

Development of Psychology of Interpersonal Relationships Using Remote Teaching

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1. Introduction

Hiroshima Jogakuin University started remote teaching for almost all courses from May 11 in the 2020 spring term at the request of stay-at-home advisories issued by the Japanese government due to the coronavirus disease 2019 (COVID-19) epidemic. The university was under time pressure before the start of remote teaching, and since it had already adopted Google Account services (e.g., Gmail, YouTube, Google Drive), Google Classroom was selected as the learning platform.

This decision was made in the middle of April, so all instructors were required to redesign their syllabi hastily. We reduced 15-lesson courses to 12-lesson courses and prepared digital teaching materials in just a few weeks, which was a huge burden on the instructors and grueling work for the staffs, who had to survey the remote learning environment of the students. It goes without saying that students, especially first-year students, experienced substantial unease during weeks leading up to the beginning of remote learning. During the first month of use, some degree of acclimatization was needed because this new remote learning system caused considerable confusion among not only students, but also instructors. As a result, the students' questions and problems had to be continually addressed, often until late at night.

A study on active learning in a large sports psychology class (approximately 250 students) using Google Classroom was reported by Kikuchi and Uchino¹⁾. However, they focused on the validity of Google Classroom as an active learning tool for face-to-face as opposed to

remote teaching. This paper first provides an outline of lessons in a "Psychology of interpersonal relationships" course (approximately 100 students) at Hiroshima Jogakuin University and then discusses the results from a questionnaire survey on student assignments to clarify which were more effective. Next, the potential use of Google Classroom for both remote and face-to-face teaching in a large class is evaluated. The course described here began in June 2020, so almost all students had gradually become accustomed to the remote learning system using Google Classroom.

2. Lesson Plan Outline

2-1. Lesson Contents

The "Psychology of interpersonal relationships" course described here is a 13-lesson lecture series given by three instructors in an omnibus format. The author instructed four lessons on the psychological effects of colors once a week starting from the fifth lesson. In 2020, the number of students was 102 (first-year students: 83, others: 19). The lessons are conducted as follows:

1. Guidance

- Function of colors
- Light and colors
- Eyes, illuminating lights, and color mixtures
- Color system

2. Psychological effects of colors

- Visual effects of colors

3. Color harmony

4. Colors in our lives (e.g., goods, fashion, interiors)

The teaching materials are as follows:

- An official text for a third-grade test in color

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coordination (文部科学省後援色彩検定[®]公式テキスト 3 級編, 内閣府認定公益社団法人色彩検定協会2019年初版第 1 刷発行)

- New color coordination cards (新配色カード 199a, 日本色研事業株式会社)
- PDF on demand: The author writes all text from the class lecture in the notes of the PowerPoint slides and converts them to a PDF file.

Each lesson basically follows the following three steps:

1. Study the day's lesson using a textbook and documents provided in Google Classroom by the instructor.
2. Summarize the day's lesson in a digital notebook (referred to as a digi-note).
3. Read the description and complete the assignment.

The author gives students assignments on familiar issues in regard to stay-at-home life in addition to basic color schemes. The aim is to get students interested in lessons and motivated to learn in remote education, especially during the COVID-19 epidemic. Incidentally, the submission of an assignment is regarded as attendance in the associated lesson.

2-2. Surgical Mask Assignment

Wearing a surgical mask is becoming an established practice in daily life, and people can be seen wearing a wide variety of mask types. Students are required to summarize a press release²⁾ issued on a very soft, baby pink mask called *Chou Kaiteki Masuku Jyoseiyou* ("super comfortable surgical mask for women") and write about the effects of colored surgical masks on facial attractiveness. Additionally, they are asked to comment on the press release.

2-3. Fireworks Assignment

Fireworks displays are a feature of summer in Japan. However, to ensure safety, the Miyajima Water Fireworks Festival 2020 in Hiroshima was canceled^{3, 4)}. This decision was made in August 2019 in association with the 2020 Summer Olympics that were planned to take place in Tokyo. Additionally, in 2020, almost all annual fireworks displays were canceled throughout the country because of COVID-19. In this assignment, students are required to color a fireworks sheet⁵⁾ with colored pencils based on color scheme theory and to provide a clear explanation of this theory in regard to their fireworks. The sheet is shown in Figure 1. The author additionally posts questions in

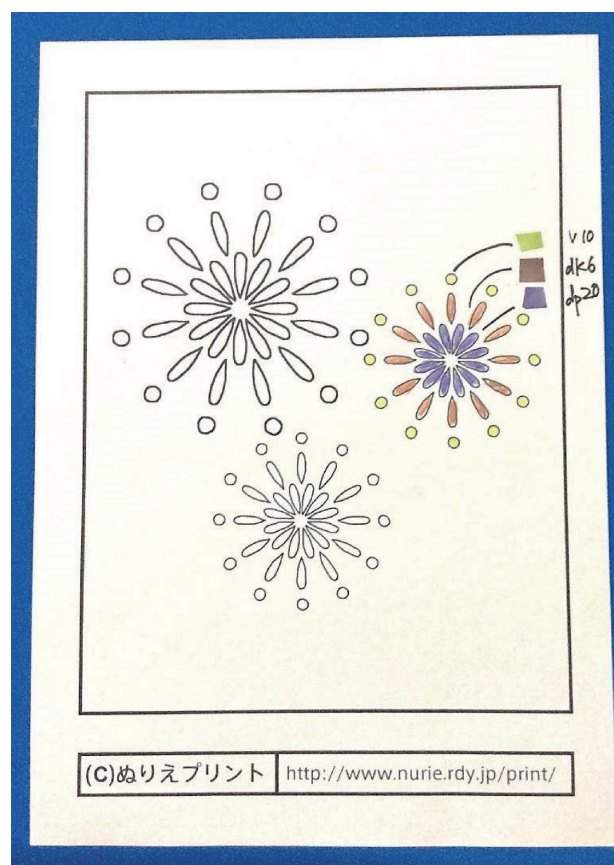


Figure 1. Sample of the colored firework assignment. Cards with color scheme cards are drawn on the sheet and hue-tone codes are written by hand.

Google Classroom to give the students an opportunity to exchange views on their fireworks.

2-4. Amabie Assignment

Amabie is a Japanese legendary spirit who has the power to drive away epidemics. Legend has it that Amabie said, "If people catch the plague, show them a picture of me."^{6, 7)} Figure 2 shows a coloring page depicting Amabie and a finished sheet colored in by the author. Students are required to not only create an Amabie object, but also write a report on, for example, the legend of Amabie and its popularity, the hue-tone codes for the colored pencils they used, and the color scheme they applied.

3. Results and Discussion

The students' assignment status, survey results, and views exchanged in Google Classroom are reported and discussed in this section.

3-1. Assignment Submissions

A record of three assignment submissions is shown in Table 1. Most of the delayed submissions in this study

were about 1 week late, similar to the report by Deadman⁸⁾. The students who had not submitted a completed Amabie assignment, which was set as the highest level of difficulty by the author, doubles the one of the first surgical mask assignment. However, the

submission rate for assignments in remote teaching was better than that in previous face-to-face lessons. When students submit their assignment in Google Classroom, the status of the assignment changes to “Turned in”. If students do not submit their assignment, the status of the



Figure 2. Sample of the Amabie assignment completed using colored pencils

Table 1. List of student assignments

Assignment	On time	Delayed total								Yet to submit
		Delayed total	Within 1 week	Within 2 weeks	Within 3 weeks	Within 4 weeks	Within 5 weeks	Within 6 weeks	Within 7 weeks	
Surgical masks	96	2		1					1	3
Fireworks	90	9	5	2			1	1		2
Amabie	90	5	4				1			6
Total	276	16	9	3	0	0	2	1	1	11

assignment shows as “Missing”. They are bothered by the signs, but actually they seemingly target submission of their assignment on a deadline. Because students can confirm the status of their assigned through a computer or their smartphone, the assignment system is also useful for self-management in face-to-face teaching.

3-2. Enthusiasm and Difficulty Comparison of the Three Assignments

As shown in Table 2, the submission rate for the three assignments was high, at over 90%. Students tended to consider the fireworks assignment to be the most difficult, and thus, the one for which they were the most enthusiastic to do. Students were asked to summarize and comment on a press release but were not requested to do the color scheme for a mask, which seemingly led them to perceive these assignments as being less difficult. Students had to complete the fireworks assignment using only three colored pencils for their color scheme (center, intermediate, and outer circle). However, approximately 30% of the students commented that the fireworks color scheme was difficult, which was seemingly the result of having to apply a theory-based color scheme to fireworks for the first time. Although the students felt that the Amabie assignment was less difficult than the fireworks assignment, their level of enthusiasm, which indicates their desire to learn, was equivalent to that of the fireworks assignment.

3-3. Exchange of Views in Google Classroom

The author provided an opportunity for an exchange of views on the fireworks color schemes in Google Classroom. Almost all the students, including the shy ones, expressed their views; however, they stopped short of actual exchanges. Generally, students consider a color scheme for fireworks while considering what impressions others will have of that scheme in the night sky. Some students discover that they used colors simply before learning about color theory while others became interested in the colors of other things. Based on these results, the fireworks assignment appeared to be useful for applying

color schemes in practice.

3-4. Student Remarks after Four Lessons

The following are findings from student remarks in a questionnaire survey after four lessons:

1. Although the students did not initially understand how interpersonal relationships connect with colors, they learned that colors influence the psychology of the human mind through the lessons.
2. Students became more aware of the colors of everyday things and objects of their interest (e.g., fashion, interiors).
3. Students majoring in nutrition and health promotion become interested in applying what they had learned from the lessons to the color scheme of a menu.
4. Students majoring in child education become interested in applying what they had learned from the lessons to develop materials for use in elementary education.
5. Through engaging in the assignments, students learned about not only hue, but also tone, which are essential terms in color theory.
6. The fact that the color of a surgical mask affects a person's image made a memorable impression on the students.
7. Students felt overloaded with the number of assignments.
8. Although the assignments were difficult, the students were happy when they could meet the deadlines for the assignments.

3-5. Text Mining of Students' Remarks

Furthermore, the remarks were analyzed using the User Local text mining tool⁹⁾. The results, which are shown in Figure 3, indicate the following:

- Hue and tone: Students could understand the meaning of these two basic terms in the color coordination system based on the theory of the Practical Color Co-ordinate System.

Table 2. Comparison between the three assignments

Assignment	Submission rate (%)	Average level of enthusiasm	Average level of difficulty
Surgical masks	97.0	4.0	3.2
Fireworks	98.0	4.5	4.0
Amabie	94.1	4.4	3.7

The level ranged from 1 to 5, with 5 being the highest.

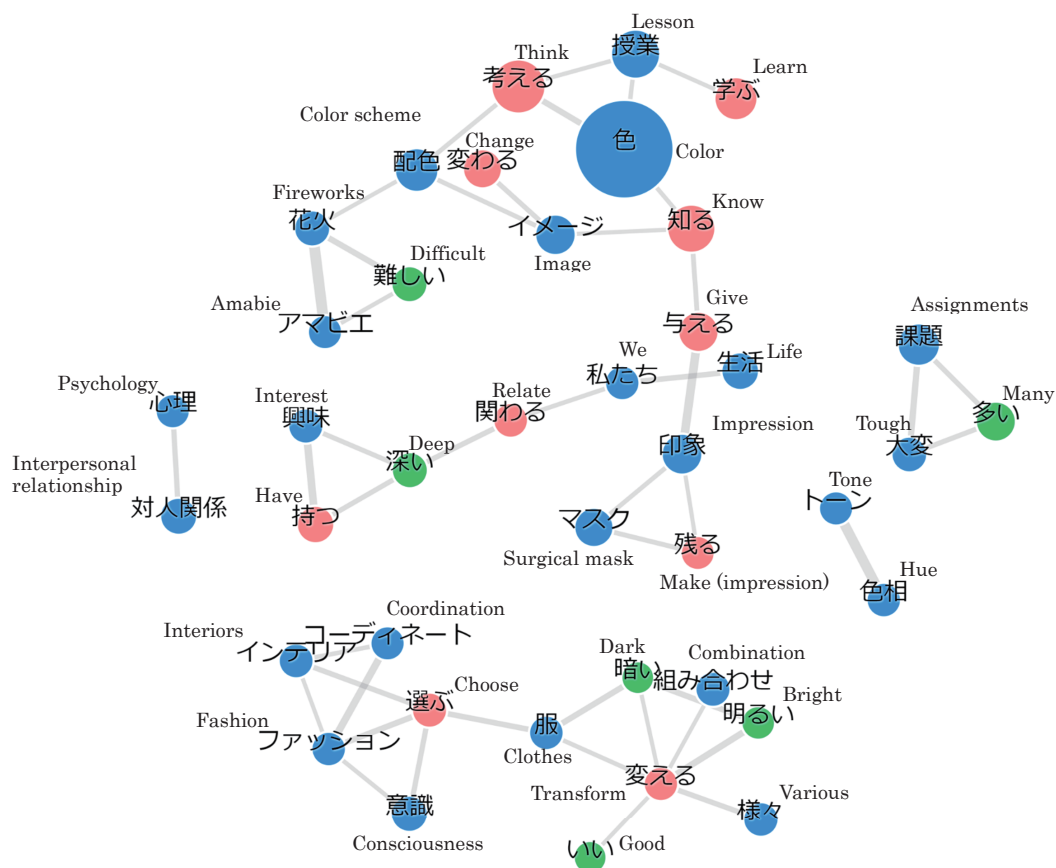


Figure 3. Co-occurrence network of words taken from the students' remarks using the User Local text-mining tool (<https://textmining.userlocal.jp/>). The higher the number of a words in a student's remarks, the larger the size of the circle. Blue, green, and red indicate nouns, adjectives, and verbs, respectively.

- Fashion, interiors, and color scheme: Students showed interest in these topics, which suggests the possibility of their use in future teaching materials.
- Surgical masks and impressions: The result shows that colored surgical masks were useful to encourage (promote) student awareness of interpersonal relations in respect to color.
- Assignments, number and level of difficulty: The results were hardly surprising since many assignments were assigned by other instructors almost every day.

3-6. Availability of the Auto-grading System

Based on the results of the students' graded assignments, some honestly skipped step 1 in the lesson flow, which is described in section 2-1. To have the students follow all three steps and acquire the contents of each lesson, we devised a plan to develop a comprehension test in Google Classroom, where the auto-grading system

is beneficial to students and instructors, especially in large classes, not only in remote, but also face-to-face teaching. However, some assignments (e.g., the fireworks and Amabie assignments) are difficult to grade automatically in Google Classroom. Providing assignment evaluation criteria to the students may be helpful for developing the quality of their work, although this does not reduce the instructors' burden in grading assignments.

4. Summary

The present study can be summarized through the following four key points:

1. Students could earnestly tackle assignments linked to familiar examples (e.g., surgical masks, fireworks, Amabie), especially during the COVID-19 epidemic.
2. Through understanding how color works in interpersonal relations, students became interested in adopting color schemes in their university majors and daily lives.

3. Students actively presented their views to questions posted by the instructor in Google Classroom.
4. Students as well as instructors understood how assignments were submitted through Google Classroom on their computers and smartphones, which promoted enhanced self-management.

We also intend to incorporate Google Classroom in face-to-face teaching using the assignment system, which includes an auto-grading function. In future lessons, we plan to create assignments based on fashion and interiors, topics in which students showed interest. Although almost all students presented their views in Google Classroom, a livelier exchange of views should be promoted. However, this system did not reduce the burden of the instructors in terms of grading assignments since auto-grading was difficult to use for some assignments. These issues should be investigated further in a future study.

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〔研究ノート〕

遠隔授業を利用した「対人関係の心理」の授業展開

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要 旨

COVID-19のため政府より自粛要請を受け、本学でも2020年前期に急遽、遠隔授業を行うことになった。Google Classroomを採用し短期間の準備で5月に授業を開始した。著者は色彩と心理という視点から対人関係を考える授業を担当している。本研究では、西口担当の4回の授業後に履修学生約100人の学生へのアンケートによる調査を行った。また、学生らに出した課題（マスク、花火、アマビエ）への提出状況、反応と合わせて考察した。さらに、Google Classroomシステムの遠隔授業と対面授業での大人数授業での有効性について評価した。その結果を以下の4点にまとめる。

1. 提出状況、熱中度そして感想からコロナ禍での身近なテーマ（マスク、花火、アマビエ）に対する学生の取り組みはよかった。
2. 学生コメントから色の見方が変わった（対人と色の関係、今後の生活や専門領域へ生かす）とあり、学習の目標が達成できたと言える。
3. 意見の発表がほぼすべての学生でできた。
4. Google Classroomの利用によって、学生だけでなく教員は提出がどうなっているかをコンピュータやスマホで確認できる。学生らの自己管理がしやすい。遠隔での課題の提出状況の把握がビジュアルで学生らが確認できる。

資料を配信、課題作成、クイズ作成のために対面の授業でもGoogle Classroomを取り入れることは有効である。しかしながら、課題によっては自動採点システムを使うことが難しく特に大人数のクラスでは教員の負担は依然として減らない点が残る。意見交換においては、全員が意見を出すことは対面では難しいが、Google Classroomを利用することでほぼ全員が意見を出すことができた。今後は、より活発な意見交換へと誘導していく必要があると考える。