

Proposal for Research Presentation Poster Design Workshop by Junichi Endo

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Abstract

Since 2009, we have been teaching graduate students the design basics needed to create research presentation materials such as slides and posters. The course aims to provide students with the ability to create posters for presentations at academic conferences. We focused on research materials because the need to make research presentations at academic conferences increases as Japanese students reach the graduate level. Clarity and visibility are more important than the visual impact when designing research materials. For business presentations and advertising, there is a need for high-quality visually stimulating slides, such as large photos, flashy illustrations, and animation. However, academic materials require clear design and easy-to-read content. We proposed an additional workshop in which students could acquire poster design skills. In this workshop, students were able to get feedback on how others saw their own layouts from a “third person perspective” and learnt how to achieve the sense of balance necessary for effective poster design. It became apparent that the students needed to more thoroughly understand the concepts of design and not just learn a set of rules. The workshop had very positive effects on subsequent poster designs. The students were able to identify the incomprehensible aspects of their own poster design in the workshop. This understanding has enabled them to work independently and improve their own poster designs when preparing their own research posters.

Keywords

design, workshop, research poster, higher education

Introduction

Since 2009, we have been teaching graduate students the design basics needed to create research presentation materials such as slides and posters. The course aims to provide students with the ability to create posters for presentations at academic conferences. In 2013, we authored a textbook on poster and presentation design for such purpose.

We focused on research materials because the need to make research presentations at academic conferences increases as Japanese students reach the graduate level. Despite this needs, it was found that many students had limited design skills because there had been few opportunities for them to learn design for education before they entered university. Therefore, there was a need to the students how to design materials higher-education research materials. Clarity and visibility are more important than the visual impact when designing research materials. For business presentations and advertisings, there is a need for high-quality visually stimulating slides, such as large photos, flashy illustrations, and animation. However, academic materials required a clear design and easy-to-read content. Consequently, it is not appropriate for students to refer to business presentation designs as business and research presentations have vastly different purpose.

In particular, research posters need to be able to stand out among many other poster presentations on display. Therefore, we developed and implemented an intensive poster design course for graduate students. This course enables effective learning because it combines lectures of design basics with practice on the relevant software, which enables students to concretely learn the theory and practical skills necessary for effective research poster design.

We proposed an additional workshop in which students could acquire poster design skills. This workshop was added to the lecture-based and practical learning components of our poster design class.

In this workshop, students were able to get feedback on how others saw their own layouts from a “third person perspective” and learnt how to achieve the sense of balance necessary for effective poster design. This understanding enabled them to independently work on improving their own poster designs when preparing research presentations. This paper reports how this workshop was conducted, discusses the results, and gives an overall evaluation of the success of this addition to the course.

Intensive Course: “Visual Design of Research”

The course, “Visual Design of Research” is offered every summer for graduate students majoring in science at Nagoya University. The course contents are presented in Table 1. The classes are held over two days: the first class is a lecturer focusing on design basics, the second to fifth classes are practical sessions focusing on designing posters, and the last class is a session dealing with student reviews. The specific course contents of the basics of graphic design are divided into layout and appearance (Table 2).

Table 1: Course contents in 2014

<u>Schedule</u>	<u>Learner Model</u>	<u>Contents</u>
Day 1	1.Lecture	Design basics
	2.Practice	Drawing a draft poster
		Basics of Adobe Illustrator
Day 2	3.Practice	Designing the poster
	4.Practice	Designing the poster
	5.Practice	Designing the poster
	6.Practice	Designing the poster
		Printing on a large-format printer
7.Lecture	Review	

Table 2: Specific course contents of the basics of graphic design

<u>Layout</u>	<u>Appearance</u>
margins	contrast
columns	repetition
alignment	noise reduction
grouping	color schemes
	fonts, line spacing, justification

Problems in the 2014 course

Unfortunately, during the 2014 course, we were unable to adequately impart certain essential design components such as alignment, layout balance, and color schemes to our students. It was difficult to develop simple creation rules for these components because they heavily depended on the content and quantity of information in each poster. It was very difficult for students to devote sufficient time to mastering poster design.

A judgment of good or bad in these cases was relatively easy for beginners because the visual differences were clear, as described the following list.

- Reducing noise: identifying thick lines or shadow effects as noise
- Creating contrast: It is difficult to read if the contrast between the background color and the text color is low
- Dividing columns: Using multiple columns to reduce the number of characters per line



Fig 1. Examples of noise reduction, contrast creating, and column usage

However, there was some incomprehensible content, as in the following list. Where the visual differences were not readily obvious, it was important for students to learn to notice these small differences.

- Alignment: aligning the left side of the main heading and title, the sub-headings and the body text
- Layout balance: lack of spacing, or too large or small margins



Fig 2. Examples of alignment and layout balance

Here, we show some examples of the posters, designed by students of the 2014 course that needed improvement (Fig 3). These posters were well designed; however, there were some problems in the layout details and the appearance. For example, the contrast in the title and the heading was too low, the margins were too narrow between the heading and the border, and

there was inadequate alignment between the left and right sides of the column.

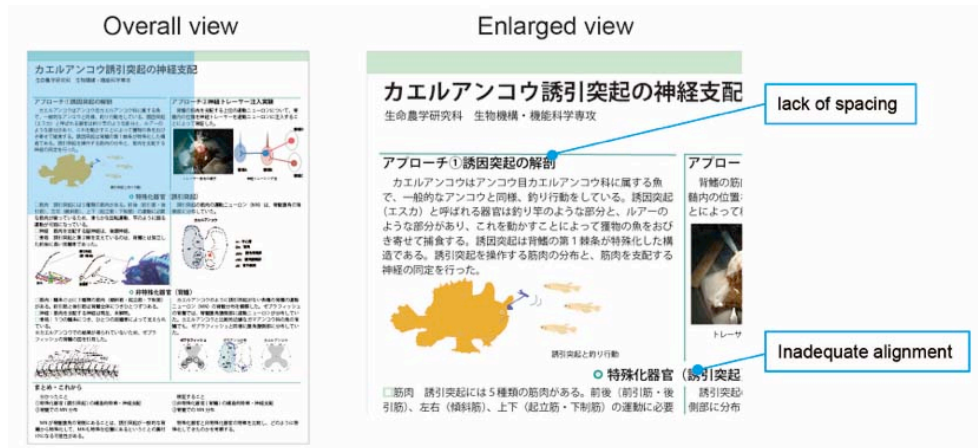


Fig 3a. Examples of posters designed by students in 2014.

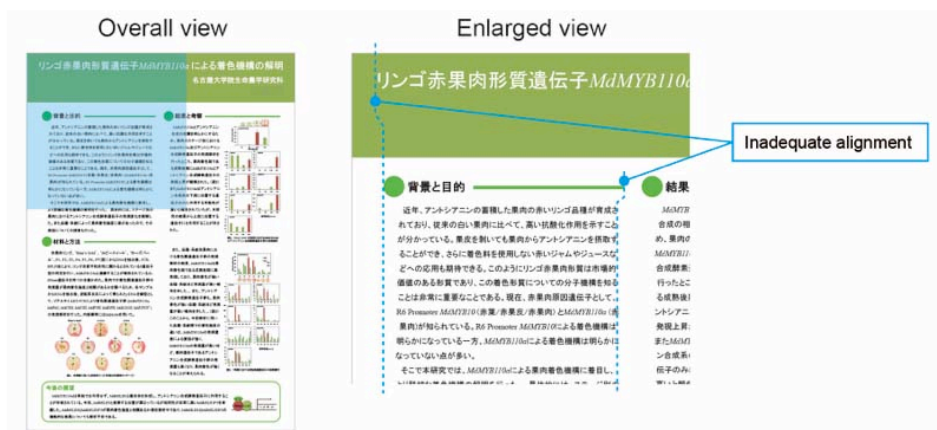


Fig 3b. Examples of posters designed by students in 2014.

Workshop

It became apparent that the students needed to more thoroughly understand the concepts of design and not just learn a set of rules. Generally, an experience in creating multiple posters is necessary to fully master such challenging aspects. In this study, we discuss a workshop in which students can learn a sense for poster layout balance within a short time. This workshop can be added to the lecture-based and experiential learning and enables the students to become acquainted with the various perspectives of the other students by cooperatively solving multiple issues. This table shows the course content of the 2015 course. We added the workshop to Day 2 of the first class.

Table 3: 2015 course contents

<u>Schedule</u>	<u>Learner Model</u>	<u>Contents</u>
Day 1	Lecture	Design basics
	Practice	Drawing a draft poster
		Basics of Adobe Illustrator
Day 2	Practice	Designing the poster
	Workshop	Design workshop
	Practice	Designing the poster
		Designing the poster
	Practice	Printing on a large-format printer
Lecture	Review	

The workshop model has three steps: design, discussion, and reflection. First, for the design component, students individually solve the layout issues assigned to them. Then, students form groups and explain and discuss their designs. By exchanging opinions with other students regarding comprehensibility, students receive a third-person perspective on their own design knowledge. Finally, in the reflection phase after seeing and discussing the posters of other groups, students revise their own posters.

We provided poster data, which had the same content for all students and was suitable for A4-size paper (Fig 4). It was then easy to compare ideas between the students. The poster data had five sections of dummy text in Japanese, a picture, a table, and a graph. The reason we used A4-size paper was to facilitate the printing of the students' work and it was easier for them to view and discuss each other's work during the workshop.

研究におけるビジュアルデザインの重要性

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1. 研究の背景と目的

これはサンプルテキストです。近年、大型の液晶ディスプレイなどを用いて電子的に情報を提供するシステムが普及してきている。こうした情報提供システムは、デジタルサイネージと呼ばれており、近年急速に普及が進んでいる。広告としての利用に加え、公共施設や教育機関、病院などでは情報提供の新しい手段として広まりつつある。しかし、その画面デザインは十分に評価がなされないままに設置される場合が多い。

本研究では、情報提供を行うデジタルサイネージのデザイン・パターンを提示し、画面デザインの適切さについて心理的な距離を測定した。

2. システムの設計と実験パターン

これはサンプルテキストです。実験では40インチの液晶ディスプレイ (SONY 製 KDL-40V1) を 2 台並べ、実験パターンを表示した。有効表示サイズは、横 88.6cm × 縦 49.8cm、表示ピクセルは横 1920 ピクセル × 縦 1080 ピクセル、画素ピッチは 0.461mm である。液晶ディスプレイへの入力信号は D-Sub15 ピンの PC 用入力ポートを用いてアナログ RGB 信号を入力した。

表1 各パターンの重み付け

	A	B	C	D	E
パターン1	1	1	4	3	2
パターン2	4	1	5	5	2
パターン3	5	2	2	2	3
パターン4	3	3	5	2	2
パターン5	5	5	4	1	2

3. 実験内容

これはサンプルテキストです。これらの尺度値を心理尺度へ表すために、各刺激間の関係性を明らかにするために検定を行った。5%の有意水準で有意差が認められた場合は検定結果の欄に「*」で表し、1%の有意水準で有意差が認められた場合は検定結果の欄に「**」で示した。

これはサンプルテキストです。ピクトグラム・色付 (パターンb) は注視点数の平均が 4.00 と最も少なく効率的に画面を見ていると言える。注視点数の標準偏差も 2.35 と最も小さいことから、被験者による注視の差も少ない。また、最初の注視点ピクトグラム周辺に集まっている。



図1 実験の様子

4. 実験結果

これはサンプルテキストです。これらの尺度値を心理尺度へ表すために、各刺激間の関係性を明らかにするために検定を行った。5%の有意水準で有意差が認められた場合は検定結果の欄に「*」で表し、1%の有意水準で有意差が認められた場合は検定結果の欄に「**」で示した。

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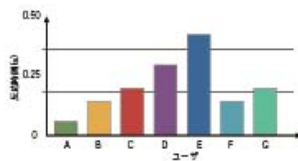


図2 各パターンの評価グラフ

5. まとめと今後の展開

これはサンプルテキストです。実験1の結果から、画面切り替えの見やすさは、ムーブインと押し出しを用いたデザインが良い評価であった。また、実験2の結果から、ムーブイン・横がもっとも良い評価であった。実験1の結果から、画面切り替えの見やすさは、ムーブインと押し出しを用いたデザインが良い評価であった。

Fig 4. Prepared poster data.

Fig 5 shows that the flow of this workshop contains two steps. The first step involved designing the layout and a discussion in which the students discussed each other's layouts (Fig 6). After the discussion, the posters were displayed on the wall (Fig 7). The second step was designing the appearance, which was again followed by a discussion on their posters after which they revised and printed their posters (Fig 8). We put the posters on the wall again so that they could view each other's work (Fig 9, 10).

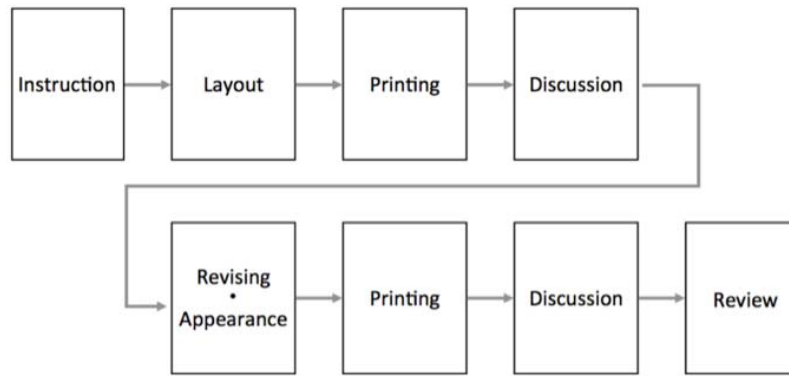


Fig 5. The flow of our workshop



Fig 6. Discussing the layout with each other



Fig 7. Displaying the posters on the wall



Fig 8. The second group discussion



Fig 9. All posters being displayed on the wall



Fig 10. Examples of completed posters

Workshop Questionnaire

To check the reaction to the course with the included workshop, we conducted questionnaires after the completion of the course. These charts show the results of the questionnaire to which 14 students responded.

Question items are as follows:

- Question 1: “Have you ever designed a research poster?” (Never, Once, Twice, More than three times) (Fig 11)
- Question 2: “Have you ever used Adobe Illustrator?” (Never, Two or three times per year, Two or three times per month, Nearly every day) (Fig 12)
- Question 3: “Was it helpful for you to see other students’ designs in this workshop?” (Disagree, Somewhat disagree, Somewhat agree, Agree) (Fig 13)
- Question 4: “Did you understand how to design research posters by the end of this workshop?” (Disagree, Somewhat disagree, Somewhat agree, Agree) (Fig 14)
- Question 5: What did you learn about design from this workshop? (free description)

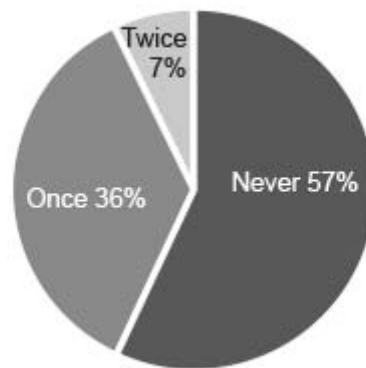


Fig 11. Question 1: “Have you ever designed a research poster?”

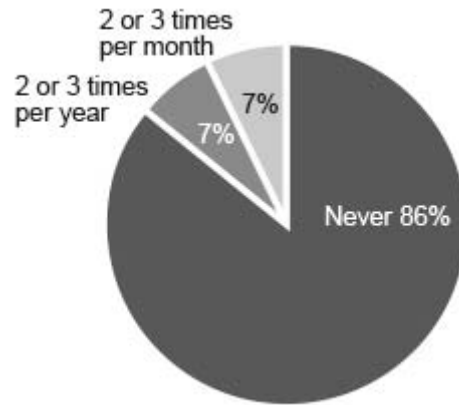


Fig 12. Question 2: "Have you ever used Adobe Illustrator?"

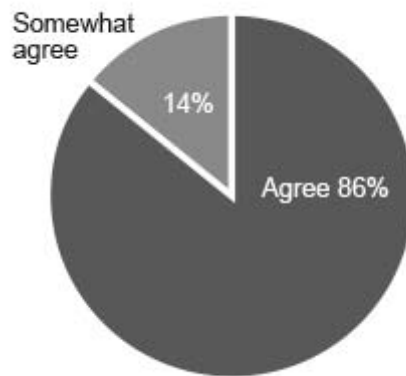


Fig 13. Question 3: "Was it helpful for you to see other students' designs in this workshop?"

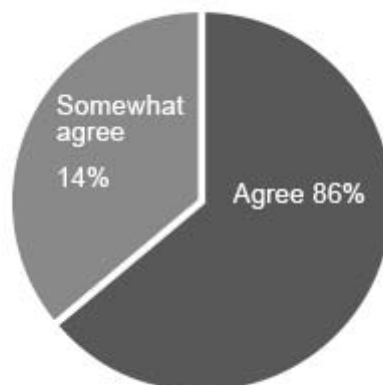


Fig 14. Question 4: "Did you understand how

to design research posters by the end of this workshop?”

Some examples from the responses to Question 5 are as follows.

- I was able to incorporate good points by looking at the other students' posters
- I learned how to emphasize the flow of the layout
- I noticed that it looked better to have a balance between pale and more noticeable colors rather than using colors that were too bright
- I learned how to make changes to make it easier for people to see the subheadings

Poster designs following the 2015 course

After the workshop, the students designed their own research posters (Fig 15). The effects of the workshop should become visible after the course as the students contributed to improve aspects of their own posters, such as alignment, color schemes, and layout balance. The workshop had very positive effects on subsequent poster designs.

Conclusions

The addition of this workshop has given students a chance to understand how others view their designs. Therefore, students were able to identify the incomprehensible aspects of their own poster design in a limited time period. This understanding has now enabled them to work independently and improve their own poster designs when preparing their own research posters.

The intensive course involving the workshop was the first attempt at course improvement. From the results of the questionnaire and the student's poster designs, the workshop was highly successful. However, there was no lecture included as a part of the workshop: hence, we expect that after a more detailed investigation of the effect of the workshop, we may increase the number of lectures in the future. We plan to revise the content of our text after aggregating the final results.

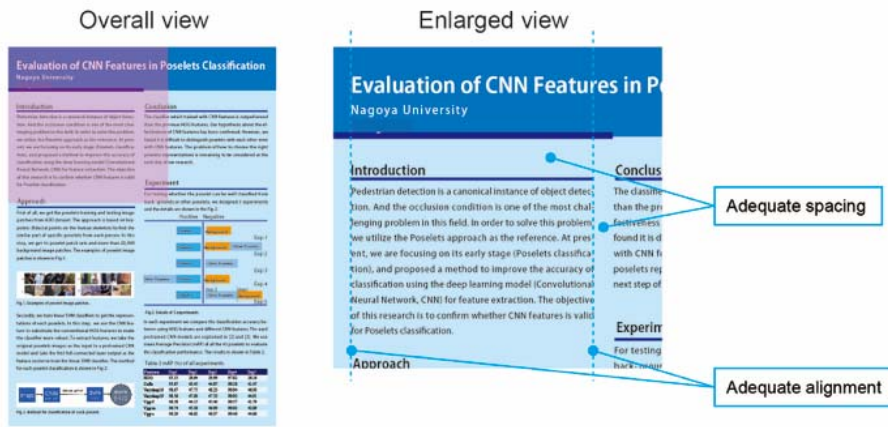


Fig 15a. Example of completed posters for students' own research

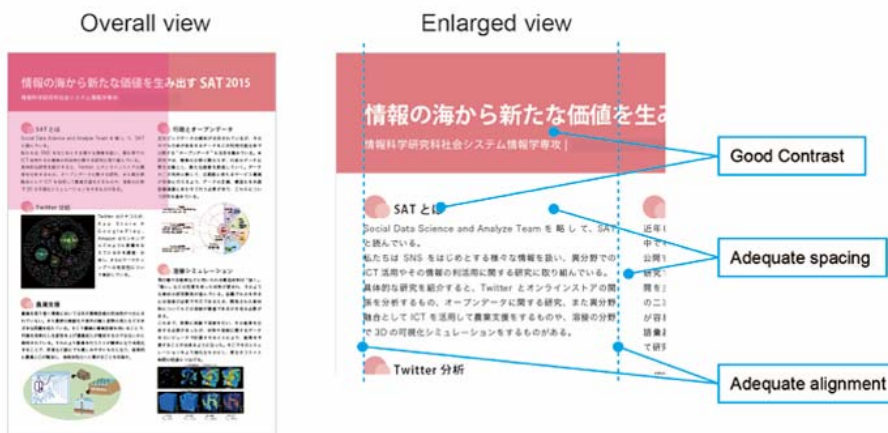


Fig 15b. Example of completed posters for students' own research

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