Development of Information Practice (Claymation) on the Subject of SDGs at Hiroshima Jogakuin University

Rieko NISHIGUCHI*

1.　Introduction

The Sustainable Development Goals (SDGs), consisting of a total of 17 goals, were listed in the '2030 Agenda for Sustainable Development' by the United Nations Sustainable Development Summit held in 2015[1]. Japan actively addresses issues regarding the SDGs. Regarding education, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan gave notice of the 2017 revision for Education for Sustainable Development (ESD) for elementary and secondary school students to be builders of a sustainable society, and as well as of the 2018 revision for high school students[2].

In addition, universities are required to tackle the ESD issue concerning the fostering of university students to be builders of a sustainable society. Nonaka[3] developed lessons for students at the faculty of education with the aim of enabling them to set their own agenda and think about having a sustainable society as an issue to solve using the SDGs. Mushiga et al.[4] reported on the inquiry-based cross-disciplinary study period required by MEXT in high schools, which is run by students in a teacher-training course as part of high school–university collaboration. Hemmi[5] developed lessons regarding the potential of the concept of "glocal" ("global" + "local") from the perspective of the SDGs to enhance students' inquisitive thinking ability.

Recently, Hiroshima Jogakuin University has made a strong effort to providing students with learning opportunities that focus on the problem-solving process with others in practical situations, and as a result, has helped them foster skills in relation to "finding one's voice" (*tsutaeru chikara*). The term SDGs has frequently been seen in the media since 2015. However, students living in a peaceful country may find it difficult to be consciously aware of the SDGs in relation to their own issues. To cite a case at Hiroshima Jogakuin University involving the SDGs, Narazaki started a kimono remake project[6,7] that was conducted by students who had participated in the "Seminar in Regional Cooperation Design I and II" at the Department of Life Design and student volunteers in collaboration with Hiroshima Kimono Asobi[F1] as a means of learning SDG 12 (Ensure sustainable consumption and production patterns) in practice.

In the present study, a lesson plan utilizing claymation (clay animation) and the SDGs was developed for the Information Practice. First, students devised a peer assessment to be committed to an SDG issue. Then, to examine the effects of fostering *tsutaeru chikara* and make a comparison with the previous study, a questionnaire survey was conducted to survey student attitudes toward the lesson plan.

2.　Outline of the Lesson Plan

Information Practice is offered to second-year students studying at the Department of Life Design in the Faculty of Human Life Studies and at the Department of Nutrition.

＊ 広島女学院大学人間生活学部生活デザイン学科教授

F1) Ippan Syadan Hōjin Hiroshima Kimono Asobi. https://www.kimonoasobi.info/ (last accessed Nov 23, 2023)

In 2023, 10 students at the former department participated in the class. The main components of this class are as follows:

    1. Guidance

    2. History of animation

       Chōjū-jinbutsu-giga ("Frolicking Animals")

       Create a zoetrope

    3. Origami animation (paper holding)

       Storyboard

       Camerawork

       Create an origami animation

       Show an origami animation and make a presentation

       Conduct peer assessments

    4. Claymation

       Create a claymation video

       Show a claymation video and make a presentation

       Conduct peer assessment

2-1.　History of Animation

Students were given an assignment to provide dialogue for what the animals said on a reprint of *Chōjū-jinbutsu-giga* ("Frolicking Animals"), a picture scroll made about 800 years ago that vividly depicted anthropomorphized animal characters, as shown in Figure 1. The assignment was aimed at helping students make a claymation video that would convey a nonverbal message to others.

Zoetrope fabrication is performed annually in Information Practice. More details are described in a previous study[8].

2-2.　Origami Animation Video

In the present study, the lessons were designed as student peer assessments using an assessment sheet. The sheet was modified from the original for animation by the author, as shown in Table 1. Because origami animations prepare students for the ensuing claymation, the results of the peer assessments are reported with a focus on the claymation projects. The processes for making the origami animations are described in a previous study[8].

2-3.　Claymation

Each student was given a set of clay in four different colors, as shown in Figure 2. They were instructed to make large main characters with the use of a given set of clay. They could also use other colors (e.g., red, black, gray). First, they started their work by writing a storyboard and then made a claymation video. Finally, they showed their animation video, gave a presentation, and conducted peer assessments.

3.　Results and Discussion

A questionnaire survey regarding the claymation assignments was conducted on the students using Google Forms. Of the 10 students, eight responded. Table 2 shows the results for the students' choices of the 17 SDGs and their chosen goals. Most students chose goals of personal interest to them, as shown in Table 3. Some students considered the possibility of clay modeling, which means that they prioritized the completion of the claymation project during the lesson.

Figure 3 shows two scenes from the claymation videos made by individual students. The tools, e.g., the background, as well as the characters in this scene were well modeled using an intelligible storyline, and therefore conveyed a clear message about the chosen SDG. The lessons also gave the students an opportunity to express their creativity.

Table 4 shows the results of a five-item questionnaire survey on the claymation assignment, along with the data
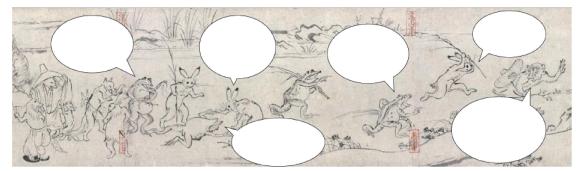

Figure 1　Teaching materials using *Chōjū-jinbutsu-giga* (Kō-Kan). The file "cont_02_balloon_01.pdf" was downloaded from https://www.nhk.or.jp/school/bunkazai/cont_02/cont_02.html. The original *Chōjū-jinbutsu-giga* (Kō-Kan) does not have the dialogue balloons.

Table 1 Peer assessment sheet.

	Items	Allocation of marks	Scores
Presentation	Easy to understand.	3	
	Speaker finished within the given time.	3	
	Speaker spoke clearly.	3	
	Speaker spoke at a moderate rate.	3	
	Speaker made the presentation confidently.	3	
	Slides were made in unified format.	3	
	Speaker made slides using clear illustrations.	3	
	Illustrations were helpful for making a visual presentation.	3	
Animation	Animation fitted the theme.	3	
	Easy to understand.	3	
	Animation conveyed the theme clearly.	3	
	Camerawork was used in the animation (once: 1, twice: 2, three or more: 3).	3	

Optional comments	

The original sheet was retrieved on June 9, 2023 from https://powerpoint-univ.com/assessment/.

(a) Ice Cream   (b) Sweetheart   (c) Mutant

Figure 2 Van Aken International Claytoon™ 4-color sets* selected as educational materials. The images are from the CHUBU DENJIKI KOGYO** website, which is a distributor based in Japan.
  * https://vanaken.com/ (last accessed Nov 19, 2023)
  ** https://www.cecweb.co.jp/products/clto4/ (last accessed Nov 19, 2023)

Table 2 Results of the students' choices from the 17 United Nations Sustainable Development Goals (SDGs). The answers were turned in at the beginning of the claymation assignment.

	SDG	Number of respondents
SDG 2	Zero hunger	1
SDG 5	Gender equality	2
SDG 7	Affordable and clean energy	1
SDG 10	Reduce inequalities	1
SDG 13	Climate action	1
SDG 14	Life below water	2
SDG 15	Life on land	2

Table 3 Results regarding the reason why students chose each goal (multiple answers allowed).

Why did you choose this goal?	Number of respondents
The goal is an issue of interest to me.	5
The goal seemed to be expressible using clay.	3
Others	2

obtained from an earlier study[9] regarding five different assignments in Computer Literacy I and Computer Graphics. The average perceived difficulty level (4.25) for the claymation assignment was the highest among the six assignments. The average levels of both interest (4.50) and

(a) A rabbit and a bear in a field   (b) Deforestation

Figure 3   Examples of student claymation projects. The goal of (a) is "Zero hunger" (SDG 2) and the goal of (b) is "Life on land" (SDG 15). The contents are used with permission by the students.

Table 4   Comparison between the average levels for the four assignments, (a) to (d), in Computer Literacy I, that of the projection mapping assignment in the World of Computer Graphics course, and that of the claymation assignment in Information Practice (Claymation).

	(a) Flower shop	(b) Hana pay	(c) Smart speaker	(d) 500-yen coins	Average level of (a)–(d)	Projection mapping	Claymation
Interest	4.14	3.72	3.72	3.94	3.88	4.15	4.50
Difficulty	3.46	3.62	3.69	3.52	3.57	3.59	4.25
Enthusiasm	4.18	3.90	3.62	3.65	3.84	3.96	4.50
Tsutaeru chikara	3.89	3.69	3.83	3.74	3.79	3.67	3.88

Table 5   Students attitudes toward the SDGs.

The lessons make you aware of SDG issues.	Number of respondents
Strongly agree	3
Agree	1
Neutral	3
Disagree	1
Strongly disagree	0

SDGs here are arbitrary goals in 17 goals.

enthusiasm (4.50) for the claymation assignment were higher than those for the other five assignments. These results suggest that the perceived difficulty of the claymation assignment did not lead to a decline in the students' motivation to tackle it.

Contrary to expectations, awareness of the theme of the SDGs was status quo or declining in 50% of the students (Table 5). These students are presumed to have prioritized their clay modeling over the SDG issues.

The average level of *tsutaeru chikara* (3.88) was higher for the claymation assignment than for all other assignments except the flower shop assignment (3.89); however, the average level was lower than expected, despite an attempt at student peer assessments (Table 3).

Hence, the author proposes setting a question-and-answer session to cultivate *tsutaeru chikara*.

In addition, 20% of the students considered the peer assessments to be difficult. Actually, the students did not have much time to fill out the assessment sheets. Therefore, students need a more intelligible assessment sheet as well as sufficient time to make clear assessments.

4. Summary

Information Practice was carried out using a claymation project using the theme of the SDGs combined with student peer assessment activities. The lessons provided an effective contribution to the hard work of the students. The author suggests the following three key points to improve the lesson:

1. A question-and-answer session seems likely to cultivate *tsutaeru chikara*.
2. The assessment sheet needs to be more intelligible for claymation.
3. Students need to be given sufficient time to conduct peer assessment activities.

Further studies are needed to enhance the awareness of SDG issues.

Acknowledgement

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Rieko NISHIGUCHI

〔研究ノート〕

広島女学院大学における SDGs をテーマとした
「情報処理総合演習（クレイアニメ）」の授業計画

西　口　理恵子*

要　旨

　広島女学院大学においてSDGsをテーマとした「情報処理総合演習（クレイアニメ）」の授業を行い，今回は授業効果の検証のため，学生による相互評価も導入した．さらに，「情報リテラシー」と「CGの世界」で行った課題に対しての学生アンケート（難易度，興味度，熱中度，伝える力）を今回の結果と比較した．難易度は今回が最も高かったが，興味度や熱中度が下がることなく学生らは授業に取り組めた．その一方で，相互評価を取り入れたが，伝える力は期待通りではなかった．これらの点を元に，相互評価シートの改善，評価時間の調整，質疑応答の設定が必要であると考える．SDGsへの意識は今後の研究の余地がある．