Learning from Students: Reflections from personal magazines in basic design course

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Abstract

Reflective writing is an efficient way of getting feedback from students. Paper-based or web-based course evaluation questionnaires alone may lack of collecting specific and detailed information, especially for the fields like design education. This study focuses on reflections captured from students via two different media – personal magazine and online questionnaire – in 2012 Spring Semester conducted in Basic Design II in the Department of Industrial Product Design at Istanbul Technical University (ITU), Turkey. Throughout the semester, each student was encouraged to write a diary weekly and expected to submit a photocopied page of it to reflect freely their impressions about the course and their experiences, written or visual, or both. At the end of the semester, students were expected to submit their diaries in the form of personal magazines. This data is valuable to see the development of the student in terms of design awareness and perceptions about the course specifically. Moreover, a specific web-based questionnaire is prepared and delivered to students in order to see the general tendencies about the course. Based on these data, we explore how we can learn and benefit from students' reflections for Basic Design course mechanism and design education.

Key words

design education, basic design, industrial design, reflective writing, writing-to-learn, learning

Introduction

Especially in project-based courses, face-to-face relationship with students is apparently important both for students and instructors. This mutual contact makes students to get involved in the course with more enthusiasm and also instructors are able to get more feedback regularly.

Since the student quota for the Department of Industrial Product Design at ITU was increased from about 30 to 45 step by step in recent years, the problems about constituting face-to-face relationship became more obvious especially for 1st year courses. It has been demanding for instructors to deal with the huge number of students. Basic Design courses, which are compulsory introductory courses in Industrial Design curriculum, were affected in such a way that direct and one-to-one interaction almost disappeared. Therefore, the tutors of these courses –also the authors of this paper– had to invent and implement methods to get feedback from students.

This paper aims to discuss these methods and reveal their outcomes. In order to capture reflections from students two different media were used; namely personal magazine and online questionnaire.

1. The Issue of Reflection in Design Education

In student-centered approach, the actions that student does are more crucial than those that the teacher does (Rogers, 1951). This idea also suggests that students' experiences and perceptions influence the methods of learning and the things that are learnt. At this point, reflective process is considered as an important tool where student can play an active role (Kolb, 1984).

According to Moon (1999), there are different understandings on reflection, which can be seen in Dewey (1993), Hullfish and Smith (1961) and King and Kitchener (1994). These understandings can be summarized as:

> …[reflection] impl[ies] a form of mental processing with a purpose and/or an anticipated outcome that is applied to relatively complicated or unstructured ideas for which there is not an obvious solution. This suggests close association with, or involvement in, learning and the representational learning (Moon 1999, p. 4).

Reflection is particularly critical in the fields involving practice such as design. According to Schön (1982):

> Through reflection, [practitioner] can surface and criticize the tacit understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to experience. (p. 61).

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He points out two major notions: reflection-in-action and reflection-on-action. While "reflection-in-action" corresponds to thinking on feet, "reflection-on- action" implies re-considering a practice later. The former one is highly related to considering experiences, feelings and theories in use. By this way, practitioner can inform his actions with new approaches. However, the latter one refers to thinking on past actions. Therefore, practitioner can examine his actions by revisiting them (Schön, 1982).

In summary, reflection is closely connected with the action; and practitioners should learn frame and reframe the problems and make necessary changes during actions (Schön, 1982).

As Dewey (1993) posited, "The function of reflective thought is…to transfer a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort, into a situation that is clear, coherent, settled and harmonious" (p. 100- 101). This becomes more crucial in the context of design-related domains where problems are wicked; and thus ambiguous (Buchanan, 1992; Rittel and Webber, 1973).

Based on Schön's "Reflective Practitioner", there has been a tendency to search for getting reflections from students. In this context, the idea of reflective journal offers a tool for "inner dialogue that connects thoughts, feelings, and actions" (Hubbs and Brand, 2005, p.62). Specifically, the personal journal/diary (personal magazine in this paper) is considered as a narrative descriptive writings where students can share their secrets and no interaction between tutor and students occurs (Hubbs and Brand, 2005).

In short, diaries are used with the purpose of "help[ing] the students reflect on their own learning process, including subjective experiences, and relate learning from literature to their ongoing design project" (Lee et al., 2011).

In this study, personal magazines (a compilation of diaries in a graphically arranged format) are used to capture reflections in Basic Design course.

2. A Brief Glance Into Basic Design Course

Basic Design is a compulsory and introductory course in the first year of the curriculum in design education. Many design educators regards it as 'indispensable' (Özer, 2004). The course can be considered as practice-based, focusing on visual perception, principles of basic structures, form-function relationship, and color theory. The foundation of the Basic Design concept is highly connected with the perception theories of Gestalt, which created the curriculum of Bauhaus school (Denel, 1981). Denel (1979) defines Basic Design as a mental system emphasizing on the visual dimension and considers it as the foundation of and beginning of architectural education. He asserts that it is problematic to implement Bauhaus practices entirely and without questioning; and proposes holistic approaches in the studio classes and a modification for specific conditions (Denel, 1979).

Inevitably, the ever-changing approaches and evolving concepts affect the understanding of design education. Kolko (2000) criticizes today's design pedagogy approaches for still being focused on form-giving, rendering, model making and styling instead of business strategies, user-centered design and service design etc. However, Basic Design courses seem to have a very important role as an introductory course in Industrial Design curriculum in the appearance of these new trends with a broader perspective.

According to Boucharenc (2006), Basic Design education is still a very crucial element in design education curriculum in most of the countries. More specifically, Blachnitzky (2011) explores whether there is a consensus among first year design educators in basic design principles (two- and three-dimensional basics, shape, color and experimentation with materials). In short, since human sensation remains the same, in today's design education it is still valid to include these principles in order to develop a common visual language, to practice their perception, and to cultivate a specific way of learning. Not surprisingly, some of the educators believe that teaching design basics in general is not adequate and propose that real-world design projects should also be engaged in Basic Design (Blachnitzky, 2011). At the same time, it is also vital for instructors to seek proper methods for design pedagogy and to be aware of different pedagogical attitudes (Farivarsadri, 2001). Therefore, besides generating the design projects to be assigned to the students, it is significant to develop proper methods to establish coherent communication with the students.

Since this study is based on students' reflections in Basic Design II in the Department of Industrial Product Design at Istanbul Technical University (ITU), the series of exercises conducted throughout semester will be introduced briefly in this section.

Basic Design II is a compulsory course, which has a prerequisite of completing the Basic Design I, for Industrial Product Design students at ITU. The course content is basically composed of:

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Three dimensional, structural and basic functional design exercises, Building structural designs with different materials, Experimental exercises on Motion, Structure, Mass, Texture and Light, Design as problem solving method, Creative strategies in design. Experimental design and applications, Design problems of 3-D functional systems and experimental 3-D design studies (ITU Course Catalogue Form, 2009).

Even if the course content shares some similar characteristics with Bauhaus ecole, the course tutors are seeking new approaches by adopting new design exercises and applications for today's student profile and conditions. Getting reflections by using personal magazine is the result of this approach.

In 2012 Spring Semester, the following exercises were assigned in Basic Design II course:

- Body Extension: Focusing on the interaction between human body and object
- Color and Objects: Differentiating objects by the element of color
- Logo and Layout: Designing logo and developing layouts
- Solid, Liquid, Gas: Expressing states of matter in 3D
- 3D Abstraction: Abstracting a pinecone and analyzing its structure
- Music Abstraction: Expressing music styles in 3D
- Structure: Elevating a heavier than 80 kg person to 25 cm high with corrugated cardboard
- Reaction to Wind: Developing a system that reacts to the wind
- Award Set: Designing an award set for an event or competition
- Pure Function: Designing a system that holds, carries, displays and charges a cell phone
- Collapsible Seating Unit

3. Method and Data Collection

In this study, mainly two media were used for data collection about reflections of students about the course: the personal magazines and the online questionnaire. While personal magazines provide students' insights, online questionnaire offers general tendencies on the course.

3.1. Personal Magazines

Students were encouraged to write a diary weekly and expected to submit a photocopied page of it each week throughout the semester. Via diaries, they could reflect their impressions generally about their journey in relation to the course, visually, literally or both. At the end of the semester, students were expected to submit their diaries

Figure 1: Personal magazines, 01.06.2013. Photograph by Koray Gelmez

as a personal magazine, i.e. arranged in a graphically designed format. As tutors, we did not interfere with the content and the format of personal magazines so that they could freely express themselves (Figure 1 and Figure 2). We named it as "personal magazine" for two reasons. First,

Figure 2: Sample personal magazine pages, 01.06.2013

"personal" makes it specific to the students, which encourages them to share their personal insights and stories with us. Also, magazine implies the idea of arranging the pages in a coherent manner. Coherency is one of the important dimensions of Basic Design, where students are supposed to reflect visually with a proper layout and design elements. Therefore, the visual arrangements of magazines are also important where students can reflect their visual understandings gained through semesters.

The texts in the magazines were analyzed and revealed qualitatively since they contained rich and contextual

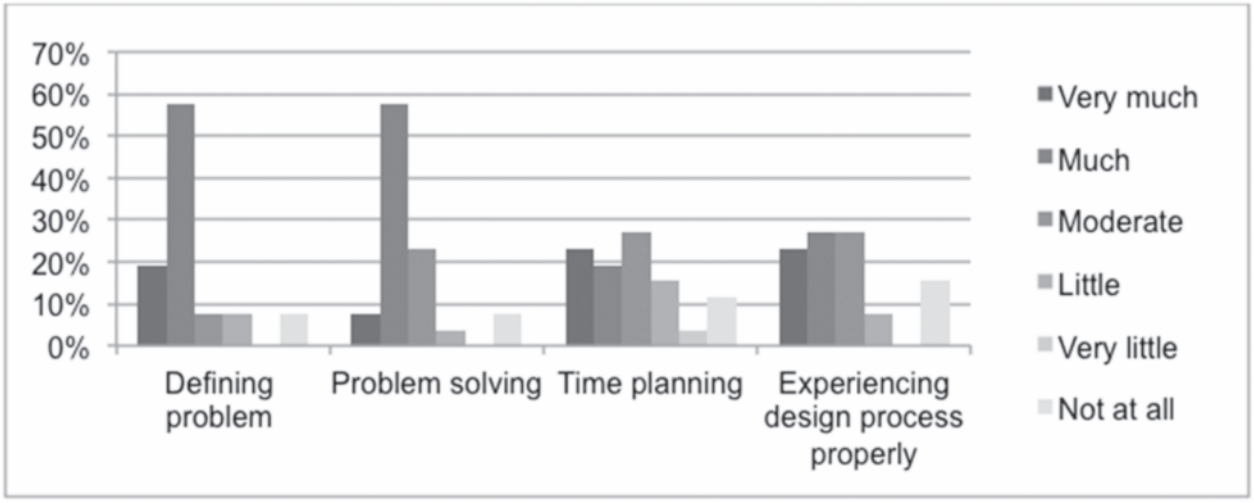

Figure 3: Skills related to problem definition and process

information. Mere descriptive statements related to the design process were excluded from the analysis, such as:

> We started to the semester with body extension. I made an extension that I could put on my hand.
> We have to make a pinecone abstraction and draw it on A3.

Since these kinds of statements do not include enough analysis and elaboration, we did not consider them as a research input in this study.

However, personal insights were clustered into highlights. While composing these highlights, we used both the excerpts from the personal magazines as well as our observation throughout the semester.

3.2. Online Questionnaire

Online questionnaire was conducted at the end of the semester to gather general tendencies about the course. 29 students filled in online questionnaire.
The first section of the questionnaire contained general evaluation questions about the course. In the first section, we aimed to check if there was a problem with the course mechanisms, tutors' methods/attitudes and to learn students' approaches in general.

The first section of the questionnaire reveals that students mostly agreed that the course was conducted properly and the students were motivated for the course sufficiently. However, most of them think that there were some problems regarding assessment and workload.

The second section of the questionnaire included the course-specific questions. In this way, we aimed to gather data specifically related to the course. Therefore, we prepared questions on the projects assigned during semester. Also, we asked them which skills that they gained during the course. In this question, there were 22 skills listed, which can be categorized into 3 categories: Skills related to problem definition and process; technical skills and personal skills.

- *Skills related to Problem Definition and Process*: Time planning, Defining problem, Problem solving, Experiencing design process properly
- *Technical Skills*: Ability to work individually, Ability to work in groups, Concept development, Analyzing form-function relationship, Visual presentation quality, Verbal presentation quality, Ability to analyze materials
- *Personal Skills*: Critical thinking, Curiosity in profession, Creative thinking, Abstract thinking, Working in a disciplined way, Self-confidence, Courage, Communication with tutors, Learning from others, Learning from environment, Openness to criticism

4. Highlights from Personal Magazines

In this section, highlights from personal magazines will be revealed in relation to the skills listed in the online questionnaire: Skills related to Problem Definition and Process, Technical Skills and Personal Skills. In order to give clues on contextual information, the projects' names are given in brackets.

4.1. Problem Definition and Process

As online questionnaire shows (Figure 3), 76,9% of students think that they gained skills on defining problem very much (19,2%) and much (57,7%). In personal magazines, apart from mere descriptions we can also see several statements on defining problem. The fact that

students try to define the problems by using their own words can be considered as a positive effort for internalizing problems:

Even though we have difficulties in understanding in the beginning and our projects were not good, we understood it in the end: Explore your body! [Body Extension]

…the exercise related to music must be done with the feeling. [Music Abstraction]

That was one of the hardest projects for me and it possibly was the hardest one. Mutant pinecone work is an abstraction exercise in order to understand the structure and graphic values of the pinecone. [3D Abstraction]
This initial exercise of the semester was very important and taught us a lot of things. It enhanced our observation skills and exploring the things we were surrounded, and the most important was the interaction between human body and the product. [Body Extension]

80,8% of students believe that Basic Design course affected their problem solving skills much or on an average. Finding excerpts regarding problem-solving skills from personal magazines is difficult because this is a skill embedded to students' projects. Here are some examples from their magazines:

> The most important thing in abstracting a pinecone was not about what you were thinking. The important thing was the final product. [3D Abstraction]
> I tried to internalize what abstraction was. While abstracting an object, we had to ignore certain features and differentiate it. At the same time, we had not to lose the origin. [3D Abstraction]

From questionnaire, we can see that there is almost an equal distribution on the contribution of skills related to time planning. In personal magazines, some students complain about the problems they faced to due to the time limitation. This problem may occur due to the lack of their experience. Since they cannot foresee unexpected problems, they can have problems with time:

> Since I could not think of binding details and the system, the time I spent at the atelier got longer. As I was working, I faced with new problems and tried different solutions. [Collapsible Seating Unit]
> In some cases, time can become an obstacle that affects their thinking:
> Time limitation restricts our creative thinking; and this shows us the importance of time for our occupation. [Body Extension]

4.2. Technical Skills

As we can see from online questionnaire (Figure 4), students think that Basic Design II contributed on the ability to work individually much more than that to work in groups. This may occur because most of the exercises conducted in this course were designated to work individually. We observed some problems in assigning exercises for teamwork such as heterogeneity in composing groups, difficulties in assessment and distribution of work. That's why, only 1-2 short-time group works are given to students; which are specifically designed for teamwork (see Bagli and Gelmez, 2013). Therefore, this limitation may turn out lack of improving ability to work in groups. However; as we can infer from the personal magazines, even these limited group exercises make them to be aware of the difficulties in working in groups:

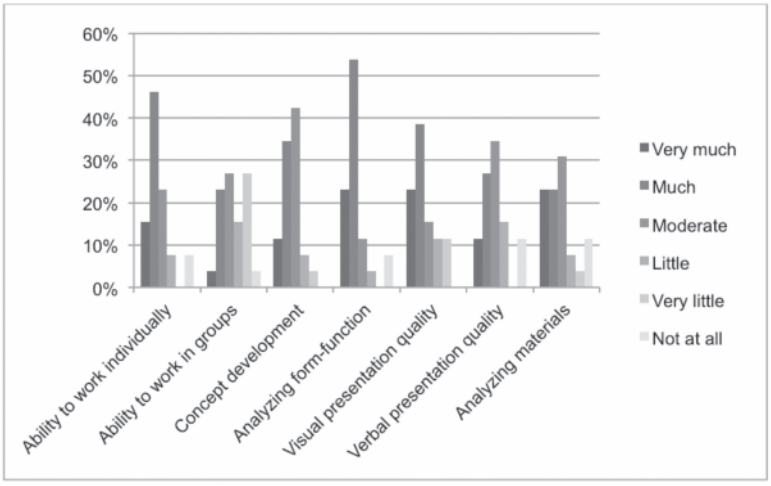

Figure 4: Technical skills

> I was convinced that working in groups was very challenging. [Structure]
> There were three of us in this project. Working together was different. Whereas you could implement what you are thinking in individual projects immediately, you had to tell and convince others in group projects. [Structure]

Also, they can notice the positive aspects of group projects:

> …this makes us to gain experience on working in groups as well. We saw that opposite ideas might refute ours. Besides, since this project improved the ability to work in groups, it was very important and beneficial. [Body Extension]

There were a plenty of statements in personal magazines on analyzing materials, which is an important aspect of the course. In almost every exercise, we try to allocate time to focus on exploring different materials and understanding their nature; and thus their capabilities and restrictions. That's why; we are able to find a lot of statements about materials in personal magazines especially in 3D structural exercises:

> The strength of corrugated cardboard is obvious. You cannot expect much from it. Here, design comes into play. [Structure]
> Our project was not successful in 3D. In fact, it would have been more effective if we had implemented our ideas into our 3D model. [Structure]
> For a long time, we could not do anything. After we recognized the material, we saw the capacity of it. [Structure]
> Although I tried to make models around my scenario, I could not reach to the result that I desired due to the wrong material usage. But it helped me to think about all materials' and forms' structures in nature. [3D Abstraction]
> The type of the material and the dye was very important. They had to match. Each dye might not fit to each material. [Color and Objects]
> The fact that material was compelling affected the class very much. [Structure]
> The most important thing was to explore the facet of runnels. [Structure]

In addition to these specific examples, some students would like to make general inferences regarding materials:

> What is interesting is; howsoever strong the material and binding details, if the system is not durable, it is inevitable that the structure will collapse. [Structure]
> In structural systems, using the material properly increases durability. [Structure]
> The fact that we worked on various subjects in Basic Design provided us to see new materials and thus we found opportunity to focus on our future directions and field of study. [Color and Objects]

There are also few examples of skills related to verbal and visual presentation quality:

> …but I could not explain my ideas with my model and speech. That's why, my presentation was not good. [3D Abstraction]
> Additionally, I had difficulties in layout of the presentation. But I love my drawing. [Color and Objects]
> I think I did not solve presentation techniques. I could not understand because of either time limitation or obstruction in thinking. [Color and Objects]

4.3. Personal Skills

In personal magazines, there are a lot of expressions about how the course contributed to their critical thinking, which is also supported by the questionnaire (Figure 5). This shows that students are mostly aware of what they gained from the course. This is also a sign that they become reflective where the degree of self-questioning and elaboration are high. They even criticize their works or processes showing that they internalize being critical:

> My drawing was weak; however, they were good as product family. [Color and Objects]
> I guess I played safe. Actually, this project was suitable for being experimental [Solid, Liquid, Gas]
> Thinking like that does not mean that I can find good ideas and implement them. [3D Abstraction]
> I understood wrong, I still can't believe how I did it. [Body Extension]
> Scarcity in projects and difficulty in working show me that it is really hard to change things that one is used to and is conditioned unconsciously. Although I am not satisfied with the result right now, this exercise is a good beginning for making more innovative things by breaking some biases. I think creating awareness is already a positive aspect of this class. [Color and Objects]
> I tried to make a style with lines but this was not good either. That is, it was boring as well as nothing different and unique to me. [Award Set]

In this course, it is also crucial to get collective feedback. In other words, we encourage students to listen and contribute to the critics about projects of their friends where they can learn even more. They seem to highly agree with this as we can see from the questionnaire (Figure 5). Some students mention on learning from others in their magazines:

> Additionally, my friends' projects with extrusion drew my attention. Rather than a real 3D, these projects offered fake 3D as I did in my graphic design works. [Award Set]
> What I gained from the successful examples was that I learnt how to use the material. They helped me while I was making the project again. [Structure]
> At my first trial of coloring object I was not successful enough, however I did it better after I heard comments and saw the other works done by my friends. This project teaches us a lot. [Color and Objects]
> I was really confused at first. After critics, it was clarified. [Reaction to Wind]

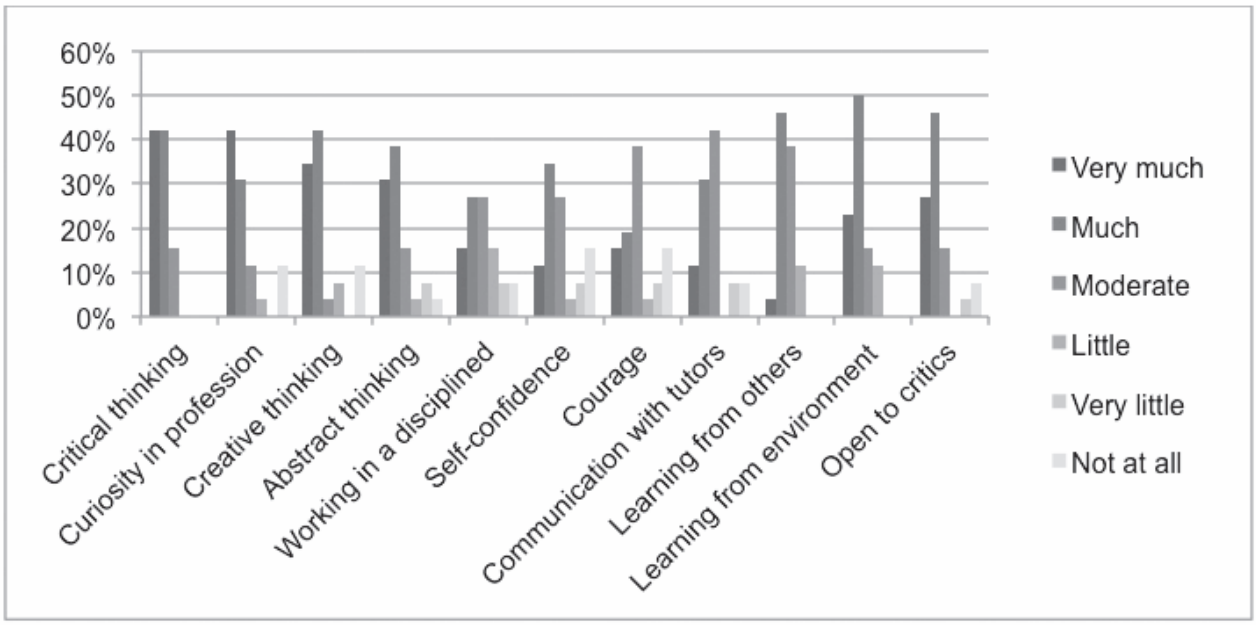

Figure 5: Personal skills

> When I looked at other projects in the class, watching studio critics was very useful for me. [Body Extension]
> Because I could not attend to the class, I could not get feedback. Since I did not know what they were talking, this was a disadvantageous for me and I had to follow the class back. [Collapsible Seating Unit]

Apart from these highlights, we have difficulties in finding statements on skills we did not mention in highlights such as curiosity in profession, creative thinking, abstract thinking, courage etc.

4.4. Other Highlights

Apart from the highlights, mentioned above, we also observe that students tend to reflect their experiences from daily life and their emotions, which can be regarded as a special effect of free writing as a method. As we can see from the magazines, students are affected from their experiences especially while initiating a project. For instance;

> Since I am living in dormitory, I have troubles with the cables. This triggers my project. [Pure Function]
> The first thing that came to my mind was heater because I have problems with one-sided heaters. [3D Abstraction]
> A speaker in a seminar – I could not remember name – talked about designing hexagonal office units for Herman Miller. This came to my mind and I continued to the project with this. [Award Set]

Also, students want to reflect their emotions evoked during their design processes. We can also observe these during our classes especially in the verbal presentation of their project juries. The fact that they both feel negatively or positively during the process shows that they tend to build strong emotional attachments with the projects and thus the course. From the excerpts below, we can see the effects of happiness, fear, and excitement etc.:

> Getting positive comments in the jury makes me happy. [Body Extension]
> After long trials, I finished the project. I was really happy. [Award Set]
> I did not assert that I designed a good logo but it was not so difficult that I feared in the beginning. [Logo and Layout]
> In fact, the feeling of remembering previous projects and benefitting from our experiences make me excited all of a sudden. I hope I can learn to direct my excitement in a positive way for my projects in the future. [Logo and Layout]
> Starting to the issue of structure with this way was a bit scary. [Structure]
> As usual, we felt lonely in a middle of a big sea again. Even if one knows swimming, he cannot reach to the land. The saver might be a rope from a boat. Again we are feeling the same. [Logo and Layout]
> Perceiving the shapes on the pinecone was an amusing process. [3D Abstraction]

As seen from the excerpts, there is a wide range of emotions that students mention in their magazines. This implies that most of the students feel free while reflecting themselves as a positive effect of free writing.

Conclusion

This paper investigates capturing reflections from students via free writings in the form of personal magazines in a Basic Design course, which is supported by the data of an online course evaluation form. It is observed that personal magazines have contributed to both students and tutors as a strong and rich way of reflection.

As seen from the rich data gained from the excerpts in the magazines, most of the students become reflective in terms of transferring their impressions on Basic Design course. This is considered as a positive long-term trait for students as individuals. According to Moon (1999), "a person who is reflective seems to be someone who comfortably and successfully engages in the mental activity of reflection and would make decisions that are well considered" (p.5). For the first year design students, we think that it is noteworthy to gain these skills and become aware of them for their professional development.

One of students questions herself and reflects her opinions referring to the nature of design that involves uncertainty:

> I found a chance to think on while we were completing our Basic Design course. I asked myself questions and as usual I could not find certain answers (I guess this is Industrial Design tradition). However, with this second semester, I am aware of the change happening inside me.

Moreover, students' reflections influence not only tutors' motivation but also tutors' perspectives while building their on-going and future courses. Therefore, reflections can become one of the main tools to learn from students and rethink, develop and transform the content and the style of the course itself accordingly.

In summary, personal magazine as a tool of free expression surely serves as mediator, facilitator and also a translator that enables to understand students' dialects. It is also a strong emotive and cognitive link between student and tutor, student and his/her learning process, tutor and the course design.

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