The “Collaboration” of 5C Model in Creative Design Education

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Abstract. The demands in higher education are on the rise. Charged with teaching more content, increased enthusiasm of the students and engaging students, educators face multiple challenges. The 5C model is a theory that developed in an educational context by design thinking, knowledge production, and learning. This model would give students a standard thinking mode to solve a problem, and make a strategy of design. It more looks like a design process, which leads students to follow and do. The process including Collection, Comprehension, Concepts, Creation, and with Collaborate in the middle to illustrate that collaboration is important in each of the categories. In this article, through the undergraduate degree course of interaction design by Changshu Institute of Technology, students are required to collaborate to complete the brief projects, such as results of on-site observations, interviews and analyses of creations. To define how “collaboration” affects design process. The results of this study can be used as basic data for co-design education and can contribute to the expansion of visual communication design educational methods.

Backgrounds

Interest in collaboration design and collaboration design methods is increasing both in the design industry and in the academic field [1]. The 5C model: Collection/ Comprehension/ Concepts/ Creation/ Collaboration that is the 5 key steps of the design process. According to the Friss and Gelting [2] paper, design is a process aimed to find problems and to produce knowledge. This
knowledge could produce existing situations and future situations, and could be produced both by physical experience and by mental processing. This process must involve the complicated thinking processes of recognition, memory, divergent thinking and convergent thinking. More and more designers think that design is a way to deal with complex problems and multidisciplinary team works, it just like a gather place for diverse field practitioners and researchers to solve a troublesome problem.

So helping students understand ways of producing knowledge in practice is so important. And the 5C model is not only a mode to think about design but also a language for explaining a design.

This article focus on mentioned “Collaboration” skill. The value of collaboration is crucial to achieve success in a project. It has been indicated that students who work in small groups outperform their peers in critical areas including: knowledge development, thinking and social skills, and course satisfaction [3]. What is the means of collaboration? It is an experience that working with others to do things that you cannot do by yourself. During this process, students’ communication skills are developed and strengthened, but students will work with people they do not understand or they do not like. They become active participants in the learning process, gaining valuable skills in cooperation, listening and communication [4].

More specific, the challenges in the group collaboration are Communication. Also find individual value in group and use strength in a team or group and how to learn from each other. “As the article said if there are no listeners in a group, it’s really hard to learn from each other.” As it said ahead, design is a place to solve diver’s field problem, which is also can, concerned as teamwork. So the fifth C (collaborate) exist in each of the categories. And as my point of view, it is a collaboration of different disciplines, different members in this team and even the different way of thinking. Therefore how does the “Collaboration” effect each category and how they really influence the producing knowledge in design practice is a worth question to discussing.

Methods

The case study method was adopted here. This case study applied in the collaborative design in design education. Through the students’ participation in the design process, and the effect of collaborative learning, as well as the presentation of final project, it analyzed the necessity of collaboration in design education. We mentioned before, the 5C model consist of four phases Collection, comprehensions, Concepts, Creation of design. The experiment will combine with the course project to explain the collaboration in different stages of design.

There are two classes, including sixty-five students of junior, to participate in visual communication design in Interaction design course. (32 students in A class, 33 students in B class). During the 4 weeks’ course, the main task of course demands students to design the early part of application for mobile phone, including the user research and interface design of application. Curriculum includes some different briefs. Before the start of the course, we divided three or four students into one group to record the whole process and the transcription participants’ feedback on the course for each phase. After the course experiment, the students also participated in a depth interview.

Collection

This phase is all about user center design. It is about existing knowledge, about observing, reading, interviewing people and paying close attention to detail. To be able to collect relevant information and insight it is important to engage in the world of the target audience.

At this stage, we usually need to finish at the beginning of the project. The first brief of course: brainstorming (5 to 15mins). This process requires students to training fast, not only to guide the student to develop thinking at this time, also to encourage every member of the team to publish their views. After this brief, students can determine the research question of project, and think how application design can solve a problem for the user.

Brainstorming is a way to generate creative ideas that inspired participants in a short time. The purpose is to collect more ideas, to sum up new ideas, and put forward the solution.
Typically, it would be a facilitated, though loosely organized, session in which group members are licensed to propose any idea without censure, in order to increase the likelihood of innovative and original ideas innovation [5] (Fig. 2).

**Comprehension**

The comprehension phase is a way to produce knowledge about existing situations based on deduction. It involves. During this part it is possible to discover valuable insights and problems.

Good Individual learning is the basis of organizational learning, but if we want to produce more new knowledge, you must learn by team. Amason and Sapienza found that team heterogeneity could improve learning performance. Team members have the knowledge and they have a different point of view, through team learning, and comprehensive information of different individuals, not only can get some new information, also has formed the new understanding of the problem.

Students have to be asked by team to complete the design project of feedback testing in different stages of the design. Each student in the group has to report their design process and stage results. Other members of the group can report the results and propose their own views (Fig. 3).

**Concepts**

During the design process, when we are about to conceptualize we need to think about future situations, we need to imagine new possibilities. The importance of collaboration during the ideation process, everyone in the group thinks differently and all of the ideas are valuable. While doing this, it is important to capture everything everyone says, no matter how silly or unrealistic it sounds because this could trigger future ideas. Also the team should encourage everyone to participate and keep the dynamic going (Fig. 4).

**Creation**

Design is not just making a product or making a good-looking layout or typography; it contains a lot of disciplines and rational thinking. Yes, it is an ever-expanding field. The creation part of the design process is a balance between everything. It is important to acknowledge the context but it is also crucial to dream about future situations. Also it requires that all of the stages of the 5C model be completed to fully understand the problem and come up with an accurate solution and actually make it real.

For example, there is another short brief of prototyping-shopping web homepage design. We divided the students in one group into two roles: designers and consumers. Let them plan the content of website homepage quickly and separately, and then find out the differences. Finally, complete the homepage design through the group collaboration (Fig. 5).

![Figure 3. Group Discussion.](image_url)
Conclusion

Not only in the field of design. In today's society, with the advent of the era of knowledge economy, there are all kinds of knowledge, different new technology constantly, and the increasingly intense competition, make people's work and study situation become extremely complex. In many cases, the individual ability has been difficult to completely handle all kinds of complicated problems and take concrete and effective action. Therefore, cooperation is more important, for example the further interdependence, mutual connection, and mutual cooperation between team members. Building the team cooperation to solve complex problems. And make the necessary action coordination, to develop the strain capacity of a team and continuous innovation ability of a team, rely on the power of the team cooperation to create a miracle.

After the four weeks’ course, I have made the interview about “how do you feel about the collaboration learning?” There are some feelings of students below.

"I like the collaborative learning. Learning by group I can complete the teaching goal. I am also very willing to share with other members, and learn from each other. But some members shirk responsibility; which leads to reduce the working efficiency.
—He Cong Cong"

"In the team discussion, I'll selectively say what I think is good. At the same time, is also very willing to participate in group cooperative learning. But some members work independence at ordinary times, do not want to participate in collaborative learning, and cause communication difficulties.
—Liu Xiao Xuan"

"I think the group learning can enhance the team cooperation ability, which is good for the future. Some students will "hitch a ride” during the team cooperation.
—Zhang Rong"

Through the questionnaire, the statistics for group cooperative learning attitude survey, Of the 65 students, 22% of students like team work very much, 61% of the students are willing to participate in the collaborative learning group, 17% of the students don't like the cooperation. For the effect of
group cooperative learning research, 59% of the students think that teamwork can strengthen the team cooperation ability, which is good for future work. 24% of the students think they can promote the emotional communication. But there are 17% of the students think the team cooperation effect is not big. For the performance of team collaborative learning research, 71% of the student will selectively say the idea, and is willing to share with other members. But there are 9% of the students not to present their own comments. 11% of the students in the collaboration will choose to do nothing. Visibly, team collaboration in the process of design, in to the student benefits at the same time it still has some problems that are also the worthy topic of cooperative education to discuss in the future.

Overall, make up groups tend to come up with more innovative ideas because everyone participates based on their own expertise and thus it is possible to enrich the overall solution to the project. The relationship between individual and group is like the stream and the sea. Everyone will blend in the collective, and give full play to the role of the individual. In short, team spirit is indispensable for any organization. Otherwise, it is rubble and chaos. This is the important representation of the collaboration in the creative design process.

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