition, he attended the steering meeting of the Hokkaido FD/SD Council (March 2023).

The same faculty member also presented the results of the effectiveness verification of introductory mathematics education at the university at the Hokkaido FD/SD Forum 2023 (Friday, September 2, 2022) organized by the Hokkaido FD/SD Council (faculty in charge: Tsuji, Tanaka, and Miyamoto). One of the themes of the effectiveness verification of this special course in mathematics was the difference in course format (face-to-face or online) according to the COVID-19 measures. The results of the survey showed that there was no statistical difference between the face-to-face and online formats in terms of the effectiveness of the special course in mathematics. On the other hand, in both formats, there was a significant drop in the performance of students who did not perform well in mathematics courses in the second semester. Continued offering of special courses in mathematics is desired in the future.

- CCH (Campus Consortium Hakodate)

Faculty members in charge of CCH attended meetings held by the CCH office. The faculty member in charge (A/P Yoshihito Tsuji) also took charge of a CCH-related course “Introduction to Science and Technology Communication (Summer Intensive Course)” at the university. The number of participants in this course was 23. Twenty-one were from member universities of the Hakodate Area University Consortium (20 students from Future University Hakodate and one from the Hokkaido University of Education, Hakodate), and two from member universities of the Minami Osaka Area University Consortium (one each from Haboro International University and Kinki University). The lectures were held on August 5, 2022, and August 7-8, 2022. On the last day, a questionnaire survey was conducted by the CCH secretariat. The responses were reported to the secretariat.

Addendum

The following documents are available to the public regarding FY2022 initiatives.

- Professional Development

WebDAV: TOP > Staff > CML > PD Repository > workshops > AY2022 > 2022.12.08-PD-workshop

- Hokkaido FD/SD Council

WebDAV: TOP > Staff > CML > PD Repository > workshops > AY2022 > 2022.09.02_北海道 FDSD フォーラム 2022

Staff: Yoshihito Tsuji, Adam Smith

2-6. Self-Evaluation for Learning Achievement³

1. Program description

Future University Hakodate launched its “Self-evaluation for learning achievement” surveys from the latter half of academic year (AY) 2019. This system was adopted at the behest of the National Institution for Academic Degrees and Quality Enhancement of Higher Education in its University Institution Certification Evaluation report for AY 2018. Students evaluate their progress toward achieving the learning goals presented in the University’s Diploma Policy and Curriculum Policy. The purpose of the self-evaluation is to assist students in setting goals and creating plans for full achievement. By making continuous and successive plans from their first year through to graduation, students can get a sense of their own growth and continue their learning based on concrete goals.

There are seven assessment survey items, listed below, which were created on the basis of the Diploma Policy. Detailed explanations, based on the Curriculum Policy, are provided for each item. Students are to read the detailed items and then respond using the provided seven-point scale, which ranges from “**1. Not achieved at all**” to “**7. Well achieved.**” Then, considering the results of their responses, each student may respond freely, writing about their goals and plans for the current academic term.

1. Superior professional ability regarding Systems Information Science (Common to all courses)
Superior professional ability regarding Systems Information Science (Courses Expertise): for over second-year students
Superior professional ability regarding Systems Information Science (Graduation Study): for only fourth-year students
2. Inquisitiveness and Imagination to support healthy research attitudes
3. Expressiveness to support collaborative creativity and teamwork
4. Meta-learning ability to foster autonomous and continuous learning
5. Humane professionalism

Survey responses are collected from all students twice a year, at the beginning of each school term that a student is registered. Students take an additional survey just before they graduate to enable reflection on their learning achievements during their university years.

2. Overview of AY2022 activity

During AY2022, the “Self-evaluation for learning achievement” survey was performed using the learning management system HOPE. Respondents were as follows: in the first semester, 428 students (188 first-year students, 130 second-year students, 71 third-year students, and 39 fourth-year students); in the second semester, 188 students (83 first-year students, 56 second-year students, 41 third-year students, and 8 fourth-year students). Furthermore, the survey was filled in by 170 graduates at the time of their graduation.

In addition, by using the “Automatic generation system of self-evaluation graphs for learning achievement” developed by the Kei Ito laboratory, each graduate’s “Self-evaluation for learning achievement transition graph” was created and fed back to each student. This allowed each student to visually grasp the transition of learning achievement across the academic years.

³ This is a translation from the Japanese report partly based on output from DeepL and Google Translate.

3. Outcomes

Table 1 shows the mean values of each question item for each grade. Values in parentheses are mean values for AY2021. The trend is generally the same as in AY2021.

Table 1a. Aggregate results

	1. Superior professional ability (Common to all courses)			1. Superior professional ability (Courses Expertise)			1. Superior professional ability (Graduation Study)		
	First half	Second half	At graduation	First half	Second half	At graduation	First half	Second half	At graduation
1 st -year students	2.17 (2.62)	4.07 (4.04)	—	—	—	—	—	—	—
2 nd -year students	4.09 (4.27)	4.41 (4.48)	—	3.36 (3.15)	4.32 (4.26)	—	—	—	—
3 rd -year students	4.41 (4.46)	5.12 (4.94)	—	4.45 (4.64)	5.05 (4.81)	—	—	—	—
4 th -year students	5.38 (5.34)	5.88 (5.38)	5.64 (5.56)	5.13 (5.34)	5.13 (4.94)	5.49 (5.34)	5.26 (4.84)	5.00 (5.06)	5.51 (5.42)

Table 1b. Aggregate results

	2. Inquisitiveness and Imagination to support healthy research attitudes			3. Expressiveness to support collaborative creativity and teamwork			4. Meta-learning ability to foster autonomous and continuous learning			5. Humane professionalism		
	First half	Second half	At graduation	First half	Second half	At graduation	First half	Second half	At graduation	First half	Second half	At graduation
1 st -year students	2.40 (2.67)	3.81 (3.76)	—	2.45 (2.74)	3.92 (3.82)	—	2.56 (3.03)	3.90 (4.05)	—	2.74 (3.13)	4.01 (4.24)	—
2 nd -year students	3.72 (3.64)	3.91 (4.37)	—	3.72 (3.80)	4.14 (3.94)	—	3.87 (3.95)	4.43 (4.50)	—	4.02 (3.97)	4.30 (4.46)	—
3 rd -year students	4.04 (4.29)	4.88 (4.61)	—	4.21 (4.27)	5.10 (4.84)	—	4.49 (4.67)	4.80 (4.90)	—	4.51 (4.65)	5.02 (4.90)	—
4 th -year students	4.90 (4.72)	5.25 (4.50)	5.46 (5.30)	4.97 (4.97)	5.25 (4.69)	5.48 (5.42)	4.85 (4.78)	5.50 (5.00)	5.45 (5.38)	4.90 (5.00)	5.63 (5.00)	5.52 (5.46)

Figure 1 shows the mean values of each question item from the second semester of the first year to the time of graduation for students who enrolled in AY2019 and graduated in AY2022. In the first year, the mean values for all items were about 3.5 to 4.0, however they improved to about 5.5 at the time of graduation.

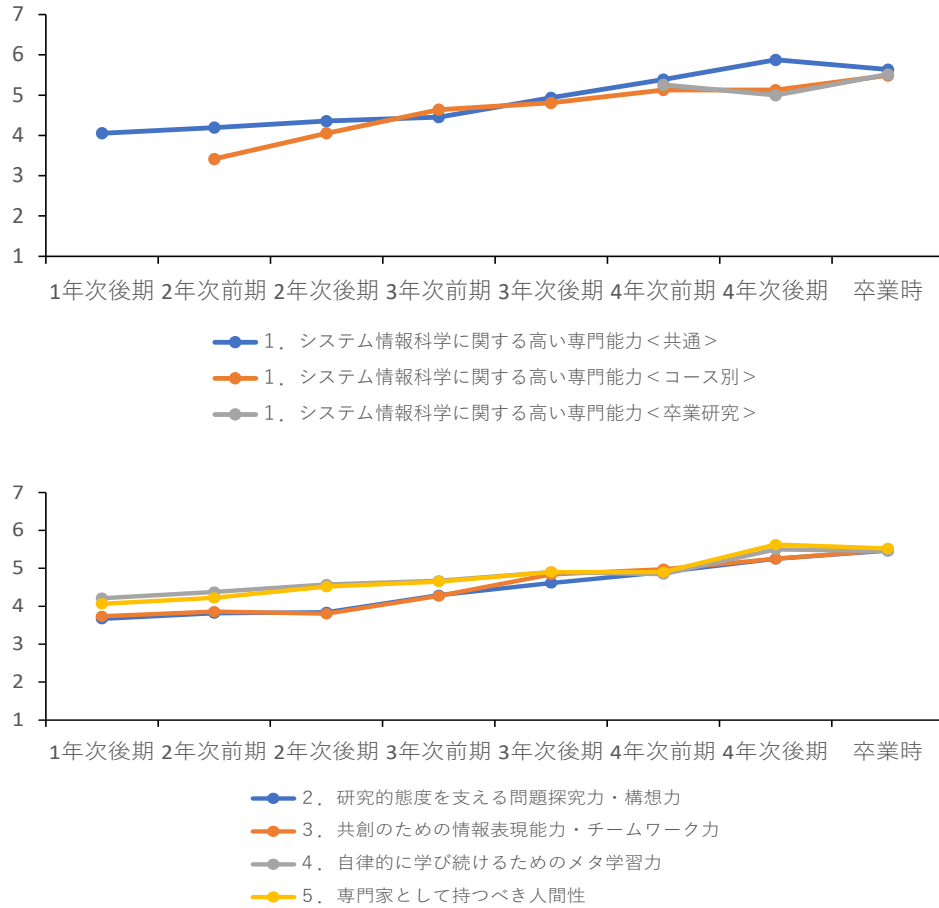


Figure 1. “Self-evaluation for learning achievement transition” of students enrolled in AY2019

Staff: Atsuko Tominaga, Kei Ito

付録
Appendices

公立はこだて未来大学メタ学習センター規程

(平成20年公立大学法人公立はこだて未来大学規程第30号)

(趣旨)

第1条 この規程は、公立はこだて未来大学学則（平成20年公立大学法人公立はこだて未来大学規程第1号）第7条第2項の規定に基づき、公立はこだて未来大学メタ学習センター（以下「センター」という。）について必要な事項を定めるものとする。

(目的)

第2条 センターは、情報技術分野の専門教育の基礎として、大学における学習方法の教育を主たる目的とし、特に、総合的なコミュニケーションの能力および幅広い教養と多角的な視点から物事を判断する能力の養成を中心として、将来にわたり持続的に発展していく社会に資する人材を輩出するための活動を実施する。

(業務)

第3条 センターは、次に掲げる業務を行う。

- (1) 専門教育を受け入れる素地をつくる基礎教育のカリキュラム開発および実施の企画に関すること。
- (2) 新入生の導入教育の企画に関すること。
- (3) ファカルティ・ディベロプメント（教育・研究・運営に関する人材育成および組織改革）の企画に関すること。
- (4) 教育研究および学習研究に関すること。
- (5) 大学の教育活動を中心とした建学理念の共有化に関すること。
- (6) その他公立はこだて未来大学における教育および学習活動に関すること。

(事務職員)

第4条 センターに事務職員を置く。

- 2 事務職員については、公立大学法人公立はこだて未来大学の事務組織に関する規程（平成20年公立大学法人公立はこだて未来大学規程第23号）の定めるところによる。

(審議)

第5条 センターの運営方針に関する事項について審議するため、メタ学習センター運営委員会（以下「委員会」という。）を置く。

2 委員会に関し必要な事項については、別に定める。

(補則)

第6条 この規程によるもののほか、必要な事項は、メタ学習センター長が別に定める。

附 則

この規程は、平成20年4月1日から施行する。

附 則（平成22年3月15日規程第28号）

この規程は、平成22年4月1日から施行する。

公立ほこだて未来大学メタ学習センター運営委員会規程
(平成20年公立大学法人公立ほこだて未来大学規程第31号)

(趣旨)

第1条 この規程は、公立ほこだて未来大学メタ学習センター規程（平成20年公立大学法人公立ほこだて未来大学規程30号）第5条第2項の規定に基づき、公立ほこだて未来大学メタ学習センター運営委員会（以下「委員会」という。）について必要な事項を定めるものとする。

(所掌事項)

第2条 委員会は、次に掲げる事項を審議する。

- (1) 公立ほこだて未来大学メタ学習センター（以下「センター」という。）の運営方針に関すること。
- (2) センターが実施する事業の企画、立案等に関すること。
- (3) その他センターの運営に関すること。

(組織)

第3条 委員会は、次に掲げる者を委員として組織する。

- (1) メタ学習センター長
- (2) 公立ほこだて未来大学の専任の教授，准教授，講師および助教のうちから学長が指名する者

(委員の任期)

第4条 委員の任期は、2年とし、再任を妨げない。ただし、欠員により新たに委員となった者の任期は、前任者の残任期間とする。

(委員長)

第5条 委員会に委員長を置き、メタ学習センター長をもってこれに充てる。

(会議)

第6条 委員長は、委員会の会議を招集し、その議長となる。

- 2 委員長に事故があるときは、あらかじめ委員長が指名した委員がその職務を代理する。

3 委員会の会議は、委員の過半数の出席がなければ開くことができない。

4 委員会の会議の議事は、出席委員の過半数によって決定し、可否同数のときは、議長の決するところによる。

(委員以外の者の出席)

第7条 委員会が必要と認める場合は、委員会の会議に委員以外の者の出席を求め、その意見を聴くことができる。

(庶務)

第8条 委員会の庶務は、事務局教務課において処理する。

(補則)

第9条 この規程に定めるもののほか、必要な事項は、委員長が別に定める。

附 則

この規程は、平成20年4月1日から施行する。

附 則 (平成22年4月1日規程第61号)

この規程は、平成22年4月1日から施行する。



メタ学習センター
Center for Meta-Learning

CML ロゴマーク: 二重の円は、「Learning) Meta-Learning」の関係を表現。顔あるいはカップの見立ては、人が集まる場をイメージしたもの。
Meaning of CML logo: Double circles represent the relation of “Learning) Meta-Learning”. Shape of a face or a cup is the images of an open plaza.

作成: 公立はこだて未来大学メタ学習センター
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