GENERATION Z IN BEGINNING DESIGN STUDIO: A CASE STUDY IN ART AND DESIGN STUDIO AT IZMIR UNIVERSITY OF ECONOMICS

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GENERATION Z IN BEGINNING DESIGN STUDIO: A CASE STUDY IN ART AND DESIGN STUDIO AT IZMIR UNIVERSITY OF ECONOMICS

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ABSTRACT

GENERATION Z IN BEGINNING DESIGN STUDIO: A CASE STUDY IN ART AND DESIGN STUDIO AT IZMIR UNIVERSITY OF ECONOMICS

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Design Studies (With Thesis)

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Design education briefly refers to a studio-based learning model based on hands-on projects. Despite being widely accepted today, both the method of design teaching and the content in the Bauhaus model can be traced back to the previous century. However, there are significant differences between the students in our time and the students of the previous century. This change is attributed to extensive use of technology in the digital age to a large extent. This research aims at exposing how today's students respond to the method of studio-based education model at the beginning of design education. This is a case study which focuses on the current situation in Art and Design studio at İzmir University of Economics (IUE), Turkey. Within the scope of this study, a questionnaire was conducted with 213 freshman design students in IUE. The research identified a number of cause and effect relationships between students' high interaction with technology and their habits in Art and Design Studio and also found out that there is a link between students' educational background and some of their estimations related to Art and Design Studio.

Keywords: generation Z, digital age, first year design studio, studio-based education model

ÖZ

BİRİNCİ SINIF TASARIM STÜDYOSUNDA Z KUŞAĞI: İZMİR EKONOMİ ÜNİVERSİTESİ SANAT VE TASARIM STÜDYOSU'NDA BİR ÖRNEK ÇALIŞMA

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Tasarım eğitimi, uygulamalı çalışmalara dayanan stüdyo temelli bir öğrenme modelidir. Günümüzde yaygın olarak benimsenmiş Bauhaus modeli, öğretme metodu ve içeriği bakımından geçtiğimiz yüzyıla dayanmaktadır. Diğer yandan, geçen yüzyıl içinde öğrenci profilinde büyük farklar oluşmuştur. Bu değişim, büyük ölçüde, dijital çağda teknolojinin geniş alanlarda kullanımına dayandırılır. Bu araştırmanın amacı, günümüz öğrencilerinin tasarım eğitiminin başında stüdyo temelli eğitim modeline nasıl cevap verdiğini ortaya koymaktır. Bu çalışma kapsamında, İzmir Ekonomi Üniversitesi (İEÜ) Sanat ve Tasarım Stüdyosu öğrencileri ile bir anket çalışması yürütülmüştür. Araştırmanın sonucunda, öğrencilerin teknoloji ile etkileşimleri ve Sanat ve Tasarım Stüdyosu'ndaki davranışları arasında birtakım sebep-sonuç ilişkileri tanımlanmıştır. Bunun yanında, öğrencilerin eğitim geçmişleri ile bu stüdyoya ilişkin birtakım düşüncelerin arasındaki ilişkiler ortaya konmuştur.

Anahtar Kelimeler: Z jenerasyonu, dijital çağ, birinci sınıf tasarım eğitimi, stüdyo temelli eğitim modeli

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CHAPTERS

1. Introduction

1.1. Aim

Design education is briefly a studio-based learning model based on creative decision making through hands-on projects. While it is centered on such issues, there is also a considerable necessity of self-belief, diligence, and patience in this improvement process. Despite being widely accepted even today, the method of design teaching can be traced back to the early 1900s (Lackney, 1999). Similarly, the content of the first year design studio (also named basic course, preliminary course etc. throughout its history) thought at the beginning of design education is based on psychological theories from the 1920s. Relying on this information, it can be said that the frame of the first year design education adopted today has not been contemporarily set.

According to the explanations mentioned above, it is clearly debatable that the students are ready for design education in the beginning of their academic life. In other words, it is argumentative whether their background is competitive to provide them with the necessary skills for design education. In this regard, two types of incompatibility are questionable. First, educational background of students may fail to prepare them to design education. Second, new students may be radically different than people addressed by the theories developed in the previous century. Prensky (2001, p.1) justifies this doubt by saying "Our students have changed radically. Today's students are no longer the people our educational system was designed to teach". Indeed, today's population are not defined in the way it used to be. Although inherited basic features are still valid, various definitions associated to specifications of new people have been developed in recent years. As well as Generation Z (Gen Z), Instant Message Generation (IM Gen) (Lenhart, Rainie & Lewis, 2001), Digital Natives, (Prensky, 2001), Net Generation (Tapscot, 2008, Oblinger D. G. & Oblinger J. L., 2005), Gamer Generation (Gamer Gen, Gamers) (Cartens & Beck, 2005), Google Generation (Rowlands et. al., 2008), Homo Zappiens (Veen, 2007), Netizens (Hauben, 1995), IGeneration (Rosen, 2011) are some names

which are used to refer to this population of students taking into consideration the obvious changes in generational characteristics.

Due to the reasons above, there seems to be a divergence between design education and students. In this respect, the problem at the core of this study is the potential incompatibility between the method of introduction to design education and today's freshman design students. This study aims at revealing how new design students respond to studio-based education model in different stages of the learning process in first-year design studio.

This study intends to examine the behavioral pattern and thoughts of freshman design students related to the first year design studio. It primarily aims at discussing students' habits, expectations, and misconceptions associated to this course. It secondarily intends to contribute to the literature on revision of the method of design education. Topscott (1998, p. 11) says, "The bottom line is this: if you understand the Net Generation, you will understand the future. You will also understand how our institutions and society need to change today". Following Topscotts' argument, the target audience of this study is also the instructors in beginning design studio.

1.2. Methodology

In this study, various information sources have been used including literature review, questionnaire, and first-hand experiences of the author in the Art and Design Studio in Fine Arts and Design Faculty (FFAD) at Izmir University of Economics (IUE). The said experience includes the observations with regards to the habits of students and interviews with both students and instructors. Since the author has attended the courses in various ways for eight years first as a student, a student assistant and finally as a research assistant, her experiences are actually based on various perspectives.

During the preliminary literature review, the study focused on the characteristics of Gen Zers and first year of design education as well as their interaction with technology. While reviewing resources on Gen Zers, their specifications unrelated to technology utilization have been disregarded. After developing a general approach to today's students and framing the study, a questionnaire (Appendix B) was prepared mainly relying on the literature review mentioned above and and the observations in Art and Design Studio. This practice is expected to question the consistency between the literature on Gen Z,

observations, and the questionnaire. Hence, the issues about which questions have been asked were chosen by going through the literature review made for this research on Generation Z and the method of Art and Design Studio.

The questionnaire is composed of 77 questions, within 10 categories by the contents relevant to the method of the course. These categories are 1. Reading brief, 2. Information gathering, 3. Critical thinking, 4. Approach to creativity, 5. Craft making, 6. Approach to trial and error, 7. Composition making, 8. Experiences in group discussions, 9. Experiences in desk critiques, 10. Experiences in jury time (Appendix B). These categories refer to all stages students experience in the studio in an academic term. This means, it was aimed to discuss the first academic term at the beginning of design education entirely from the briefing to the final jury.

Each category above has subtopics depending on the keyword they question in terms of characteristics of Gen Zers (Appendix B). These subtopics were specified item by item regarding new people's characteristics related to technological experiences, the culture of the digital age, and the educational background of university students in Turkey. These items are 'Root learning', 'Multiple choice questions', 'Numerical grading', 'Video game playing', 'Use of tools', 'Use of materials', 'Craftsmanship', 'Use of computer programs', 'Instant messaging', 'Distant communication', 'Public speaking', 'Constant connection', 'Instant gratification', 'Binge watching', 'Attention span', 'Familiarity with hypertext', 'Reliance on peers', 'Internet search', 'Information literacy', 'Copy-pasting', 'Familiarity with image-rich mediums', 'Self-questioning', 'Self-confidence', 'Feeling of panic', and 'Adaptation to the course'. These items were chosen to ask students because they are also related to the method of the course. For example, since manual skills are important in the course, 'Use of tools', 'Use of materials', and 'Craftsmanship' were added in the list. As another example, since communication skills are important in group discussions, desk critiques and juries, 'Instant messaging', 'Distant communication' and 'Public speaking' were added. Some items in this list were intended to be asked to the students to discuss some observations. For instance, items like 'Reliance of peers' and 'Feeling of panic' were added to the list to question observations in terms of students' information gathering habits and experiences in the jury. Additionally, 'Language skills' was also included in this list because it is noteworthy to examine whether the instructional medium of the course which is English has some effects on Turkish students' performance. As a last item, 'Adaptation to the course' was also included.

Each type of question is labeled with a pair of a number for category and a letter for the subtopic. For instance, Q.7 (7th question) is labeled with 2.b where 2nd category is "Information gathering" and the label *b* refers to the subtopic "Internet search".

According to the logic of questions, each of them is designed to be responded in a signle answer. Answer choices of questions about the frequency of a habit have been ranked from "never" to "always". Questions about students' thoughts and expectations related to the course have answer choices ranked from "strongly disagree" to "strongly agree". There is one question intended to understand the possibility of a behavior in a specific situation. It has choices as "Never, Perhaps, and Absolutely". There is also one Yes/No question related to students' preference about a specific act. On the other hand, the logic behind the questionnaire required the questions to be independent of each other. It means, they have been evaluated one by one. Total votes for each choice of each question were collected in order to reach a conclusion.

The questionnaire was conducted at the beginning of the spring semester rather than fall semester for the purpose of including the students who had completed one academic semester. This is to let students to experience all of the requirements of the first semester. There are two reasons why one semester was enough instead of a complete year: First, the students' assignments start to differ subtly in the second semester depending on their departments. Second, it was not necessary to examine both semesters since the method of the course is the same in both.

The link to the questionnaire was given to the students as an assignment in the studio hours to be answered in the studio. The questionnaire was anonymous and optional, so that only volunteer students would reply the questions. The language of the questionnaire was Turkish, students' native language, to avoid any misunderstanding of questions even though the instructional medium of the course is English. Respondents were also free to leave any question unanswered. In total, 213 out of 288 students the questionnaire. The question with least number of answers received 208 responses.

1.3. Frame

The research deals with freshman design students at IUE as the new generation. Aside from Generation Z, there are number of definitions for this generation such as Net Generation, Google Generation, Instant Message (IM) Generation, Gamer Generation,

Homo Zappiens, Netizens, and IGeneration. These groups are worth mentioning as well, because they define today's people from different viewpoints. Chapter 2 elaborates these definitions in detail. Throughout this study, today's youth is referred as "Generation Z" and its abbreviated forms: "Gen Z" or "Gen Zers" unless there is no direct reference to a specific cohort. In this research, specifications of above mentioned groups were limited to the ones relevant to technological experiences prevalent in the digital age. Therefore, behavioral pattern of the digital age was also discussed generally without sticking to any generational identification. Turkey was discussed in terms of both technology utilization and education system in order to analyze the youth in more detail.

Literature review made in Chapter 2 mainly includes specifications of Generation Z from a universal standpoint. Only when dealing with the education system, it was limited to the publications about the youth in Turkey. Indications and inferences relevant to national, ethnic, cultural, religious, political, and financial factors were disregarded in general terms. Similarly, variations such as gender and age group were not taken into account. As mentioned before, differences between students related to their departments and educational backgrounds were not considered in this research.

Chapter 3 mainly focuses on the method of teaching during the first year of design education. General information about the course is given. Based on the historical survey, its roots are briefly mentioned, and its aim and content is discussed with reference to the recent application at IUE. At this point it should be mentioned that beginning design studio has various names such as preliminary course, freshmen design studio, foundation design studio, basic design course, and basic course. Even though its name changes from school to school due to different backgrounds, the course is highly similar in terms of its aim, content, and method of teaching. Still, in this research, Art and Design Studio at IUE has been discussed relying on only its background which is preliminary course at the Bauhaus. Since it is also called basic design course, literature about basic design has been briefly reviewed as well.

In this chapter, current practice at IUE is achieved in a particular section to provide information about preparation and analysis of the questionnaire that is discussed in the following chapter. The framework of this chapter is built upon the following questions; why IUE and Art and Design Studio was chosen for this research. The main reason for this choice is that Art and Design Studio at IUE is the main course that students take in the first year of design education regardless of their departments. It means, it provides a

generic design education to students from various departments. Since concentrating on a specific student group from a particular department was not intended in this research, such a faculty that considers design students as a single group was preferable over any school that introduces design education by dividing students into departments. While coming from various departments, students do not have a common educational background since entrance requirements differ by the department. With this feature, it provides diverse student groups together without taking a determined background into consideration suitably to the intention of this research. In order to introduce to Art and Design Studio at IUE, information about the syllabus and index of Art and Design Studio were retrieved from the related links that are "FFD 101 | Course Introduction and Application Information", and "Index of /ffd101". Although information in these links are regularly updated in every academic term, the revisions include only minor changes.

Chapter 4, entitled *Gen Zers in Art and Design Studio*, discusses students' responses to the questionnaire mentioned in the Methodology section. In this chapter, the questionnaire is first analysed based on the answers of students in Art and Design Studio. After the analysis, the questionnaire is interpreted regarding the results supported and unsupported by the literature on Gen Z and general experiences of the author in the studio.

In Chapter 5, *Conclusion*, the information obtained in the literature review on Gen Z and the questionnaire is discussed together. Especially inconsistencies between statements in the literature about Generation Z and deductions from the questionnaire results is examined with examples. At some points, observations are also added to interpretations to some extent. Some questionnaire results unobserved in the studio are handled regarding the possible reasons of the inconsistency between the questionnaire results and experiences of the author. The limitations of the study are also discussed in this chapter. Examples of new questions arisen in these discussions are suggested to focus on in the future studies.

In conclusion, this study includes information about beginning design studio, Generation Z, and their 'clash'. Both beginning design studio and Generation Z have been addressed with their historical roots and current situation. Art and Design Studio at IUE based on the preliminary course at the Bauhaus has been specified as beginning design studio within the scope of the case study while Generation Z has been defined relying on characteristics of other generations highly interacted with technology, and the culture of

the digital age. The following chapter introduces these issues related to Generation Z in order to develop an approach to today's students for the next chapters.

2. Generation Z

2.1. New Generation(s)

2.1.1. Background

When looking back at the history, in the simplest explanation, the ground for generational variations is the ever-changing path of life. As it will be explained below, as long as the manner of life undergo notable changes, the populations start to act so differently that a new generation arises. They actually inherit the characteristics of the time period in which they live.

The previous cohorts before Gen Z are chronologically separated, with their most common names, as respectively Traditional Generation, Baby Boomer Generation, Generation X and Generation Y. Traditional Generation as the name of the cohort born before 1945 are also known as the Silent Generation, the Matures or the Greatest Generation, according to Tolbize (2008). Tolbize states that the prominent features of these people come from the depressive experiences in the World War II. Tolbize also indicates that Baby Boomer Generation refers to the people born between 1943 and 1965. It is mentioned in this study that the events effective on their characteristic are political and social crises coincided with their life span. The cohort of Generation X, also named Baby Busters, Twenty-somethings, YIFFIES, Brash Pack, FLYERS, the NIKES, the indifferent Generation and the Invisible Generation refers to the population born between 1965 and 1978, according to the research of Mitchell, McLean and Turner (2005, p. 26). According to this study, the members of this population are described as fun-loving, tech savvy people with low attention span. The remarkable things they were interested in, rather than themselves, were inherited troubles from previous cohorts. Durkin (2008, pp. 23-25), while calling Generation Y as Millennium Generation and Generation Next, explains that these tech savvy, goal-oriented and results-driven people born between 1982-2000, also need to be taken seriously and feel the competence in rule-making.

Like the brief history of generations above, differentiation of cohorts according to the eras in which they live is confronted in the case of Generation Z, too. Regarding the time span of birth and development of people defined as Generation Z, being born in the digital world is the most significant factor characterizing them. Hence, the effects of

digital age will be handled in almost every issue while dealing with Generation Z in the following parts.

2.1.2. Interchangeable definitions of the new youth

In the resources on new generations, it is difficult to find an explanation covering the characteristics of the youth all around. Instead, in the literature on even a single generation, there are many names of which time spans and specifications are either differentiating or overlapping. So, there is not a single name explaining the generation in question in all its parts in the relevant literature. Specifically, Gen Z, Digital Natives, Net Generation, Instant Message Generation are the names referring to the young people of today by going about their different characteristics in reference to different times of origin. Since different names separately refer to different specifications of contemporary youth, covering them one by one is beneficial to get extensive information about today's university students. Hence, beginning with the name Gen Z, such definitions should be mentioned in this part. So, in this research, while Gen Z is mostly focused on since it is the most comprehensive one, other definitions addressing to university students of today are also used.

The first question to answer for the purpose of recognizing the youth is how the huge gap between Gen Z and its predecessors has come into existence. Some researches jointly indicate the underlying cause to be highly related with different development process of different generations' brains. Both neurobiological and socio-psychological variations are put forward while clarifying generational differences. As an explanation of development of the ways people think from a neubiological perspective, Prensky and Berry (2001, p. 3) state that variations of stimuli make brain structures to develop variously by inducing long life transformations. This phenomenon called neuroplasticity points out a feature of brain, recognizability, being valid throughout life, as opposed to the outdated idea advocating existence of a certain number of brain cells and a massive plastic structure of brain. Prensky and Berry highlight the effect of repetitive long term applications in education on people's brains, and attributes the change in generations to variation in recurrent activities:

> "One of the main focuses of schools for the hundreds of years since reading became a mass phenomenon has been retraining our speech-oriented brains to be able to read. Again, the training involves several hours a day, five days a week, and sharply focused attention.

> "Of course just when we'd figured out (more or less) how to retrain brains for reading, they were retrained again by television. And now things have changed yet again, and our children are furiously retraining their brains in even newer ways, many of which are antithetical to our older ways of thinking."
>
> Prensky & Berry (2001, pp. 3-4)

As for environmental and cultural factors bringing about such a difference, varying developmental experiences have a role creating the variation of the way people think. How people think and about what, to some extent, varies across cultures according to social psychologists as Prensky indicates in the same study. He also adds that some researches indirectly confirm this case for Gen Z despite the absence of direct observations.

2.1.3. Coexistence of various generations

Gen Zers have a strong relationship with technology (Ryback, 2016). Referring to the interaction between this generation and digital tools, they are associate with the extensional parts of Gen Zers' brains (Prensky, 2006). In another study, their custom to use of technology are resembled the need for breathing (Rothman, 2014). Contemporary people's interaction with technological devices and interfaces are so strong that they are named as Net Generation (Tapscot, 2008, Oblinger D. G. & Oblinger J. L., 2005), Google Generation (Rowlands et. al., 2008), Instant Message (IM) Generation (Lenhart, Rainie & Lewis, 2001), Gamer Generation (Cartens & Beck, 2005), Homo Zappiens (Veen, 2007), Netizens (Hauben, 1995), and IGeneration (Rosen, 2011). Whereas these designations focus on the kind of digital media this generation uses, referring to their experience with and loyalty to the associated tools, Prensky (2001) approaches the issue with a more general definition. As an alternative to call them Gen Zers, he added the name *Digital Natives* to the literature. His inferences are not limited to the youth in fact. Now that the educators are still from previous generations who can almost never come through this much interaction as they have not been grown up in such an environment equipped with technology, they are defined as Digital Immigrants by Prensky in reference to this alienage that they are sentenced to experience inadequacy while in trying to communicate with Gen Zers. It is seen that all of these names are jointly associated with the interaction with technology. Moreover, although they commonly come from this origin, each of the names refers to a distinct definition of technology utilisation.

As stated above, indications about where the difference comes from are not sufficient to detect a precise distinction between different generations (Helsper & Enyon, 2009). In accordance, the criteria which exactly specify Gen Z are still controversial. Likewise, relying on similar reasons in fact, different researchers attribute the leading difference which is decisive on being Digital Natives to different factors. While Prensky (2001), by referring date of birth and age group, says that being a Digital Native requires not to have seen how life was before digital age in which digital experiences are thoroughly prevalent, Tapscott (1998) states that without depending on age group, having experience with new technologies is the top determinant making a person a Digital Native. It means that while birth date is the important thing to be counted in that category in the first example, in the other one, if he/she acts in the relevant way, it is enough to be included in the same category even if he/she was not born in that specific time period. As another example, Oblinger D. G. & Oblinger J. L. (2005) associate the extension of occasions in which Internet is used to be a member of Net Generation, by reminding that this group refers to people who apply the Internet almost all situations in their life. In this case, rather than date of birth or the act itself, extension of use is decisive. Not depending on the ways these names have been developed, new college students cannot be excluded from any of them. In other words, no matter to which time span a definition refers, or on which kind of use it focuses, our scope of students is ostensibly associated with each of aforementioned definitions. This is the reason in this research students in the digital age are widely dealt with on the basis of these interchangeable names.

Now that the definitions are related to the characteristic of technology utilization, when they arose also vary according the popularity of variable technological media in the history. As an example, the term *Gamer Generation* refers to all people who have been growing up in a considerable interaction with video games from 1980s on (Cartens & Beck, 2005, p. 23). As another example, the members of Net Generation who born between 1977 and 1997 (Tapscott, 2008, p. 16) are still involves today's college students. Clearly, the specified time spans are overlapped and each of them involves the new generation framed in this research.

As well as the interchangeability in terms of eras with which generations are matched, description of a sole generation can be altered because of various approaches or new evidences found over the years. Even children and teenagers said to be involved in a specific generation can enact variously, perhaps because they are naturally in different

stages of their development in terms of cognitive and motor skills despite being under influence of the same factors (Rowlands et. al., 2008). One way or another, Helsper and Rebecca (2009) for instance, remark distinctive features to divide Digital Natives into two groups as the first generation of Digital Natives born between 1983 and 1990 and the second generation of them born after 1990 on.

Aside from this kind of ambiguities complicating to identify current college students in a specific category in this research, while interpreting the findings in the literature the new generation, whether the active observations of the author coming from face-to-face interactions with students accord with the researchers' indications is considered to some extent. Since almost all features in the literature related to aforementioned generational descriptions refer to overt specifications actively observed while in contact with college students, within this research it has been regarded possible to accept generational characteristics in broader aspect. In other words, the literature is in parallel to our experiences on the university students which is the target group of this study, even though sometime addressing a wide time range.

2.1.4. Fading of generational differences

The characteristics of new students, no matter with which name they are described, are not entirely new and specific to very young people solely. That *Gamer Generation* is defined tracing back to the early spread of video games, to the beginning of 1980s (Cartoons & Beck, 2005) is one of the cases exemplifying that situation. Likewise, reading behaviors of Google Generation is to some extent considered to have their origins in 1980s when use of CD-ROMs spread far and wide (Rowlands et. all, 2008). The authors in the same study, in order to emphasize erosion of generational differences caused by prevalence of influential factors, remind that elder populations show similar characteristics, as well as they call them Silver Surfers referring to their lower digital skills. Yet, in this research, it is necessary to generally deal with the list of habits of current students without deeply comparing them with the previous generations (Williams & Rowlands, 2007).

According to Tapscott (2008), people born between 1977 and 1997 are from Net Generation. As cited by Helsper and Enyon (2009, p. 2), Prensky (2001) claims that people born after 1980s are Digital Natives. It is concluded from these examples that, despite distinctive features, it seems impossible to completely separate people according

to their birth date. Because although they are born and grown up in different terms, their life spans are intersecting. In their intersecting life spans, they actually live in the same culture with especially the ones in the same society.

Additionally, in such a world in which the generations are said to have changed that much fast, they should also have been living by inevitably influencing each other. How come parents from Generation Y, or teachers from Generation X could bring up kids without imposing their own mindset and tendencies? Or, how come new kids would not be equipped, or at least be forced to be equipped, with learning outcomes of an educational model designed by Generation X? In addition to the case people are affected by each other, in the world full of popularity and trends trying to invade in each culture socially and each life individually by addressing huge masses, how come the members can be considered distinctively? While almost everyone, as a mass, see the same TV series, put on the same clothes, and listen to the same music etc., how come people would not finally be similar to each other? Although we have excluded this kind of factors exemplifying the trouble to abstract any people group from such common platforms, use of digital tools appears to have similar impacts on people in terms of becoming monotype, by means of this much prevalence of digital lives. It seems to be another global power conquering every territory, culture, home, and individual mind in the same way.

Although being prevalently a youth culture, it is not necessarily that the culture of digital age is only specific to the young people since it is adopted by many people in mass. To be more specific, although some features were put forward long before the birth of Gen Z in order to explain characteristics of previous generations, they are still prevalent among students at present, too.

2.2. Cultural Specifications of Generation Z

2.2.1. Digital experiences as a generation defining pattern

Considering characteristic stimuli and experiences which Gen Zers are prevalently sentenced to or prefer are video games which reorganize their brains and accustom them to, for instance, speed and interactivity (Prensky & Berry, 2001). Cooperation and competition are other fields at which they are better than previous generations (Prensky,

2014). In order to explain characteristics of digital media which Gen Zers use, Prensky and Berry (2001, p. 5) use keywords such as "twitch-speed, multitasking, random-access, graphics-first, active, connected, fun, fantasy, and quick-payoff". These keywords shed light to the characteristics of the youth in terms of the speed of life, synchronization of various actions, and the value of entertainment. Furthermore, individual control, trial-and-error, constant change are keywords which Cartens and Beck (2005, p.24) use to define Gamer Generation. When their explanations on Gamer Generation is associated with the Gen Z, it can be said that today's students have been raised under the sway of competency based, winning oriented games.

Yet, with the awareness that education requires a communication between instructors and students, and because of a huge generational gap in between more than ever, the differences have of course been emphasized where required throughout this research. As Prensky (2001) claims, lots of current educational systems fail by asking Gen Zers to think in a way contradictory to their neurological development. From this point of view directly related to education, Prensky and Berry (2001) remind that although the cognitive skills specific to Gen Z have been observed for a long time independently of this generation, now actually the reason they are more considerable comes from their combination and increased intensity. The specifications of digital mediums having a great contribution to development of Gen Zers is not included by education models and this is because students find them boring. According to the results of this research, some skills such as parallel processing, random access, and graphic awareness are overlooked by schools despite the case that they are the improved cognitive skills of Gen Zers (p. 5).

As for motivating new students, Prensky (2014) says that Gen Zers need to be given opportunities to use abilities which they are aware they have. He accordingly claims, if any task is at the focus of their attention, they are pretty much eager to accomplish it. Cartens and Beck (2005) also assert that the interaction with video games having competency and victory at the center, equip users with a specific value system of which effects are observed in their tendencies in education as well. They maintain that students need to attribute value to their tasks and educational goals, like the elements emphasized by games such as victory and heroism.

2.2.2. Digital media as a tsunami of data

One of the most debated issue in terms of Gen Zers' skills and tendencies is their attention span and the characteristics of tasks they are interested in. Frand (2000) puts the case of young people in which they are familiar with simultaneous execution of different tasks forward as an evidence for their inability to solely focus on an activity. Pointing out the indications about Gen Zers' multitasking skills, Rothman (2014) says that this is not an unlimited ability for the brain of humankind, and has renamed the phrase by calling the term "task-switch". This is identified by Rothman with the obstacle to keep focused on complex information for Gen Zers, relying on the definition from Harvard Medical School, "Acquired Attention Deficit Disorder (AADD). In her opinion, maybe this is because their brains have a tendency to keep expecting small bits of information with which they are familiar from technological mediums including both social media and TV. However, according to some opposing statements, the case making people think that Gen Zers have miserably low attention span lies in the incompatibility between the media which they are familiar to use and current old-fashioned implementations in education. Regarding relationship between Gen Zers' attention span and interactive media, as Prensky and Berry (2001) claim, their attention does not last for a short time in the case of games or other things they find interesting. With similar idea, Graesser and Person (1994) state that, as an inadequacy in education, traditional schools do not offer new students such and environment.

2.2.3. Technology as a communication medium

Oblinger D. G. and Oblinger J. L. (2005) defined Net Generation on the basis of the way people socialize and network. As implicit in the definition, it refers to penetration of the Internet into people's lives as a means of communication. Since the boundaries of this definition mostly include modes of communication, virtual interactions between people is one of the issues at the focus of their approach. In this regard, they stated that as the technological opportunities becoming more and more widespread, one-to-one conversations are not more important for Net Generation than online conversations any more. Oblinger D. G. and Oblinger J. L. state that people from Net Generation are aware that they have the chance to do many things related to communication, from self-expression by relieving feelings and explaining opinions to getting acquainted with new people even from different cultures by means of the Internet.

Lenhart, Ravinie and Lewis (2001) define today's youth as *Instant Message (IM) Generation* by pointing out prevalence of instant messaging. Their study gives place to students' self-expressions on why they prefer instant messaging (pp. 21-24). The research suggests that teenagers, especially when they hesitate to get into face-to-face contact with people in the case of a tension; use instant messaging, to take the advantage of distance to avoid facing the recipient's initial response. The authors remind the case that the cues confronted in face-to-face communication such as mimics and tone of voice, are not observed in written text. This is a disadvantage of online message, according to Trilling and Fadel (2009), which fails to convey the good sides of personality, manner, gestures, humors, and so on. However, Lenhart, Ravinie and Lewis's study showed that students take it as an advantage. Young people in their research reported that a written expression allows them to think their speech fully before sending it. They stated that the opportunity to take undesired phrases back makes them feel comfortable in online conversations. With respect to this information in the last two paragraphs, the way of contact that the contemporary youth prefers can be described as both instant and distant communication.

As well as young people prefer to communicate instantly and distantly as mentioned above, their communication is said to be based on image-rich communication mediums. Rothman (2014) states, comparing Gen Zers' complex visual imagination, because of their cognitive development, visual items are more beneficial than auditory instruction in learning. In comparison to textual materials without images, pictorial mediums are more satisfying for them as pointed out by Oblinger D. G. and Oblinger J. L. (2005). Hence, according to this study, they are more inclined, than their predecessors, to express themselves with images. The researchers explain this situation in these words about Net Generation:

> "The Net Gen is more comfortable in image-rich environments than with text. Researchers report Net Gen students will refuse to read large amounts of text, whether it involves a long reading assignment or lengthy instructions. In a study that altered instructions from a text-based step-by-step approach to one that used a graphic layout, refusals to do the assignment dropped and post-test scores increased. The Net Gen's experiential nature means they like doing things, not just thinking or talking about things."
>
> (Oblinger D. G. & Oblinger J. L. (2005, p. 2.7)

Oblinger D. G. and Oblinger J. L. (2005) mention how online communities emerging in computer games converted into learning communities. The familiarity of students with

collaboration by sharing scores and critiques, taking about hints and tricks, issuing comments, turns into peer-to-peer teaching in the class. Cartens and Beck (2005) suggest that the students learn from their peers instead of instructors to some extent.

2.2.4. Web as a time independent platform

One of the reasons digital utilization is so prevalent that it can reach every people is its irrefutable power of connecting people. As explained by Frand (2000, p. 18), according to Metcalfe's Law, communication technology exponentially increases in value as long as the quantity of people who use it increases. He cited this claim with the example of telephone by reminding that, if it had connected only two people to each other, it would not be this much valuable. It is not surprising, in the case of communication of which nature is connecting people, that the importance is attributed to the extent and spread of users. Considering the fact that it is used by huge masses, it is understandable that they have progressively become addicted to it.

Frand points out the distance and locality, as the changing concepts, occurring as an outcome of ubiquitous connectivity. As opposed to former constraints, no matter where they are, users are able to engage in real-time online relations. This is called constant connection and it is one of the cultural specifications of the digital age. Besides, Rowlands et. al. (2008, p. 300) assert that more than being a generational feature, it may be specifically related to personality and background of an individual.

As another item specifying the digital age, *instant gratification* which refers to a range of activities, such as watching successive episodes of a TV series without a limit or doing Internet shopping without a time constraint, stands out as a possibility to access information instantly. Instant gratification as a consequence of digital age is also considered as a matter of 'time'. Frand (2000) emphasizes this change explaining that the concept of time has started to be taken in a different way by people. Still, according to him, first of all, independently of recent digital opportunities, either physical desires or need for information needs to be satisfied immediately as a matter of human nature in fact. He exemplifies this situation by reminding that waiting for the receiver to answer a phone call after the third ring is almost unbearable for anyone (p. 22).

The members of *Net Generation* who were defined on the basis of their inclination for socialization via Internet by Oblinger D. G. and Oblinger J. L. (2005), expect instantly to communicate with friends, access to online services, and receive online information.

Rowlands et. al. (2008) who define Google Generation consider them not so much impatient since they refuse to handle them from the standpoint of previous ages. It means, according to them, if the mindset of the old ages can be given up, it can be said that this, at the most, is just a kind of ordinary behavior belonging to the current time. Williams and Rowlands remark their approach to this case in these words:

> "There is no evidence that we aware of to suggest that young people are more impatient in this regard than older people. All we can do is to repeat the obvious: that older age groups have memories that pre-date digital media experiences: the younger constituency does not."

(Williams & Rowlands, 2010, p. 17)

Another specification belonging to the digital age is online travel. Frand (2000) has a positive look on the bombardment of input to which users exposed by various visual and auditory providers such as TV, radio and the Internet. As he remarks, in contrast to the case of old times when people had access only to a few channels to get information or have a good time, currently uncountable amount and types of channels, on which either a broad range of events from anywhere in the world or entertaining videos involving hundreds of images are presented, are offered for audiences' decision. In comparison, he likens the outcomes of the opportunity to globally engage in different places, cultures, and ideas, to the experiences that could be previously gained only by means of physical travels.

Seemiller and Grace (2016) highlight the instant gratification mentality existing today. According to their research, since contemporary people are brought up in a world in which there is no time limit in the access to the Internet and the websites, they are more inclined to regard everyone else is accessible every time, in comparison to the previous generations. So, they have not a considerable tendency to care about and aware of the time when they want to do anything. The authors call this situation "the culture of 'get-it-when-you-want-it'" (p. 28). Similar to this, the possibility to watch TV programs, films and series on the Internet anytime to the top of their bent without following broadcasting time converted today's people including Gen Z into *binge-watchers* who watch, for example, an entire season of a series at one night. That is, today's people no more stick to the broadcast streaming.

2.2.5. Search engines as information sources

While dealing with the behavior pattern observed in digital media, information seeking habits of users is another issue to study on. In the culture of the digital age, the Web has been the primary or the sole media for many activities from film screening to shopping and channel-surfing as a norm of information-age (Frand, 2000). Parallel to this, digital media has not failed to succeed complex systems of physical libraries. Rowlands et. al. (2008) draw attention to the shift of libraries from being physical spaces to being a virtual media while mentioning the emergence of Google Generation. Nicholas and Rowlands (2008), in their book, call this generation 'Digital Consumers' as regards to digital information consumerist behavior and emphasize that it has been observed in many fields from the rise of e-shopping to substitution of digital libraries for physical libraries. As they clarify the term 'consumerist', a search on the Internet is made by instantly switching between search engines, pages, titles, and so on. According to a study on online information-seeking behaviors of scholars, downloading frequency of particularly free documents demonstrates the prevalence of the consumerist approach (CIBER, 2007c).

Now that the media and interfaces through which people access information have been undergone this dramatic change, it is noteworthy to discuss how reading skills have been altered. Online searching habits of today's students also influence their way of reading. It has converted the traditional form of reading into new forms. According to CIBER (2007c), even the majority of scholars making research on the academic reference websites, have a tendency to skimming only the starting pages. As this study shows, while seeking information by scanning only initial pages, their route is considered as a horizontal reading act. As different from vertical reading, it refers, in other words, to flicking an item while shifting to another one without turning back almost all the time. Although this result is only with regards to the scholars, the youth has similar behaviors as well, as an outcome of the digital world. For instance, it is directly said that reading form of Net Generation is not traditional way of reading anymore, it has turned into scanning instead as Oblinger D. G. and Oblinger J. L. (2005, chapter 2.7) remark. They also mention that these students are not as much inclined to think about things as they prefer to do things.

Problems arising from the overload of information is attributed to the foreseen exponential growth of the Web (Frand, 2000). Besides its greatness, the Internet does not

every time offer reliable information (Seemiller & Grace, 2016, p. 27). The vagueness between consumer and creator is one of the adverse outcomes of the Web as an information source (Frand, 2000). Since unreliable information such as rumors, personal opinions, and so on comprises lots of information accessible on the Web, quantity does not refer to quality (Trilling & Fadel, 2009). For instance, spread of social media in which each individual has become an information generator as a self-publisher aside from traditional formal publishing, has made it difficult to tell trustworthy information and subjective expressions apart (Rowlands et. al. 2008). According to these references, in the digital age, finding out the right way to access to any needed information has been more difficult. Accordingly, the need to sort out search results has been increased.

Frand (2000) asserts that many students expect to access everything they need freely on the Internet. Now that online research is the most used way to learn as said above, perception of today's youth who confronts this much amount of information, on reliability of the outcomes of online research is inescapably associated to their learning behaviors. Thus, in the case of information seeking, approach to reliability is another issue which is worth to mention. According to the study on the youth's information behavior by Williams and Rowlands (2007), the rise of online research has not enhanced information literacy within the respect of youth's study skills. Although there is evidence that scholars evaluate the information they access by chross-checking (CIBER, 2007c), the students seem not to be so. The study reports that, students prefer digital search since any information on the Internet which they carelessly believe in its accuracy takes less time and effort to access.

Purcell et. al (2012) focus on information seeking habits and information literacy of today's students in the survey conducted with Advanced Placement (AP) and National Writing Project (NWP) teachers:

> "…these teachers juxtapose these benefits against some emerging concerns. Specifically, some teachers worry about students' overdependence on search engines; the difficulty many students have in judging the quality of online information; the general level of literacy of today's students; increasing distractions pulling at students and poor time management skills; students' potentially diminished critical thinking capacity; and the ease with which today's students can borrow from the work of others.
>
> "These teachers report that students rely mainly on search engines to conduct research, in lieu of other resources such as online databases, the news sites of respected news organizations, printed books, or reference librarians."

(Purcell et. al, 2012, p. 2)

The study of Williams and Rowlands (2007) shows, relying on the little span today's youth spend to conduct search, they do not allocate enough time for evaluation. As the authors suggest, one of the reasons young people are unable to find useful ways, such as employing more relevant keywords during an online search is that they are not conscious of their needs of information. Another reason they undervalue the possibility to end up with unreliable information, as Large (2005) says, is being unaware that the document on the Internet has been piled up by the contributions of different providers. According to Frand (2000), fact and fiction, or subjective opinions and objective assertions are pretty hard to tell them apart on the Web in the absence of posting date, expertise of the web site's creators, citations, contact information for other relevant people, and so on. As for use of information, let alone investigation of accuracy, they are the "cut-and-paste" generation (Rowlands et. al. 2008, p. 300) who does not avoid using any information without comprehending and reformulating.

Considering that much frequency of use of digital tools and services of which sphere of prevalence is that much wide, they are called thinking tools of 21st century (Trilling & Fadel, 2009, pp. 25-27). As they explain, opposing to the previous situation in which knowing was keeping information in mind, digital tools of this century provide the chance to access information anytime without necessity for remembering. Their research shows, apart from the distracting notification beeps, numbers of calls and instant messages received constantly, formats and updates required periodically, and so on, that thinking and knowledge tools of the digital world enhance learning performance, works and creativity. Yet, there are also opposing arguments regarding that the fact that information is at the youth's fingertips. Rowlands et. al. (2008) mention existence of many studies arguing whether creativity and independent thinking is killed by the easiness of access to information.

2.2.6. Video games as an entertainment industry

How people of the digital age seek or find solutions to problems and how they learn are some of the issues dealt by especially Cartens and Beck (2005) who called them *Gamer Generation*. They claim, due to the habits and values coming from a huge interaction with games, as if they are playing a game resetting repeatedly, new students are better at finding solutions with trial-and-error method. This is because, despite imposing a combination of rules, games let gamers to play numbers of times. Here it is also required

to add that, those games offering usually more than one pathway to win are said to have conveyed to students the thought of the existence of different solutions for any problem. The researchers indicate the nature of video games allowing players to take risk in an environment in which there is not a high price to pay in the case of an error. For all these reasons, Gamer Generation is said to be familiar with trial and error. Moreover, in as much as they desire to win and being a hero is significant, improving skills step by step to pass to the next level better fits their habits coming from games.

Frand (2000) handles this issue by comparing the advantageous specifications of the recent years to the past. He says that since trial-and-error in scientific experiments made in industrial ages had been carried out only after a versatile thinking because of the risk of time consumption and its expense, students had accordingly been supposed to think their tasks over before actively performing. He is also another researcher who attribute new generations' tendency to trial-and-error to video games. As he asserts, when the game Nintendo requiring persistent trial-and-error to win became prevalent among young people, the time each loss was started to be considered by them as a learning experience. Due to such a game, players got used to the thought that losing serves as the shortest route taking them to the solution. Rothman (2014), about Gen Zers' learning preferences, supports these assertions by claiming that the players are more successful when being given enough time and the chance to practice independently. He maintains that repeated activities that spread over time enhance their learning performance appears to indicate a kind of adaptability between the principle of learning-by-doing and abilities of Gen Z. The author also pointed out the importance of immediate feedback that refers to constant guidance to students.

2.2.7. Digital programs as organizing tools

Aside from communication, entertaining, information seeking etc, applications addressing to composition of ideas and displaying them in an organized way are also facilitated by the possibilities of technology. Arranging a schedule, making a table, or writing an essay are some examples of actions facilitated by digital media. Computer programs have made it possible to fulfill such tasks by suggesting interfaces, special to the digital age, which enable users to input a data and update it within seconds. One of the examples of this case is the alteration in writing habits. The linear writing experience as remembered from the past, which means starting with the beginning of a text and finishing when it is completed, can be briefly compared to digital writing experience

currently prevalent today through Frand's (2000) words, about the convenience provided by word processing programs:

> "I can bounce all over the screen with a word processor. I can put down an idea, expand it, take it apart, and then reassemble it in a more meaningful way. Similarly, spreadsheet applications enable us to create models to evaluate situations, solve problems, and make decisions. It's not the "typing" but the power behind the "typing" that is so important today."
>
> (Frand, 2000, p.18)

As Frank stated in the section 'Typing Rather than Handwriting', due to such programs, there is no need to think sophisticatedly before starting, and to conclude with a perfect end. Drafting, in this case too, has always been possible to make with a pen and paper, however seeking solutions to relate written sentences and paragraphs to each other and the whole is more practical when done in digital form. Digital programs provide a user with an advantageous media to gather textual bulks to obtain a massive text by considering the entire meaning.

The characteristic of computer programs mentioned above is the considerably shortened time they offer to make trials. Thus, it is not surprising that they have substituted old ways of composing things which do not allow people to make up errors easily. It can also be inferred from the explanations above that actually there is an association between organizing things in digital programs and the way of composing them in mind. It means that the great convenience to control relationships between elements to arrange them is indeed directly related to the way of collecting one's thoughts while making a composition.

2.2.8. Technological hardware as hand tools

In the digital age, the most frequently used tools are digital ones such as keyboard, mouse, and digital pen. Frand (2000) claims that the young people who were born in the digital age prefer keyboards while writing, even though it was a manual act for the previous generations. As he points out, the amount of time that these children spend for key-stroking is not less than the amount of time that previous generations spent for writing by hand. Aside from stroking the buttons on a keyboard as an example given by Frand, digital tools being controlled with specialized manual actions have been developed. For instance, zooming, pinching, and swiping are other manual actions that contemporary kids constantly make while growing up (Rothman, 2014). Yet, no

evidence showing that digital tools have an effect on students' manual skills has been found in the resources about use of digital tools manually reviewed for this study.

2.3. Today's University Students in Turkey

2.3.1. Educational background

For understanding the mindset and behavior pattern of freshman students in Turkey, their educational background comes out to be one of the most critical issues. The content and method of teaching, ways of assessment, improved skills etc. usually seem to have an impact on their mindset and behavior pattern. In this study, the greatest importance of educational backgrounds of students lies behind its impact on students' thinking skills which are at the very center of design education. Yet, in Turkey, education system, as suggested by Özden (2005), does not have a contribution to freethinking as it will be explained more deeply below.

First of all, many of the researchers argue that education is effective on thinking skills, creativity and critical thinking, and claim that these can be improved. For instance, according to Trilling and Fadel (2009), imagination as a skill required for creativity is something that anyone has, which means everyone can be creative in some respect. In their aspect, due to capabilities to think creatively coming from just being an ordinary human, everyone can make creative contributions to different professions from arts to science without specifically relying on his/her educational background and experiences. Yet, they recommend not taking it as an unteachable and unmeasurable ingenuity and also say that such a point of view prevents creativity to be attached importance in education. Thus, education is an effective factor on the development of creativity. Similarly, Robinson (2001) points out that, creative skills, despite belonging to every single individual rather than being special for only endowed ones, as a natural part of human nature, still require to be nurtured. According to him, creativity is something possible to be improved dependently on whether it is thought or not. Accordingly, he suggests that learning how to be creative can be the same as learning how to write or read at school. So, the important thing is how it is tried to be improved.

As for training critical thinkers, Facione (1990) indicates that more than imposing skills, it is needed to strengthen students' self-confidence in thinking critically by means of

education. Moreover, without attributing to educational backgrounds, Kennedy et al. (1991) directly points out that many of adults are not good at reasoning skills, although he also says that all students are able to think critically independently of their intellectual capacities. It means, it is not that much simple for anybody in any case. These researchers advocating that thinking skills are capable to be improved point out the role of education in development of such capabilities.

As Trilling and Fadel (2009) describe, schools should encourage questioning, new ideas, and patience to improve creativity. According to them, for this purpose, students should be given enough time for trial-and-error. Robinson (2001) tells more about the details of education through which creativity is aimed to taught. He claims that since creative works are to some extent thought related to expressing oneself in a free manner by playfully dealing with ideas, serious works are not considered as much as fruitful for nurturing creative thinking skills. However, he adds that concentrating on any task by seriously manipulating ideas by thinking critically is also required for creativity. Paul and Elder (2006) claim that thinking critically and creatively should be a part of courses.

Characteristics of pre-university education in Turkey shed light to common tendencies of students. Gedikoğlu (2005, p. 75) remarks the prevalence of rote learning in the Turkish Education System. He indicates that students are inclined to memorize learning inputs because of grade concerns. As pointed out in this study, exams are just addressed to memorized information rather than evaluating how students use permanent knowledge (p. 79). Kartal (2013, pp. 258-259) attributes the tendency to memorize everything to the multiple-choice examination system. As he also claims that the education system in Turkey is not based on real life applied studies. He asserts that this is another reason why students are inclined to memorize the information given at schools. As Özden (2005) shares his own experiences in the preface of his study, learning materials at schools only include definite expressions related to accepted facts. For this reason, he states that there is no room for alternative aspects in education in Turkey. Thus, schools do not encourage learners to think actively. In his opinion, this system which is mainly based on memorizing information passively, do not let students' thinking skills get improved. On the grounds of these studies, rote learning, multiple-choice exams and grade concerns are some prominent terms defining the characteristics of the education system in Turkey.

Aside from the studies directly on Turkish Education System, there are researches dealing with the relationship between education and thinking from a more general point

of view. For example, Paul (1992) asserts that traditional instructional models do not contribute to critical thinking. He mentions the tendency at traditional schools to memorize the input without understanding and learning. He explains that retention is mistakenly considered equal with knowing which is required for thinking critically. Robinson (2001) is another researcher claiming that adaptation of test taking and memorization does not enhance creativity. According to him, traditional education models which are based on 'facts' or impose some information as if they are 'absolute truths' to accept, are opposed to questioning required for creative thinking. This study clearly shows that there is almost no room for skeptical approaches in such education models. It is indicated that forcing students to memorize all information they receive is an obstacle to be able to both deprive information and produce new questions. All of this information verifies the prevalent belief that the education system in Turkey does not help to improve thinking skills.

2.3.2. Technology utilization in education

The pattern of technological experiences of the digital world which is considered a determinant factor on characteristics of Generation Z is still valid, as to the case of Turkey since a considerable ratio of population uses Internet and a variety of technological devices. According to a study titled "Information and Communication Technology (ICT) Usage Survey in Households and by Individuals", related to usage pattern which was conducted by Turkish Statistical Institute (TÜİK) between April 2015 and March 2016 shows that 76.3% of households have access to Internet. Actually, even for others, the first reason they do not need Internet connection is the opportunity to connect almost everywhere without a limitation. In terms of possession of technological devices in households, the ratio of households without mobile phone is only around 3%. Additionally, almost 23% of households have desktop computer. This ratio is 36.4% for portable computer and almost 30% for tablet computer. 82.4% of population uses social media. Users are also respectively interested in videos, online news, health themed contents, information related to goods and services. Moreover, there is an increase in online shopping and use of e-governing services in comparison to the previous year. Actually, according to the annual surveys from previous years, there is a constant rise in the amount of internet users. As a result of this increase, the study conducted in 2016 finally demonstrates that almost 95% of people regularly connect to the Internet. This

data as a whole provides a basis for the case that we constantly see people taken up with their phones and how youth have turned into Digital Natives in Turkey.

Besides the remarkable inclination towards technology in daily life, it is also noteworthy to mention the involvement of digital applications in Turkish Education System. Within the educational configurations over the last years, Gül (2008, p. 193) indicates that the role of information technologies have been planned to be increased. One of the examples of this purpose is the adoption of Computer Aided Education which refers to direct interaction of teachers and students with computer technology to fulfill educational applications, such as presenting and receiving information, and improving skills. (Odabaşı, 1998, p. 135). As another example, FATİH Project (The Increasing Opportunities and Improvement of Technology Movement Project) mainly aims at providing equal opportunities in accessing advantages of digital applications by enhancing technological equipment at schools (Akgün, Yılmaz & Seferoğlu, 2011, p. 115). Correspondingly with this goal, over the last decade, many state and private schools has been equipped with digital tools such as digital screens and interactive boards, students have been given mobile digital tools. In addition, Internet search and instructional videos have started to be extensively applied in education in order to increase technology utilization across the country.

In conclusion, recent developments in education encourage and extend technology utilization in Turkey. However as much it is an opportunity to be coming from high-income families to be more able to engage in the latest goods, this may also be the least important factor because all students, regardless of income level, have been given the chance to comprehensively interact with technology by today's national education system. As regards to the beginning dates of increase in such configurations, the majority of the students who attend the universities recently are the ones provided with the access to the digital applications at least during high school years. Thus, influences of technology on the student profile over the world are prevalent among Turkish people as well.

In this chapter, generations arisen in the digital age have been introduced. Their habits, tendencies, competencies and incompetencies coming from the interaction with technology have been discussed using the name Generation Z. Cultural specifications brought about technological experiences risen in the digital age have also been mentioned. Besides, in order to develop a better idea about todays' university students in

Turkey for the case study conducted in this research, national education system and prevalence of technology utilization in Turkey have been briefly addressed. The following chapter on beginning design studio deals with the Art and Design Studio course given at IUE, which will be followed by a discussion on how Generation Z respond to this course.

3. Beginning Design Studio

3.1. Preliminary Course as the Background of Art and Design Studio

According to the interview conducted with Tuğyan Aytaç Dural, the coordinator of Art and Design Studio, the course is based on the preliminary course at the Bauhaus. The Bauhaus founded in Germany in 1919 and closed in 1933, was the first design school gathering arts and crafts to serve modern industry. According to the Bauhaus Manifesto by Walter Gropius (1919), the founder, the school initially aimed at "unified work of art-the great structure-in which there is no distinction between monumental and decorative art". (pp. 49-53) One of the aims of the Bauhaus School was to integrate arts into modern industry by gathering the concepts of artisan, artist, architecture and industry (Bulat S., Bulat M. & Aydın, 2014). It was founded to demonstrate that arts and engineering are possible to feed each other, let alone the absence of a necessity to keep these two distinct (Gombrich, 1995). For this purpose, similarly, the Bauhaus set out to treat applied arts and fine arts together (Bulat S., Bulat M. & Aydın, 2014). In *Walter Gropius ve Bauhaus [Walter Gropius and Bauhaus]* (2002, p. 53), it is remarked that, rather than relying on theorical narrations, the basis of Bauhaus is the purpose of providing students practical knowledge.

Lackney (1999) claims that the Bauhaus put mass production and modern technology at its focus, as opposed to traditional approach of Beaux arts educational models of which the goal was seeking for 'good-taste'. Considering the engagement of the Bauhaus with modern industry, he asserts that real materials and real work processes are involved in this practical education. It is also pointed out by Lackney that although the studio-based model is adopted from previous teaching systems, Bauhaus seems to had more focused on modern concepts in comparison to neoclassicism, ornamentation based Beaux arts schools. Within this context, as to studio-based model of the Bauhaus, technical skills too are approached from a modern point of view towards aesthetics. Gombrich (1995) remarks, as a contribution of its theory to humanity, for instance, functionalism adopted by the Bauhaus helped the community to be relieved from unnecessary stuff and sense of beauty inherited from the 19th century art.

As Bulat S., Bulat M. and Aydın (2014) clarify, it is understood from Gropius' explanations that in order to provide design students with the equipment that fits into the

age of mechanization, the Bauhaus intended to make arts to penetrate into lives by improving sense of sight, 3D thinking and manual skills of students through courses addressing to formative imagination that every person naturally has. They also briefly state that the goal of the Bauhaus was teaching the principles, which are based by visual arts, of design.

The words of Bulat S., Bulat M. and Aydın (2014, p. 105) gives an idea about the Bauhaus's approach to design to some extent: "When Bauhaus was founded, it took the responsibility to question all of the materials and possibilities of design". Accordingly, they point out that, rather than serving as classes to educate prospective artisans, studios were places in which solutions to serve industry were sought. The school, on the other hand, put a great emphasis to crafts and craftsmanship because of the significance of creativity. Creative design can be achieved especially by means of craftsmanship according to Bauhaus Manifesto. As understood from the importance attached to trials on materials and craftsmanship, learning by doing was mainly applied at the Bauhaus. When this adoption of the school is explained by considering the definition of learning by doing made by Smith (1982), it can be said that personal involvement of students to the learning process by exploring significant knowledge is one of the pursuits of this type of education. Smith's definition that knowledge expected to turn into a behavioral outcome is better learned by doing, also well explains the relationship between the Bauhaus's expectation from design student in learning process. The opposition to traditional book based schooling which is put forward due to learning-by-doing is mentioned by Gropius (1955) with the words referring to the inadequacy of books in offering the outcomes of trial-and-error.

Laszlo Moholy-Nagy points out in the book *The New Vision* in 1932 that the Bauhaus put the thought of human at the focus by accepting everyone is talented, and gives importance to self-knowledge and individual development. Similarly, Gropius consider "freedom of individuality" to be one of the principles of the Bauhaus in the Bauhaus Manifeosto. According to Oskar Schlemmer, the initial goal of such an "art school of modernism" had to refer to human being that should be the concept starting design and being served by it. Moholy-Nagy implied the same thing by saying "Not the product, but man, is the end in view" in 1932 (Wick and Grave, 2000).

As regards to the relationship between instructors and students in the Bauhaus, Walter Gropius says "…there will be no teachers or pupils in the Bauhaus but masters,

journeymen, and apprentices" in the Bauhaus Manifesto. In a similar way, to be able to continue to design education in a higher level, each student was supposed to pass the preliminary course in the first year at the Bauhaus. This idea which handle students considering their levels seems to be the origin point of the preliminary course as it will be better understood in the following section.

3.1.1. Aim of the preliminary course

Preliminary course, also named preparatory course or basic course, was taught in order to introduce design principles to beginning design students (Siebenbrodt and Schöbe, 2012). This course is also called an elementary instruction which is obligatory for each student to pass to continue to design education as stated by Wick and Grawe (2000). They also point out that the Bauhaus' pedagogy is based on this course (p. 66). According to the definition by Siebenbrodt and Schöbe, it is a "self-finding course" in which students could test their skills required to become a designer. They state that while testing creativity and imagination, they could also see their capabilities in terms of group work, sensitivity, and steadines.

The aims of the Preliminary course at the Bauhaus, as declared by Itten (1975) were to reveal students' creativity and inner talent, give them the chance to examine with various materials with different properties, and teach the basic rules of artistic design.

On the further side of these goals, Wick and Grawe (2000, p. 60) states that the course intended to increase self-experience and self-knowledge of students. They claim that "…the purpose of Itten's preliminary course was not primarily direct preparation for the subsequent teachings in one of the workshops but rather a chance for students to discover and develop their own creative abilities, free from any attempt to judge them by other than aesthetic criteria" (p. 113).

As it will also be understood in the following section, the purposes of the preliminary course are not limited to the ones above. Teaching them how to make a composition, introducing them to construction, enhancing students' senses and making them physically more associated with the environment, teaching how to use materials relevantly to their nature, and getting them familarise with the materials in an organized way were aimed at the beginning of design education at the Bauhaus.

3.1.2. Content of the preliminary course

It is well known that the learning theory applied in the Bauhaus is based on Gestalt Psychology suggested by Wertheimer and developed by Koffka and Köhler. Accordingly, the cognitive theory related to this psychological system is called 'Gestalt field' as Quayle (1985, p. 24) states. More specifically, he remarks, by relying on the table done by Bigge (1982, pp. 10-11), the learning theory relevant to these is 'insight learning theory', and it pedagogically requires 'transposition of generalized insights' (p. 26). As he claims, this education model requires a learner to interact with problems in a logical, non-verbal process. To understand the pedagogy of the Bauhaus, one of the key persons to read is Piaget known for his studies on cognitive development to read. According to the constructivist approach developed by Piaget, as summarized by Fosnot (1996), learning requires active exploration as a challenging process in which errors do not necessary to be abstained. It is also claimed that participation in group discussions and effort to generate ideas and questions by oneself enhance thinking process.

The typical approach of Bauhaus to creativity, craftsmanship, learning by doing is prevalent in the preliminary course. As Wick and Grawe (2000) cited, according to Albers learning by doing so called learning by discovering is obviously more effective on creativity in comparison to old education models. Albers explains that the goal of trial and error conducted with various materials by, for example, sewing, buttoning and typing is not to create a workpiece, but only to experience. Gombrich (1995) states that, in a manner relevant to the purpose of design, the students at the Bauhaus were given the chance to make trials fed by their imagination. By means of experiences with materials, students achieved "not only a basic technological understanding but also knowledge of universal formal principles like harmony, rhythm, scale, proportion, and symmetry." (Wick and Grave, 2000, p. 174)

In the Bauhaus Manifesto, Gropius points out the friendly and joyful environment by mentioning plays and parties themed such as poetry, music, and costume. Similarly, in the preliminary course, Bulat S., Bulat M. and Aydın claim (2014) that personal experiences in the course were based on play-like works during which students were encouraged to make trials by themselves.

The instructors making fundamental contributions to the preliminary course by defining its scope and method were Itten, the founder of the course, Kandinsky, Klee, Moholy-

Nagy, Schlemmer, and Schmidt. According to Siebenbrodt and Schöbe (2012), the course was substantially based on three fields, form, color and materials. In detail, at different levels in the progress of the course, students were taught a wide range of subjects such as figure study, analytical drawing, harmonization studies, construction studies, calligraphy, natural science, and descriptive geometry.

The range of subjects treated in the preliminary course at the Bauhaus is commonly understood from the explanations by Siebenbrodt and Schöbe (2012) as mentioned below in this paragraph. For instance, within design theory, composition of basic shapes and forms produced with points, lines, planes, and spaces were treated. Limitless variations of design works were referred by means of the complexity obtained with use of color. Moreover, issues such as balance, rhythm, and movement were examined as compositional issues. In respect of color and form theory, a large variety of formal properties such as thick/thin, plane/solid, light/heavy, and smooth/rough were studied as well as color charts. Color theory including rules of using color relationships and movement was also called "ABC of means of expression" (p. 48). In nature studies plants, figures, landscapes, and abstract compositions, through which pluralistic approach to art was introduced to students, were covered. On the basis of construction studies, mainly spatial issues aside from dynamics, balance, and transparency were dealt, to some extent from a viewpoint of structural engineering. These subjects were also concentrated on the ways of attaching and relating elements of a construction to each other considering functional, purposive and technological issues. In another study called *artistic design theory*, art, architecture, and technology were treated together, and the correlation between each other was analyzed.

Studies on surface treatment, as Moholy (1932) mentions in his book, The New Vision, aimed at students' haptic and optic senses. As Siebenbrodt and Schöbe (2012) clarify, training of senses to make students more aware of their surroundings was one of the ideas mainly defining the content of the course. To give an example, these researchers advert to that some studies on identifying different textures with closed eyes were done as part of 'sensitivity training' for the purpose of improving sense of touch to have a good command of materials. Besides, they mention 'mental training', applied in order to enhance classes with breathing and concentration oriented exercises, coming from the idea that the role of body and spirit could not be neglected in design process. They also refer to a play-like approach to design works, aimed at 'creativity training', which is independent of judgmental assessments.

Economic use of materials and time was also one of the issues mentioned in the course. According to Hannes Beckman, one of the Bauhaus students, beginners were encouraged to respect to the nature of any material to use it suitably and effectively, without feeling the need for additional tools and materials to reshape and attach them if it is possible (Siebenbrodt and Schöbe, 2012, p. 41).

3.1.3. Method of teaching at the Bauhaus

Having an opinion about the properties of studio-based learning model is helpful to introduce to the methodology of the course in general terms. As Lackney (1999) describes, the term 'studio' refers to a loft-like wide space, full of drawing and model making furniture and tools, in which assignments are carried out under a master's supervision. He points out the existence of such an environment in Parker School in Quincy, Massachusetts, in 1800s, even before the Bauhaus. As he states about the characteristics of this environment, active learning and learning-by-doing were used to be supported in this education model with long term projects in which students were used to apply arts for expression. This model, in which supervision of instructors was adopted, used to help students to be individually known by the instructors. He also adds, this way was also useful for instructors to change and develop curriculum considering students' current needs to make teaching more effective.

In design studio, a design project given in the form of brief, critiques, juries of certain products and in some cases an exit overview. Design problems are first given to students in the form of a design brief in which there are technical information, specific requirements, and associated goals. It means, task of students is started through a brief. After the brief, students make a collaborative research on the subject, and then they start to work on their individual works. According to students' works, some issues found necessary to overview is periodically dealt by instructors in lectures. As well as periodic lectures, considering the progress of works, feedbacks are given to students in critique sessions being handled in various forms. Critiques can be separated into four phases, desk critiques, pin-up, mid-term, and final critique. No matter how a design critique is called, it seems to be a way of iteration of works during problem solving process (Lackney, 1999).

3.2. Art and Design Studio

3.2.1. Aim of Art and Design Studio

The initial aim of the beginning design education is to teach comprehending the network of relations in any work of art and/or design which can simply be defined as "making a composition" as defined by Tuğyan Aytaç-Dural (2012, pp. 101-128). In this study, she claims that the skills improved throughout the first year of the education are creative thinking, imagination and manual skills. Within this respect, she relates creative thinking to 3D perception required in making a composition. She also attributes the ability to visualize things to imagination. Importance of manual skills also comes from the requirement of craft making to bring out a composition. In order to briefly group what to teach, she suggests that while teaching making composition is the tangible aim of the Art and Design Studio, enhancing critical thinking, imagination and manual skills are the intangible ones.

Following the previous paragraph, Art and Design Studio focuses on at the above mentioned purposes. According to the syllabus of the course updated in 2016-2017 academic year, the course aims at "establishing the foundation to comprehend the common design language for five different disciplines, providing the basis for multidimensional thinking, developing the manual and mental skills to complement the 'hands on practice'." (FFD 101 | Course Introduction and Application Information, 2017).

Creative, innovative, participatory and critical ways of learning/teaching are the basis of basic design education which also supports versatile thinking (Durmuş, 2015). At this point, definition of creativity is useful to picture the spirit of the school. Creativity directly requires the ability to think critically and solve problems as Trilling & Fadel (2009) define.

The definition above shows the relationship between creativity and critical thinking. Since both terms will be used in following chapters while mentioning students' thinking skills, critical thinking should be described here as well. There are some keywords which are helpful to develop an understanding about critical thinking such as reflective skepticism (McPeck, 1981), skillful and reasonable thinking (Ennis, 1985), purposeful and self-regulatory judgement (Facione, 1990), and disciplined and self-directed thinking (Paul, 1992). Facione (1990) defines a critical thinker as an open-minded, inquisitive

person aware of own weaknesses in thinking. He/she is, as the author says, also well-informed, self-confident in thinking, willing to show interest to different possibilities and alternatives, eager to keep thinking critically in any field. To be able to come up with creative results, it is not surprising to need to have such skills which together mean a flexible mind. On the other hand, Bailin (2002) asserts that critical thinking is possible in the existence of creativity. Here it starts being difficult to think creativity and critical thinking distinctively because they are this much inextricable. Anyway, now that Bauhaus focused on creativity initially, the concept of designer that it adopted as a creative person can be thought that he/she has the intellectual skills above.

So far, the shared aims of the preliminary course at the Bauhaus and Art and Design Studio at IUE have been mentioned. Yet, these schools have something not in common in terms of their objectives and this issue needs to be addressed also. One of the most important one of them to keep in mind while assessing IUE with reference to the Bauhaus, is that the political view for which Bauhaus stand should not be confused with IUE's vision. It is needless to say that the Bauhaus's political opinion is not adopted by IUE.

3.2.2. Content of Art and Design Studio

As for Art and Design Course at IUE**,** how the relationship between design and art is established is the first issue that needs to be reviewed briefly. Like such an attribution, it has been said before that departments of design at IUE are gathered in Faculty of Fine Arts and Design. The official name of the course is also 'Art and Design Studio'. Even the name itself indicates that art and design are handled together in this course at IUE. This is not surprising as the course in question bases its aspects on the Bauhaus approach. However, for a better understanding of the frame of this research, it still needs to be stressed that in this case fine arts is not supposed to be given the same importance in comparison to design. That is to say, in practice, whereas design is in the foreground, fine arts is a channel to address to design instead of being taught primarily. In this sense, artists, art pieces, thoughts, and trends from art history are matters through which students are supposed to make design projects to get familiar with art, however, it is important to be aware, that they are not expected to perform art as well as not being evaluated according to their artistic performance. In the same way, although students have chance to get feedback from both designers and artists to ground their decisions on the principles of both, during evaluation of projects, jury members keep artistic reasons

in the background. In spite of the names ‘Faculty of Fine Arts and Design’ and ‘Art and Design Studio’ which reminds the case in seeking for ‘good taste’ at Beaux Arts Schools, in this point, it should be stressed that IUE, like the Bauhaus, has not a shared this purpose with Beaux Arts Schools in this issue.

Additionally, there are universal approaches to the first year of design education that refer to the visual foundation and abstract content of first year design education. Marchovic (1988) points out that a visual language system through which designers can universally communicate constitutes the content of this course. He attributes the content to the aim by stating that “Learning visual linguistics comes most easily through an on-hands manipulation and analysis of the vocabulary of design, i.e. point, line, shape, form, color texture and light” (p. 29). On the issue of how to introduce these visual elements to the students, he also mentions the progressive period in which assignments are put in order:

> “The sequence of projects in basic visual studies should contain a progression of exercises that feed one into the other. In the language of vision, point makes line, line defines shape, shape then defines form and then natural progression that can easily be maintained in the sequence of offered studio experiences.”
>
> (Marchovic, 1988, p. 30)

As similar to the approach of Marchovic above, to progression, students in Art and Design Studio are expected either to repeat similar exercises sequentially or to progress step by step as occasions requires (“Index of /ffd101”, 2017). That is, rather than asking them to do all the requirements of a whole work in a lump, exercises are separated into tasks being thought to accord with the knowledge and experience that students have gain by that time. For instance, Exercise 01 has been given students in seven steps named Ex_01a, Ex_01b, Ex_01c… It can be inferred from the assignments, in which tasks are handled progressively and students are given successive challenges, that there is not a general introduction of the subject in the beginning of any assignment. Instead, students are let to gain experience specifically in related details in each exercise. That is the way learning-by-doing is applied in an academic term as it is mentioned in the following pages.

An introduction to the academic term is made with the subjects ‘Network of relations’ and ‘the definition of composition’ (“FFD 101 | Course Introduction and Application Information”, 2017). The following subjects include ‘Organization principles/types’,

‘The properties of the elements in a composition’, ‘Ordering principles of design’, and ‘Organization of relations between the groups in a composition’. Here the similarity between the subjects of this course and design theory taught in the preliminary course at the Bauhaus is obvious. The content aimed at order of elements in a composition is based on Gestalt Principles, too. In the sample assignments, how these subjects are treated by applying visual elements from points and lines to shapes and forms is seen.

The general structure of the course is determined at the beginning of the academic term (“FFD 101 | Course Introduction and Application Information”, 2017). Thus, in the weekly program all subjects are given in advance. So, by skimming over the program anyone can get information about the focus of assignments. Still, despite giving a general idea about content, how assignments will be formed is not determined at the beginning of the course. It means that even the instructors cannot cover the exercises in depth. Instead, during the term, details of any assignment are determined considering the previous one. To make sure of any assignment in detail, they retrospectively deal with the acquisitions accomplished until then and determine the missing points. In the preparation process of each new exercise, to add new ones to the experiences, knowledge and skills that students have gained, and to make up for deficiencies of the previous practice are aimed. It goes without saying, instructors try to make out what students need to practice in that specific time span, and elaborate the new assignment accordingly.

The range of tasks students charged can also be understood from assignments. The materials used during assignments are generally paper products with the additional materials and objects depending on the cases. As in the case of the preliminary course at the Bauhaus, characteristics of materials are attached importance in Art and Design Studio. Students are encouraged to decide how to use any material by considering its capabilities. One of the reasons gluing is not advised or accepted while attaching elements of a 3D composition is this idea that it is important to form and attach materials according to the possibilities they offer such as foldability of paper or tensibility of string.

Despite the great importance attached to crafts, woodcarving, weaving, metal working etc. cannot be said that they are handled as they are. In order to make students deal with attributes of various materials and their characteristic implementations, for instance, such craft works may be applied in some design projects, nevertheless, as only an introduction to crafts, those tasks are expected to be carried out at a very primitive level. That is

because the students are encouraged to start thinking how to form and construct any material and how to attach or relate them to each other according to various characteristics of elements in question. In this regard, starting thinking refers to, rather than being entrusted to finalize projects with really innovative solutions, introducing problem solving as an inseparable part of design thinking.

In some of the exercises, as in the case of the preliminary course at the Bauhaus, a play-like environment is created in Art and Design Studio. For instance, the issue of rhythm is treated by the help of music and dance. Initiation to enhance the visual content by applying to audio resources and physical exercise is also like the implementations in the Bauhaus. As Aytaç-Dural exemplifies, in this course, when students get distracted from the lecture, they are, for few minutes, let to move slightly on their seats to focus their attention again. She reminds that this is like mental exercises done at the Bauhaus.

Each assignment has a brief to read at the beginning. So, first of all the requirements according to sequence of phases is reading. Then, dependently on the approach, developed by each student, to the design problem, comes design process. In this duration, what to do is always a composition if it is not a primitive exercise. Therefore, many of the assignments is briefed with the introductory sentence "Make a composition". It means that in all exercises students are supposed to establish relationships in between the elements by setting up a system of rules and controlling a network of relations.

As to question how, learning by doing instead of treating a theoretical content is the initial thing expected from the students. More clearly, they have to handle the trial-and-error process in which they are made try to solve problems again and again without being demotivated, and learn from their own mistakes with patience. The facts that there is almost no theoretical introduction to the subject and that the students have to answer questions by themselves clearly show that creativity is a must in this course. Moreover, since the process based on hands-on projects which require drawing, making sketches and models, the course cannot be thought without craftsmanship. So, whether it is considered important for grading or not, well-workmanship is an inextricable part of Art and Design Studio. Besides, during feedback sessions, communication skills come into prominence. Lectures conducted periodically require focusing on the subjects. So to speak, as an audience, following what is happening on the scene is the thing the students must do. Hence, attention span is important during periodic lectures. As to desk critiques, they must actively establish a dialog with the instructor. At this point, one-to-

one communication skills, both to convey ideas and to understand the instructor, are significant. Finally, in the case of jury, being at the stage alone to represent design decisions requires public speaking skills.

Aytaç-Dural (2002, pp. 16-19) calls the beginning of design education "a period of transition". According to her study, in the educational life of students, this is the time active participation takes the place of passive listening. Students, rather than being provided with ready information, are encouraged to explore. The way the students can obtain knowledge includes their failures in active trials. Although they complain about being deprived of necessary information at first, this is the way to push them to search possible answers. Parallel to this, this is the first time they, as students accustomed to be given any instruction as the only acceptable information in the secondary education, confront the vastness of solutions. Aside from being active in reaching needed information, now that there is not just one answer to any problem anymore, they are let to find their own solutions in the face of challenges, with a reverse relationship with multiple choice questions. In comparison to previous years in educational life in which students are directly given information and provided with the alternatives to choose among as answers, design studio is where students should get accustomed to 'risk-taking', after the 'safe ground' they have been familiar with, in her own words. In such an environment supporting risk-taking and failures, students have a trouble adapting lower grades. After reminding of the fact that design education requires being open to criticism, she asserts that at the beginning of design education, the students find themselves in an atmosphere highly different from their educational background in this sense. Design education requires getting used to criticism. Moreover, design education also improves their self-confidence during this transition. With these explanations, she points out the changes in beginning design students' personalities besides their educational habits.

3.2.3. Method of teaching in Art and Design Studio

In which order stages take place through an academic term in Art and Design Studio at IUE is one of the frames defining the characteristics of the course. It is mainly based on the method of teaching at the Bauhaus. As introduced in the content of the course, the first stage is briefing a design problem to start the problem solving process. After that, until the day of jury for evaluation, the task of problem solving is carried out for a long period. It is the duration in which design project is managed from scratch to the final

product. It is also a circle in which different steps are repeated again and again. In this duration, each time, within the scope of a studio work or homework, students are expected to come up with solutions by a close deadline. Following the deadline of each work, they are given a lecture on the related issue and one to one critiques on their projects. These are two different sessions in which students are given feedback. After these sessions, they are supposed to start again or resume their work to improve their designs according to the guidance they received, as a new assignment. Right after the deadline of this new assignment, too, new feedbacks are processed. Sequential periods of student works and feedbacks from instructors go on by the end of the problem solving process of each assignment. After the submission of works, evaluation takes place. Among assignments, the last ones are related to the final project. The end of final project is when designs are considered to be accomplished, and eventually it is time for the jury to evaluate design decisions of students. By the mid of the academic term, a midterm jury is also organized. Additionally, if considered necessary, ries a pre-jury is put into practice before the actual jury. In a very simple manner, briefing, problem solving, and jury are the three main stages, with different properties, of an academic term. In the following sub-sections, these three stages of studio-based education model will also be explained in detail with their characteristics.

In a design brief in the Art and Design Studio, design problem is declared in several sentences. In detail, the range of materials to use can be given, an introduction on sizes, shapes, and forms can be made, directions about use of color can be pointed out and so on. The most important thing about brief is that, besides written material, almost no additional explanation on the subject is made to inform students at the very beginning of an exercise. Hence, also as important for the following chapter, rather than a face to face oral explanation, design problem is briefed in a written document. It is also important that brief is given to students right before the beginning of an exercise instead of leaving a long time between briefing and starting the active design process. That is to speak, students are expected to directly start working on the assignment after being informed of their task.

Besides the traditional implementation, mentioned above, adopted in Art and Design Studio at IUE, it should be added that brief is screened by means of a projector in the studio in the last years. In contrast to old ways of briefing in tangible sheets, recently students read the brief on the screen in the studio. Although there are still a brief

including task, materials, methods etc., written on a sheet, however, in this case there are a digital application in question. Moreover, students also have access to the written exercise via Internet connection of their digital tools. So, in this situation design brief is something seen on the screen instead of a piece of paper. Like most of the contents on the Internet, the form of brief is not a fixed image of a text, but an active medium able to direct readers to additional contents through Internet links.

It must be repeated that almost all problem solving stages is dedicated to making visual compositions. The sentence "Make a composition..." that can be seen many of the exercises in briefs ("Index of /ffd101", 2017), is the origin of doing process in which students try to make compositions by making craft models. As Aytaç-Dural and Kılınç claim (2013, pp. 6-7), the problems given students as studio works or home works serve as processes in which a specific subject is learned by students. Since learning by doing is adopted, students are left to themselves to handle this stage individually. Without having been told what to do and how to do, they have no other choice to seek answers to design problems by themselves. Therefore, according to the relevant literature, they should be creative in generating new answers and critical to evaluate possible solutions that they generate. Immediate deadlines for studio works and home works increases the need for creativity. As it is also indicated from the literature review, this is also the stage where the imagination is in the foreground because of both its direct role in creativity, and the tasks requiring works composed visually.

In periodic lectures the concrete materials through which speech is constructed are student products in Art and Design Studio as it was in the Bauhaus. Providing a comprehensive review and criticism of a variety of works, lectures give students the opportunity to collect and evaluate the information in a comparative aspect. Lackney (1999) explains the fruitful side of these sessions by asserting that whereas in early stages of design process student projects are more similar to each other, by means of these sequenced speeches they can observe how their works progressively differentiate from each other according to their specific approaches. Dural and Kılınç state:

> "On completing the exercises, the works are discussed in a group format by the studio instructors in the so-called 'feedback' sessions. These discussions are intended to help the students see and produce alternative design solutions and also acquire the verbal language skills necessary to communicate their design ideas and concepts to others".
>
> (Dural & Kılınç, 2013, p. 7)

As a digital implementation, a kind of video recording application is used at IUE. Within this application, each lecture is recorded, and the videos are uploaded on the relevant platform on the Internet so that students can access to a bulk of video records via their own student profile on that media without time bound. It is possible both to watch the whole duration of any lecture when they miss studio hours and to monitor a short slot of time again and again to remember or to understand a specific topic better. Students are also able to play sequentially a series of videos piled up until that time if they need for a comprehensive review of the course. In spite of being one of the rare digital applications in whole treatment of the course, it can be said it offers a radical change in the way the lectures are followed by students.

As to desk critiques, Lackney (1999) claims that they require supervision of the instructor to enhance the solution of the student to given design problem by assessing his/her all works from the scratch to the physical modal made in design process In each desk critique, a student's progress is looked over by the instructor, and particular revisions are suggested to make for development of the design product. After each desk critique, students are accepted to be more informed of the subject so that they can revise their works. Until the final submission, each time after feedback sessions, they are again let to improve their solutions by their own. He defines these repeated sessions as 'design iteration' by emphasizing the vast number of iterations students made until the final.

In addition to desk critiques, Lackney (1999) gives information on pin-up sessions. According to his explanations, in a pin-up session, several projects are assessed by students at the same time. Each of the students whose works are already pinned up presents his/her work in turn. Each of them restates the problem and elements underlined to pave a way for a solution, mentions alternative solutions and the process experiences by then. After the presentation each student, peers' comments are received in discussion.

Tuğyan Aytaç Dural (2002, p. 16) points out that the nature of design education requires one-to-one communication between a student and an instructor and adds that student works are the means establishing that connection between these two.

At the end of each assignment given by the jury, submitted works are graded. Since assignments are flexible to some extent as they are designed in reference to the experiences from the previous exercises, evaluation criteria, too, remains changeable by the evaluation time. Additionally, since instructors have various aspects, it is sometimes

hard to strictly determine the rules of assessment. Still, because an interdisciplinary approach is already adopted, the variability of instructors' viewpoints to student works is not considered as a problem in the evaluation.

In comparison to the preliminary course at the Bauhaus and Art and Design Studio at IUE, the method of teaching is almost the same. In the case of such a course summarized above, it is frankly seen how much less digital implementations are applied. In detail, excluding screened briefs and video records of lectures, in Art and Design course there is almost no room for additional digital applications. (Students' attendance is digitally taken by instructors but since it is not directly related to how the course is treated, here it will not be fully mentioned). Considering this similarity, it is not hard to say that Art and Design Studio is a loyal predecessor of the preliminary course. Therefore, by keeping such digital adaptations in mind, specifications of the Bauhaus can be seen by generally observing Art and Design Studio.

As to jury time, it is required to briefly mention various types of juries. Evaluation of student works through their own representations to jury members in front of public is known as public / open juries, according to Anthony's (1991) definition. As he describes, one of the distinctive feature of this kind of jury is participation of guest jury members from experienced professionals. Besides, it is more than a numerical evaluation. In detail, after the explanation by each student, he/she is given feedback by the jury members. He adds that this is also the time when marks are given. As Salama and El-Attar (2010) explain, during juries, while the good and bad sides of the students' works are discussed, the amount of acquired knowledge and the way it is used is evaluated. According to them, aside from grading, this is a communication-based process in which thoughts and knowledge are academically shared between jurors and students.

Juries can be organized in the form of a pin-up session described above. In addition, Lackney (1999) mentions another type of jury, named 'Oregon Crit', coming from University of Oregon. This time, instead of waiting for their turns to begin to speak sequentially in front of jury members, each student waits for the jury members to walk up to him/her. In this form, students have the chance to present their work in a dialog instead of making a public speech.

The characteristics of midterm jury is not radically different from any kind of final jury. It can be conducted in similar ways to public jury and pin-up jury. Lackney (1999)

specifies that it is organized as a preparatory session to the forthcoming final. According to his statements, the similarity is clear. For instance, additional instructors or other people engaged in the issue in question such as practitioners, users or clients can attend the midterm jury, too, and student projects are assessed one by one. He reminds that it is not as formal as final jury, but actually a warm-up session.

3.3. Student Profile at the Beginning of Design Education at IUE

In respect of student profile at the first year of design education, initially, entry requirements of schools in question is required to clarify as it generally shows educational background of students. Within this context, the difference between entry requirements of the Bauhaus and Fine Arts and Design Faculty at IUE is obvious. At the Bauhaus, the only necessity to enter the school was to be found acceptable by the Masters Council that used to take educational background into consideration regardless of age and gender as it is stated in the book Walter Grupious and Bauhaus. Here it is understood that coming from any specific kind of educational field was not required to be eligible for the Bauhaus school. According to the same resource, a single registration fee and annual fees were also required, however it had been planned to be decreased and revoked in accordance with increasing income of the school. This information is helpful to answer the question who the students of the Bauhaus were.

Considering admission rules at IUE, there is a diversity of students in terms of their educational backgrounds. In departments of ARCH, IAED, ID and VCD, students' the only criteria to be eligible for admittance is the matriculation score. Yet, these departments differ in terms of varying point systems they apply. Arch and ID enroll students graduated from high schools based on mathematics and natural sciences. IAED accept students received an education based on the combination of Turkish literature and mathematics. VCD is open only to students having a background based on Turkish literature and social sciences. Additionally, whereas students of these departments down for the university regardless of their talents, FD select students according the aptitude test organized within the faculty. In the light of this information, it is clear that, first, students come from various backgrounds. Second, many of them are not familiar to artistic or design-focused issues when they are at the beginning of design education.

Financial capability of students at IUE is another point to briefly in this part since purchasing power is directly related to the opportunity to possess digital tools as a decisive factor on the profile of Generation Z. As to financial requirements for entry to IUE, it should first be said that approach to annual fee is highly different than as it was at the Bauhaus. IUE is first of all a foundation university, so students are supposed to pay an annual fee. In general terms, students can be said a group of people who have enough financial strength to cover the costs education. From this point of view, income level of students can be considered enough to have access to digital tools, and this is one of the factors increasing the chance to have technologic experiences which is at the very center of this paper.

After directly focusing on students at IUE, the profile of design student itself is good to mention. Aytaç-Dural (2002, pp. 16-19), while explaining the contributions of design education to beginning students' self-confidence, defines them as self-centered people bad at sharing their ideas and cooperating with their peers as a disadvantage for creativity. At this point, she highlights students' personalities suppressed by their educational past by reminding of their tendency to demoralize in the case of failure and low grades which are not tolerated in the secondary education. As students coming from such a competitive environment having convinced them to try to be always 'the winner' in her own words, they are not open to criticism. These circumstances, in addition to the possibility to feel over-confident in some cases, they have an inclination to easily give up as she states. When it comes to personal development, it is also reminded by her that students come to university at the ages of self-discovery. Accordingly, these are said the years they need to feel respected by people around. She attributes this fact to their intolerance to be criticized among others.

While defining the first year of design education as a transition year, Aytaç-Dural (2002) points out students' habits and mindset developed in secondary education. She states that the students are not familiar with searching solutions to problems on their own when they come to university. She also says, until getting accustomed to learning-by-doing, they complain about the fact they are not given information they need to carry out their tasks. Parallel to this, as said in the same study, they do not find it fair to be given marks through the works they do without being taught, In the case of the beginning of design education; she maintains, even it is hard for them to understand how they are defined unsuccessful without the necessary information.

In this chapter, Generation Z and Art and Design Studio has been mentioned separately. As beginning design studio, Art and Design Studio at IUE has been introduced with its historical background, preliminary course at the Bauhaus. In the light of this information, the similarity between these two schools comes forward. In the following chapter, how Gen Z respond to the method of Art and Design Studio will be discussed.

4. Generation Z in Art and Design Studio

The survey on Generation Z and Art and Design Studio eventually leads to a comparative analysis to reveal the underestimated issues about the behavior pattern of Gen Zers during the beginning of Design Education. Relying on information about Gen Zers as new students at universities and Art and Design Studio given in the last two chapters, today's students' response to the method of beginning design studio will be discussed in this chapter mainly based on the questionnaire conducted with the beginner design students at Art and Design Studio at IUE.

4.1. Questionnaire Analysis

4.1.1 Reading habits in briefing

One of the assertions about Generation Z is that they read differently than the previous generations. According to the studies, the new reading style of the digital age is based on only skimming a text instead of focusing on each words (CIBER, 2007c). On the other hand, the first time students face a design problem during introduction to a design process, as mentioned before, is when the assignment is given to them in the form of a design brief in which specifications, such as materials, requirements, purposes etc., of the task are written (Lackney, 1999). That is in the very first stage in which students have to form an opinion about the problem hence, the initial thing to which their performance is related is how well they understand from what they read.

The questionnaire shows that more than 85% of students in total always or usually read the brief completely (Q.1). Yet, 78% of them need important phrases to be highlighted in the briefs to read more easily (Q.2). Moreover, they are still in trouble to understand the content. Although the reasons of difficulties in understanding are not dealt in this research, many students hesitate to start working right after reading the brief. 73% of students usually or always need support of peers (Q.3) and 79% of respondents usually or always wait for instructors' explanations (Q.4) always or usually before starting working.

4.1.2. Courage to set to work on design problem

As mentioned in Chapter 2, educational background of university students' in Turkey is not competent to improve their creativity and critical thinking skills. Yet, according to the interview with Tuğyan Aytaç Dural, in as much as creatively thinking is one of the

requirements in Art and Design Studio, improving this skill is also the educational goal of the course as the first year of design education. This means, design questions in the studio require individual answers sought without instruction. In the case of seeking answers alone and without a strong background, how students respond to such an expectation is related in this study to their tendencies, habits, and motivations in relation to creativity.

The results of questionnaire support what Özden (2005) argues when claiming that educational system in Turkey does not improve active thinking skills of the students. During assignments, 70% of students always want a clear explanation about what to do (Q.13). In fact, except for 2% of the students, all of the respondents, at least sometimes, prefer instructors to clarify issues. In the case of feedbacks, as well, 86% of them demand direct answers regarding how to continue to work (Q.63). Here, they seem to act like there is a single one right way for a single one correct answer to a design problem, similar to rote learning they are accustomed to. Likewise, 88% of them usually or always desire a lecture on the relevant subject before assignments (Q.14) and 55% of them agree or strongly agree that it would be better if there was a workbook in the course (Q.15). As Generation Z, 83% of respondents want or strongly want online tutorials (Q.16). Besides rote learning itself, believing the existence of a single correct answer could be attributed to multiple choice questions on which evaluation system in the education modal students formerly experienced is based. However, 54% of students decline or strongly decline to be evaluated through multiple-choice exams in the course (Q.17).

Maybe since the students want instructors to directly give them the single correct answer that they assume to exist, totally 73% of them always or usually run into a confusion in terms of what to do when they receive various answers from different instructors (Q.18). 64% of respondents find it intimidating to receive so called inconsistent answers (Q.65). Additionally, while 46% of students usually try to apply a suggestion of an instructor as it is, 16% of the students do that always (Q.19). It shows that they are not able to make a contribution to a suggested solution in creative ways or they do not need to think about the problem themselves. Actually, it can be inferred from the ratios above, in the belief that there is a defined, but latent, way for answering a design question, they feel compelled to straightly find it. Still, as questionnaire shows, more than half of the students are not inclined to repeat successful peers' works and a similar amount of them

do not rely on the samples they find on the Internet (Q.20-21). 71% of them, with self-confidence, push themselves to find their own solutions to design problems (Q.22).

4.1.2.1. Information gathering and criticism of information

The most accepted information source is the Internet in the digital age, according to Chapter 2. It has been mentioned that people in the digital age think that they can find information about anything on the Internet, and that all information they find online is reliable. On the other side, due to design briefs aiming at triggering creativity, students, especially at the beginning of any exercise are left without any introduction, as it has been said before. This means, seeking information on the Internet is not something that students expected to do in order to find creative solutions to design problems. Despite being tried to be encouraged to develop answers creatively without sticking to any information, they do not seem to be eager to think alone. Besides demanding information from instructors and sharing ideas with peers, other ways of information gathering is confronted in the Art and Design Studio. According to the questionnaire, 46% of them never ask about assignments to former students of the course (Q.5). Still, the ratio of ones doing that rarely or sometimes is 48%. The remaining small number of respondents receives such a support from older ones usually or always. The distribution of the ones who receive support from repeating students is also similar (Q.6). The answers to these questions, in contrast to observations, show that getting help from other students is not so much prevalent. On the other hand, while the ratio of students making Internet search sometimes is 32%, totally 51% of respondents usually or always apply to the Internet for the same purpose (Q.7). As a generation familiar with image-rich materials (Rothman, 2014, Oblinger D. G. and Oblinger J. L., 2005) 61% of students, at least sometimes, seek videos relevant to an assignment (Q.8). It is not actually surprising as said by Frand (2000) and Nicholas and Rowlands (2008) the Internet is indeed common to seek information.

Aside from information seeking habits, Gen Zers' incompetency in terms of information literacy, as a part of critical thinking, is significant. As regards to examining results of Internet search related to the course, totally 44% of them usually or always check the reliability of the information they found considering resource and date (Q.9). The ratio of the ones doing that only rarely is 17%, and 12% of students do not even have such a habit. Totally 56% of all students usually or always evaluate various results by comparing them with each other (Q.10). These results do not support the claim by Purcell et. al. (2012) that Gen Zers are incompetent in terms of information literacy

because they believe in the accuracy of online information. As well, the study of Williams and Rowlands (2007) showing that today' students do not allocate enough time for evaluation of the accuracy of the information on the Internet is not supported by the questionnaire results. Another study not supported by these results is the study of CIBER (2007c) which demonstrates that students use information in only initial pages without scanning next ones.

4.1.2.2. Self-criticism

As mentioned before, Gen Zers are not inclined to criticise online information. As another issue related to critical thinking, it is important whether they criticise themselves to have better results in design process. The questionnaire results show that there are a considerable number of students excessively dwelling on the exercises. 54% of students are usually or always in a trouble to set out to work as they could not help thinking a lot about what to do (Q.11). 25% of them experience this situation sometimes. Moreover, 61% of them usually or always, question their work while studying so much that they have difficulty in coming to a conclusion (Q.12). The ratio of those who sometimes have such a problem is 30%. It means, even if they ponder over their works, they may fail maybe because of their incapability of managing thinking process. Yet, in reference to especially Facione's (1990, p. 15) explanation, this kind of students are still inclined to improve their critical thinking skills due to their 'open-minded' approach.

4.1.3. Approach to trial and error during learning by doing

Gamer Generation is familiar with trial and error as told in Chapter 2. As for Art and Design Studio, after the first understanding of an assignment developed by reading a design brief, students' problem-solving and learning skills come forward. While mentioning adoption of learning-by-doing in Art and Design Studio, Dural and Kılınç explains (2013), "This means that there are no magical textbooks." As a term referring to the need for doing to learn, it is also understandable that, in the course, learners' mistakes are in fact considered as means which effectively teach them what not to do and how to do better. That is, in students' progress, trials full of mistakes and repeated again and again are adopted in place of instructions and explanation. So indeed, according to the questionnaire, 68% of students usually or always learn better relying on their mistakes (Q.38). It is inferred from this result that the more trial students make, the more they learn. Within this respect, how much apt to trial-and-error students are is decisive in their performance in the course. 54% of the students agree or strongly agree the idea that

they learn better as long as they repeat the same or similar steps in an assignment (Q.39). 74% of the respondents also usually or always prefer to learn step by step instead of finalizing a work in one go (Q.40). 70% of students in the studio can make use of information they obtained from previous works (Q.41). Still, the ratio of the students who sometimes prefer to access such an information easily on the Internet rather than make trials for a long time is 34% (Q.42).

In spite of the results above, note concerns and fear of making mistake obstruct students' performance in Art and Design Course. 51% of respondents always suffer from evaluation stress (Q.34) and performance of totally 58% of them is usually or always decreased because of the fear of making mistake (Q.35). Parallel to this, as it is discussed above, they demand more explanations. The ratio of ones who are usually or always in need of more explanations on the ground of mentioned fears is 53% (Q.36). Similarly, as 20% of students agree and 61% of them even strongly agree, decreasing grades by regarding mistakes is wrong (Q.37).

However, although totally 61% of them agree or strongly agree that they got progressively accustomed to learning by doing, almost 30% of them are not sure and 8% of them even disagree or strongly disagree (Q.43). In addition, whereas totally 16% of students agree or strongly agree that their grade concerns progressively decreased over the academic term, totally 18% of them so not think so and over 37% of them express that it is contrarily increased (Q.44). Aside from grade concern, 61% of them loss their motivation even when they confront negative criticism about their works (Q.33).

4.1.4. Adequacy of manual skills during craft making

In the digital age, due to the advantages of technological applications, people have been accustomed to do their work more easily in a shorter time in comparison to the past. So, it would not be surprising if students hesitate to use time requiring and painstaking tools while working manually. Still, although 19% of students completely reject this statement according to the questionnaire results, 53% of them act like it at least sometimes (Q.25).

Workmanship is usually or always important for totally 76% of them (Q.29). At the same time, 53% of respondents, agree or strongly agree that they would take care of well workmanship more if they could get higher grades in that situation (Q.30).

As a considerable amount, 43% of students never prefer to use computer programs instead of doing manual works (Q.26). The rate of respondents who every time prefers to do home works digitally because they are not good at workmanship is 12% (Q.27). Students' 31% never want to do home works digitally for this reason while the ratio of ones who could prefer this is 57. On the other hand, totally 75% of students who joined the questionnaire find, to some extent or completely, acceptable to do home works digitally since manual trials take much time (Q.28). Moreover, the ones who are sure or strongly sure of their manual skills are 71% of students (Q.23), and 63% of all make handiworks, usually or always, with pleasure (Q.24). Totally 68% of them, additionally, agree or strongly agree that their manual skills had been progressively improving since the beginning of the term (Q.31).

4.1.5. The way of organizing thoughts during composition making

While designing, students are supposed to make a composition considering the relationship between elements. Now that this is a trial-and-error process, they try to make design decisions by removing and replacing elements again and again. It briefly shows, a composition process in Art and Design Studio requires many reconstructions to access the final output. On the other hand, as said before, some technological applications have simplified collecting one's thoughts to make a better composition. For example, one can write an essay by making trials with the chance to replace sentences and paragraphs in a word processing program without the need to ponder over before organizing ideas (Frand, 2000, p.18). In this sense, it is similar to making a composition in Art and Design Studio to some extent. Hence, it is worth discussing if today's students in this studio have a tendency to behave like they do in digital media to collect their thoughts to make a composition.

The questions related to this issue refer to whether they approach to composition making in the studio like trial and error process in digital media. 67% of respondents unsurprisingly usually or always think that removable elements simplify trial process (Q.45). However, another question of the questionnaire shows that a considerable amount of students seems not to take advantage of trial and error process in composition making. In detail, the amount of ones who usually or always try to complete a composition in one go rather than making trials to all respondents is 30%. (Q.46). Almost 34% of all respondents do that sometimes (Q.46). Likewise, despite the chance

to improve a composition by trialing, 71% of students usually or always ruminate over their work before starting (Q.47).

4.1.6. Attention and participation during group discussions

It has been told in Chapter 2 that low attention span is one of the incompetencies of Gen Z. According to the questionnaire results, totally 46% of respondents usually or always lose their focus during group discussions 28% of students also experience this situation sometimes (Q.48). The ratio of the ones who usually or always receive notifications during discussions is only 13% in total according to the questionnaire (Q. 49). Moreover, the answers show that phones of totally 66% of students never or rarely ring in the course of discussions. Accordingly, totally 73% of students never or rarely use their digital tools at that time (Q.50). These results also contradict with the literature on 'constant connection'. Another reason why their attention is low may be that the instructional medium is English instead of their native language. 26% of respondents usually or always have a trouble with understanding the subject because of their incompetence in language skills (Q.51). Anyway, while it is usually or always impossible to understand the subject for 28% of students because of distraction, 40% of them, more than expected, experience such a situation never or rarely (Q.52).

Besides attention span, low level of participation to discussions is also obvious in Art and Design Studio. Regardless of the reason why they do not understand the argumentations, 27% of students cannot participate in discussions as they do not comprehend the issues debated (Q.53). 46% of respondents agree or strongly agree that they usually or always experience difficulties to participate in discussions because of their inadequacy as regards to language skills despite being able to understand the issue (Q.54). Even though it is a real situation, this rate is actually higher according to the instructors. Additionally, 49% of respondents cannot join discussions usually or always because of the abstinence from public speaking (Q.55).

Like the culture of instant gratification prevalent in the digital age (Seemiller & Grace, 2016, p. 27), it is possible for today's students in Art and Design Studio to watch lectures whenever they want. It means, they are provided with the chance, for example, to repeat any part of any lecture online. For this reason, it was thought before conducting the questionnaire their interest in the lectures might decrease. However, the questionnaire shows that 81% of students disagree or strongly disagree with that opinion (Q.57). 88% of students do not try to watch video recordings regularly after discussions (Q.58).

Actually, students' 64% watch videos never or rarely (Q.56). More surprisingly, the ones who watch them always are even less than 2% of respondents.

4.1.7. Quest for information during desk critiques

In Chapter 2, it has been told that students are not taught thinking independently in Turkish Education System (Özden, 2005). As also mentioned before, in terms of students' courage to set to work, they hesitate to seek answers to design questions by themselves. Such a hesitation associated to their lack of self-confidence in this study is supported by the questionnaire as well. In desk critiques, 86% of students usually or always want instructors directly tell them how to do in the following step (Q.63). It can be inferred from this situation that they prefer to make the instructor 'choose' the best/correct answer to advise them as if it is a multiple-choice exam. Despite the absence of any evidence or assertion that attributes this habit of students to their educational background, the similarity can be noticed with a close attention. Maybe because of the same experiences from the past, 72% of students in Art and Design Studio usually or always find instructors' explanations equivocal (Q.64), and also 64% of students are usually or always intimidated when they confront various answers from different instructors (Q.65).

4.1.8. Public speaking and self-expression during juries

Instant Message Generation is defined by Lenhart, Ravinie and Lewis's study (2001) as people who prefer written communication more. Briefly, online communication and instant messages are the most used communication mediums in the digital age as mentioned in Chapter 2. Because of the increased interest in distant communication, there might be a deficiency in new students' public speaking skills. According to the questionnaire results, 78% of the students usually or always make a preparation before juries (Q.76). The ones who usually or always prefer to read their speech instead of improvising are totally 32% of respondents (Q.77). Likewise, the questionnaire results shows that 49% of students usually or always share their ideas comfortably in online media (Q.75), but totally 39% of students disagree or strongly disagree that they are experienced in public speaking (Q.74).

Language skills in English still a problem in the case of juries since students should be able to express themselves. Specifically, 46% of students usually or always have a trouble to present their works in juries because their inadequacy in use of language

(Q.69). 42% of students agree or strongly agree that their performance decreases for the same reason (Q.70). At least, 42% of respondents agree or strongly agree that, even if they understand told issues, they have trouble with answering questions in English (Q.71).

Aside from use of language, 64% of them agree or strongly agree that it is difficult to present their works as they are excessively excited (Q.66). 46% of them are certain that the crowd in jury makes them more excited (Q.67). For this reason, almost 40% of students would certainly prefer to leave the studio after submitting their works instead of facing the jury (Q.68).

Along with being able to express themselves in front of the community, how much today's students can tolerate personal critiques are another issue in handling desk critiques and juries. As totally of 53% of students agree or strongly agree, negative criticisms decrease performance in juries (Q.73). Though, 59% of respondents agree and strongly agree that criticism they receive from jury members offers an opportunity to revise their missing points and see various viewpoints (Q.72).

In this part, the analysis of the questionnaire has been made without interpreting them. In the following part, the analysis will be summarized, and some inferences will be made relying on the questionnaire. Also, some results which are not clearly observed in Art and Design Studio will be mentioned to discuss them in the conclusion part in order to provide a basis for future studies.

4.2. A Brief Interpretation of the Questionnaire

In this part, to which extent questionnaire results are compatible with the literature about the characteristics of today's students will be discussed to figure out the weak points of the questionnaire. The results will also be compared with related observations.

First of all, respondents' answers in terms of reading skills are opposed to observations. Even though many of them read the brief completely according to the questionnaire, in Art and Design Studio it is not directly observable. Also, in the studio they seem not to understand design brief very well as supported by the questionnaire. Even though it may be the result of not reading the brief or being poor in comprehension, actually there may still be other reasons. In any case, it is inferred from that they need support of peers and

instructors at this stage that they do not believe in themselves as regards to developing an approach in a new situation.

In fact, the lack of self-confidence during design process is similar to the situation above. Many of students are not sure of themselves in terms of ability to develop solutions. A considerable number of students need much more explanations to both understand the design problem and solve it. It means, even if they can begin, they ask whether they are on the right track. Since they have a trouble with developing their own ideas, starting to work and going on by themselves seems hard for them. Maybe because of the effects of rote learning giving all information as it is in order to make students just memorize and multiple choice questions expect students choose the exactly correct one among given alternatives, they are inclined to demand guidance dictating what to do, and suppose they have to choose or detect the single correct answer. That is, they have a tendency to focus on the assumed existence of a single solution. Hence, it seems hard to say them to try to think creatively.

The students have also been asked on receiving help from other students and making Internet search to understand the brief and to solve design problems. The questionnaire shows that most of them do not copy the work of other students and Internet search results. However, as observed, they do that much more than they accept. Moreover, according to the statements above, especially Internet search is not surprising to be prevalent throughout the studio. For instance, learning is regarded to be a matter of 'googling' by this generation (Purcell et. al, 2012) rather than actively doing. Students assume that less time and less effort is enough to access all information on the Internet (Rowlands et. al (2008), and each output of Internet search is reliable (Purcell et. al, 2012). Briefly, technological tools are 'thinking tools' of the digital age (Trilling & Fadel, 2009, pp. 25-27). If the observation supported by these claims is true, this situation may be obstructing learning by 'doing' in Art and Design Studio as students do not 'do' as it is expected. Respondents' answers in this issue generally indicate that they have not been accustomed to learning by doing yet. In this respect, it can be said that they do not act like Gamer Generation having a tendency to constantly try to find possible solutions to problems themselves as defined by Cartens and Beck (2005).

Now that gamer youth is said apt to trial-and-error (Cartens and Beck, 2005), it should be discussed whether there is a similarity with video games and the implementations in Art and Design Studio. The spirit of the Bauhaus modal was first defined as a friendly,

entertaining approach in the Bauhaus Manifesto by Gropius in 1919. The play-like environment of this school is also mentioned by Bulat S., Bulat M. and Aydın (2014). Yet, directly handling Art and Design Studio in reference to game playing may be misguiding as there are still some fundamental differences between an assignment in the course and a game. The differences are, first, in Art and Design Studio students should consider the deadline to come up with a solution instead of being allowed trying forever. Second, and maybe worse for them, their work are graded. So, it is probable for them not to be that much comfortable in the course as if they play a video game, at the end of which they do not really hand in results.

It has been mentioned above that students' information seeking habits are mainly based on Internet search. Relying to this, the following important issue is information literacy that refers criticizing the accuracy of any information. Even though students do not have a blind confidence in information from outside according to the questionnaire, they are observed not good at information literacy as they sometimes do similar work to each other and examples on the Internet. This observation can actually be supported by the definition by Rowlands et. al. (2008, p. 300), 'Cut-and-paste Generation'. Moreover, it reminds that the educational background of students in Turkey is not competent in improving active thinking skills as stated by Özden (2003). Therefore, the answers related to these issues in the questionnaire seem to be more unreliable.

When students' experiences from previous education and the implementation they face in Art and Design Studio are considered together with regard to grades, the inconsistency which confuses them is more conceivable. The contradiction is that the course expects students to learn from mistakes by somehow implying that mistakes are something aimed, but at the same time they are not actually something raising students' grades. According to students' approach, if they were given higher grades by taking their mistakes into consideration, it would be easier to make them both believe in the positive effects of errors and make sense out of mistakes they make. Then they also would not be that much afraid of doing mistakes. Although it would be an awkward implementation, it seems to summarize students' mindset as it is inferred from the questionnaire.

Digital tools with which today's students have been grown up with high interaction include hand tools controlled through specialized manual actions (Frand, 2000; Rothman, 2014). These tools and actions are highly different from the tools and manual work in Art and Design Studio. For this reason, students' approach to craftsmanship was

found worth questioning. First of all, they are not good at workmanship as their compositions are assessed. The general carelessness and neglect of details is obvious in the modals they make. However, attributing students' inability to make good jobs in terms of craftsmanship to only their digital experiences would be a primitive interpretation. However much they have been brought up using almost only digital tools since their childhood, we do not know if they have a direct effect on manual skills required in Art and Design Studio. Questionnaire results do not provide any evidence in this issue as well.

According to the questionnaire results, many of students in Art and Design Studio care about craftsmanship. At this point, reliability of both observations and the questionnaire should be discussed. Yet, it should still be considered that many students say that they would care more about workmanship if they could have been sure that it increases their grades.

When making a composition in the studio is considered, one of the first things that can be said relying on the questionnaire results is that Gen Zers do not seem to relate their digital experiences to the organization of ideas in Art and Design Studio. It means, while dealing with relations between parts and the whole to make a composition, they do not feel as comfortable as people of the digital age are while organizing thoughts in digital media, such as in word processing programs as an example given by Frand (2000) in Chapter 2. Moreover, in the absence of any evidence that there is a direct relationship between making a tangible configuration and organizing ideas by means of digital applications, it is difficult to say that technology has been improving students' composing skills.

Whereas the questionnaire results show that use of digital tools is not common in Art and Design Studio, it is observed that students do not hesitate to use their cell phones while listening to group discussions. They explain the situation saying that they were searching for something in relation to the issues discussed. Despite the fact that some students use their digital tools during class hours, the questionnaire results do not demonstrate that it decreases student's attention span. On the other hand, one of the reasons of low attention and low level of participation in the studio is students' language skills according to the answers by the respondents. The questionnaire shows that they a substantial number of students have difficulties in both understanding the subject and participating to discussions because the instructional medium is English.

Whereas people have a tendency to access any information online in the digital age (Frand, 2000), and Gen Zers find image-rich mediums more satisfactory (Rothman, 2014; Oblinger D. G. and Oblinger J. L., 2005), new students in Art and Design Studio are not eager to make use of video recordings of discussions as the questionnaire shows. In fact, assuming that they already watch video recordings most of the time, questions 61, 62, 63 and 64 asked students to make out if they really behave as binge-watchers in the course. However, because many of them do not even watch videos, these questions related to Gen Zers' watching habits in Art and Design Studio are possible not to be considered.

The media which are directly related to communication in the digital age is online communication (Oblinger D. G. & Oblinger J. L., 2005). As it has been effecting users' communication habits (Lenhart, Ravinie & Lewis, 2001; Trilling & Fadel, 2009), students' communication habits in juries in Art and Design Studio can be discussed from this point of view. As mentioned in Chapter 2, Generation Z, young people are used to write their digital messages by thoroughly thinking before, to express themselves better (Lenhart, Ravinie & Lewis, 2001). This behavior can be observed during the juries. Some students say that they get prepared before the jury according to the questionnaire results. However it is not enough to make a well-constructed preparation before the jury since the jury members ask questions and they should be able to give instant responses properly. Correspondingly, a lot of students are not satisfied with their jury performance due to their lack of experience in public speaking, use of language in addition to their excitement. It should also be noted down that whereas many of the students consider criticism by jury members as an opportunity to improve themselves, a considerable number of students is adversely affected by the negative comments of the jury members.

In this chapter, the questionnaire results have been examined and interpreted with reference to the information gathered through the literature survey on Gen Z. The 'clash' of Generation Z and Art and Design Studio will be discussed in the following chapter.

5. Conclusion

Throughout the research three main axes has been followed: ‘The researches on Gen Z’, ‘individual observations of the author, which are also supported by the course instructors,’ and ‘the questionnaire results’. It has been concluded that these three axes coincide at certain points but there are also some inconsistencies.

The questionnaire results have been examined and interpreted with reference to the information gathered through the literature survey on Gen Z in the previous chapter. Even though the questionnaire results which can hardly be observed in Art and Design Studio has been mentioned briefly further discussion is required. In this respect the ‘clash’ of Generation Z and Art and Design Studio has to be deeply discussed to conclude the research and make suggestions for future studies.

It is deduced from this study that students’ educational background and extensive use of digital tools are some of the factors affecting their response to the method of beginning design studio. It is more possible to say this especially in terms of low attention span, Internet search habit and familiarity with image rich mediums. Because, at these points the questionnaire have similar results with explanations in the literature reviewed for this study.

Aside from the consistency between the questionnaire and the previous studies on Gen Z, there are some results of the questionnaire which do not support the literature about Gen Z. In other words, the explanations related to daily life habits of Gen Z are not inferred from the questionnaire in some respects. These issues are use of computer programs, constant connection, binge watching, information literacy and copy pasting. For instance, despite being ‘binge watchers’ (Seemiller and Grace, 2016), and more familiar with image-rich mediums (Rothman, 2014), it has been stated by the students in Art and Design Studio that they do not have a tendency to make use of the video recordings of the course lectures. As another example we can talk about their habit of reading. Many of the respondents say that they read the brief completely, however according to Oblinger & Oblinger (2005) they are not good at horizontal reading. But we should also keep the students’ honesty while answering the questions in mind and make double check to get the most reliable results.

In the case of inconsistency between literature about Gen Z and answers to the questionnaire there is a distinction as well. Whereas some questionnaire results incompatible with the literature about Gen Z was expected before conducted this study, some of them have been surprising because they are not observed in Art and Design Studio. For example, while questionnaire results related to use of binge watching and computer games have been observed in the studio, the answers about brief reading, constant connection, information literacy and copy pasting do not support observations.

In the event that questionnaire results are not supported by former studies on related issues, the validity of the questionnaire seems more disputable. Similarly, in the case of results are not obviously observed in Art and Design Studio, the reliability of the questionnaire and observations are more open to discussion. Two examples of these situations are given below to provide new questions for further studies.

As mentioned, many of the respondents in the questionnaire do not prefer to watch video recordings of group discussions in Art and Design Studio. Here, even if this result is not surprising since it is also observed in the studio, it is not supported by the literature about Gen Zers' interaction with technology. This means, this study show that this implementation does not suit the characteristics of new students even though the practice of video recordings is an intention to improve beginning design education according to the needs of new studios. So, to enhance this treatment, the reasons of this inconsistency can be approached from the viewpoint of the difference between the videos students prefer to watch in their daily life and the videos of group discussions that they do not prefer to follow.

As another of example of the inconsistency between the questionnaire and the literature on Gen Z, many of the students in Art and Design Studio say that they read the brief completely. However, it is not observable in the studio. Therefore, considering that such an observation is not reliable, in further studies when and how they do that can be examined with a more detailed research in order to learn more about their reading habits. According to both questionnaire and observations, they do not understand the brief. If they really read and do not understand it, the reasons for it can be searched. May the reason why they do not understand the brief be that they do not know design language rather than that they do not the brief? Is it possible that they read and understand it but do not believe that they are able to understand it because of lack of self-confidence? If they have prejudices about design process which makes them think that the brief is not

understandable? If they might have said that they read the brief completely only because they think that is it the ‘correct’ answer?

As said, the questions above and other possible ones related to similar results of this study are suggested to focus on in further studies. Besides, the questionnaire conducted in this research can be revised regarding the unreliability. With this intention, these possibilities are suggested to consider: Questions may not have been asked properly, and they may also have been mistaken by the respondents. With this regard, lack of expressions and respondents’ viewpoint are advised to reconsider. Moreover, there may be some questions understood well but have not been answered correctly on purpose. Because, they may have acted as if there is a right answer for some questions, and chosen it as if it is a multiple choice exam. In such a situation, they should have not understood the intention of this study. Therefore, maybe most importantly, further studies are needed in order to figure out how to convey the purpose the study to them better, and how to make them feel more comfortable while expressing themselves. Briefly, it is experienced in this study that these doubts in terms of communication should be removed first in future researches in order to be able to more reliable results.

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APPENDICES

Appendix A. Table of Questions

5. Making craft	4. Approach to Creativity	3. Critical thinking	2. Information gathering	1.Reading brief	
5 (Q.23, 24)					Root learning
	4.a (Q.13, 14, 15, 18)				Multiple choice questions
	4.b (Q.17)				Numerical grading
					Video game playing
5.a (Q.25)					Use of tools
					Use of materials
5.b (Q.29, 30)					Craftsmanship
5.c (Q.26, 27, 28)					Use of computer programs
					Instant messaging
					Distant communication
					Public speaking
					Constant connection
					Instant gratification
					Binge watching
					Attention span
				1.a (Q.1, 2, 3, 4)	Familiarity with Hypertext
			2.a (Q.5, 6)		Reliance on peers
			2.b (Q.7)		Internet search
		3.a (Q.9, 10)			Information literacy
	4.c (Q.19, 20, 21)				Copy-pasting
	4.d (Q.16)		**2.c** (Q.8)		Familiarity with Image-rich
					Language skills
					Self-questioning
	4.e (Q. 22)	**3.b** (Q.11, 12)			Self-confidence
					Feeling of panic
5.d (Q.31)					Adaptation to the course

10. Experiences in jury time	**9.** Experiences in desk critiques	**8.** Experiences in group discussions	**7.** Composition making	**6.** Approach to trial and error
		8 (Q.53)		
	9.a (Q.63)			**6.a** (Q.32, 33)
				6.b (Q.34, 37, 38)
				6.c (Q.39, 40, 41)
			7.a (Q.45, 46,47)	
10.a (Q.75, 76, 77)				
10.b (Q.74)		**8.a** (Q.55)		
		8.b (Q.49)		
		8.c (Q.50)		
		8.d (Q.56, 57, 58, 59, 60, 61, 62)		
		8.e (Q.48, 52)		
				6.d (Q.42)
10.c (Q.69, 70, 71)		**8.f** (Q.51, 54)		
10.d (Q.67, 68)				**6.e** (Q.35, 36)
10.e (Q.72, 73)	**9.b** (Q64, 65)			**6.f** (Q.43, 44)

Appendix B. Analysis of the Questionnaire

Q.1 (1.a)	At the beginning of an assignment, I read the brief thoroughly.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	1	13	17	67	115	213
Rate	0,47%	6,10%	7,98%	31,46%	53,99%	100%

Q.2 (1.a)	It would be useful to have important details highlighted in a brief to ease reading.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	1	2	17	28	164	212
Rate	0,48%	0,48%	8,10%	13,33%	77,62%	100%

Q.3 (1.a)	At the beginning of an assignment, I get support from my friends to understand what the brief is about.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	2	13	43	80	74	212
Rate	0,94%	6,13%	20,28%	37,74%	34,91%	100%

Q.4 (1.a)	Before starting an assignment, I wait for an explanation about the brief from instructors.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	1	11	33	51	117	213
Rate	0,47%	5,16%	15,49%	23,94%	54,93%	100%

Q.5 (2.a)	I consult senior students for parts of the assignment that I do not understand					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	98	62	39	9	4	212
Rate	46,23%	29,25%	18,40%	4,25 %	1,89%	100%

Q.6 (2.a)	I consult students who are repeating the course for parts of the assignment that I do not understand.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	90	53	51	9	9	212
Rate	42,45%	25,00%	24,06%	4,25 %	4,25%	100%

Q.7 (2.b)	I do a search on the Internet on an assignment that we have just started.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	7	30	68	65	43	213
Rate	3,29%	14,28%	31,92%	30,52 %	20,19%	100%

Q.8 (2.c)	I especially search videos while searching on a subject related to the course.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	25	57	75	33	23	213
Rate	11,74%	26,76%	35,21%	15,49 %	10,80%	100%

Q.9 (3.a)	I check the reliability of an information that I access while searching on a subject related to the course (by considerin the resource, date of update etc.).					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	25	35	59	52	42	213
Rate	11,74%	16,43%	27,70%	24,41%	19,43%	100%

Q.10 (3.a)	I evaluate various results and try to compare different information with each other while searching on a subject related to the course.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	10	31	53	34	85	213
Rate	4,69%	14,55%	24,88%	15,96%	39,90%	100%

Q.11 (3.b)	At the beginning of an assignment, I have difficulty starting to work because of over-thinking about the subject and the composition that I will make.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	4	20	52	64	73	213
Rate	1,88%	9,39%	24,88%	24,41%	30,05%	100%

Q.12 (3.b)	I have difficulty in completing an assignment because of self-questioning.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	1	20	62	68	61	212
Rate	0,47%	9,43%	29,25%	32,08%	28,77%	100%

Q.13 (4.a)	During an assignment, I prefer the instructors clearly tell us what to do.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	2	3	23	36	149	213
Rate	0,94%	1,41%	10,80%	16,90%	69,95%	100%

Q.14 (4.a)	When being introduced to a new subject, I prefer to receive a lecture on the issue.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	2	3	21	39	148	213
Rate	0,94%	1,41%	9,86%	18,31%	69,48%	100%

Q.15 (4.a)	I would like a workbook related to the course.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Answers	18	20	58	51	66	213
Rate	8,45%	9,39%	27,23%	23,94%	30,99%	100%

Q.16 (4.d)	I would like websites, online tutorials, etc. related to the course to be existent.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Answers	4	4	29	80	96	213
Rate	1,88%	1,88%	13,62%	37,56%	45,07%	100%

Q.17 (4.b)	I would like to be assessed according to multiple choice exams rather than compositions I made.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	60	55	53	24	21	213
Rate	28,17%	25,82%	24,88%	11,27%	9,86%	100%

Q.18 (4.a)	When different instructors reply one of my questions differently, I fall into contradiction.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	2	5	28	42	54	131
Rate	1.52%	3.81%	21.37%	32,06%	41,22%	100%

Q.19 (4.c)	I try to specifically apply what an instructor suggests me.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	5	18	57	98	33	211
Rate	2,37%	8,53%	27,01%	46,45%	15,64%	100%

Q.20 (4.c)	I try to repeat works of friends who get high marks.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	115	53	26	11	8	213
Rate	53,99%	24,88%	12,21%	5,16%	3,76%	100%

Q.21 (4.c)	I try to specifically apply the results of my Internet searches.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	84	56	50	13	10	213
Rate	39,44%	26,29%	23,47%	6,10%	4,69%	100%

Q.22 (4.e)	I think over a design problem by myself with self-confidence.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	6	7	48	84	66	211
Rate	2,84%	3,32%	22,75%	39,81%	31,28%	100%

Q.23 (5)	I trust my manual skills.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	6	7	48	84	66	213
Rate	2,84%	3,32%	22,75%	39,81%	31,28%	100%

Q.24 (5)	I relish manual works.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	12	12	54	66	69	211
Rate	5,63%	5,63%	25,35%	30,99%	32,39%	100%

Q.25 (5.a)	I hesitate to use time requiring and painstaking tools.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	40	60	67	35	11	213
Rate	18,78%	28,17%	31,46%	16,43%	5,16%	100%

Q.26 (5.c)	During assignments, I prefer to use digital programs instead of making trials manually.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	91	39	41	18	22	211
Rate	43,13%	18,48%	19,43%	8,53%	10,43%	100%

Q.27 (5.c)	Considering my lack of skill, I would like to be let do my works in digital media.			
Choices	Never	According to situation	Everytime	Total
Answers	66	120	26	212
Rate	31,13%	56,60%	12,26%	100%

Q.28 (5.c)	To save time, I would like to be allowed to do my works in digital media.			
Choices	Never	Perhaps	Absolutely	Total
Answers	54	117	42	213
Rate	25,35%	54,93%	19,72%	100%

Q.29 (5.b)	I attach importance to workmanship.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	8	43	78	80	212
Rate	1,42%	3,77%	20,28%	36,79%	37,74%	100%

Q.30 (5.b)	I would be more attentive to workmanship if its weight were higher among aluation criteria.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Answers	14	33	53	70	43	212
Rate	6,57%	15,49%	24,88%	32,86%	20,19%	100%

Q.31 (5.d)	I observe my manual skills to have been improving in this course.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Answers	7	14	47	81	63	212
Rate	3,30%	6,60%	22,17%	38,21%	29,72%	100%

Q.32 (6.a)	Not to understand what to do for an assignment reduces my motivation.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	4	15	50	141	213
Rate	1,41%	1,88%	7,04%	23,47%	66,20%	100%

Q.33 (6.a)	I lose motivation when I receive negative criticism about one of my works.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	6	23	53	60	70	213
Rate	2,83%	10,85%	25,00%	28,30%	33,02%	100%

Q.34 (6.b)	During learning by doing, I feel stressed since I do not want to get a bad grade.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	6	10	32	56	108	212
Rate	2,83%	4,72%	15,09%	26,42%	50,94%	100%

Q.35 (6.e)	Fear of making mistakes decreases my motivation in the course.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	13	22	53	58	67	212
Rate	6,10%	10,33%	24,88%	27,23%	34,46%	100%

Q.36 (6.e)	I try to get additional support (from instructors, my friends, the Internet, etc.) as I afraid of making mistakes.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	7	31	62	53	59	212
Rate	3,30%	14,62%	29,25%	25,00%	27,83%	100%

Q.37 (6.b)	I find it wrong that, although we are expected to learn from trials, our works are marked down regarding our mistakes.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	2	5	33	42	130	212
Rate	0,94%	2,36%	15,57%	19,81%	61,32%	100%

Q.38 (6.b)	Relying on my errors in repeated assignments, I better learn what is correct in the course.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	13	52	81	62	211
Rate	1,42%	6,16%	24,64%	38,39%	29,38%	100%

Q.39 (6.c)	Repeating similar steps in the course help me learn better.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	9	20	69	65	48	211
Rate	4,27%	9,48%	32,70%	30,81%	22,75%	100%

Q.40 (6.c)	Rather than completing a composition in one go, developing it step by step within the scope of successive assignments help me learn better.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	12	40	65	92	212
Rate	1,42%	5,67%	18,87%	30,66%	43,40%	100%

Q.41 (6.c)	While working, I can use information that I obtained in previous assignments.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	0	8	56	76	72	212
Rate	0%	3,77%	26,42%	35,85%	33,96%	100%

Q.42 (6.d)	Rather than trialing for a long time, I prefer to learn anything related to the course on the Internet in one go.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	42	50	72	23	24	211
Rate	19,91%	23,70%	34,12%	10,90%	11,37%	100%

Q.43 (6.f)	In this course, I progressively got used to trial and error.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	9	9	62	95	35	210
Rate	4,29%	4,29%	29,52%	45,24%	16,67%	100%

Q.44 (6.f)	In this course, I have gradually been relieved from grade concerns.						
Choices	Contrary, my note concerns have been increased	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	80	14	27	56	28	7	212
Rate	37,74%	6,60%	12,74%	26,42%	13,21 %	3,30%	100%

Q.45 (7.a)	Removable elements help me trial while working on a composition.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	9	57	77	66	212
Rate	1,42%	4,25%	26,89%	36,32%	31,13%	100%

Q.46 (7.a)	Rather than striving to trial for a long time, I try to complete a composition in one go.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	27	49	73	39	24	212
Rate	12,74%	23,11%	34,43%	18,40%	11,32%	100%

Q.47 (7.a)	To complete a composition from start to end at one time, I think over before starting for a long time.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	6	12	43	81	70	212
Rate	2,83%	5,66%	20,28%	38,21%	33,02%	100%

Q.48 (8.e)	I am distracted during group discussions.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	15	39	59	54	43	210
Rate	7,14%	18,57%	28,10%	25,71%	20,48%	100%

Q.49 (8.b)	I receive calls/messages/notifications during group discussions.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	59	82	44	16	11	212
Rate	27,83%	38,68%	20,75%	7,55%	5,19%	100%

Q.50 (8.c)	I take care of my digital tools (phone, tablet, laptop, etc.) during group discussions.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	93	60	34	14	10	211
Rate	44,08%	28,44%	16,11%	6,64%	4,74%	100%

Q.51 (8.f)	I cannot understand the discussed issue during group discussions because of the inadequacy of my language skills.					
Choices	Strongly agree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	53	58	45	29	25	210
Rate	25,24%	27,62%	21,43%	13,81%	11,90%	100%

Q.52 (8.e)	I cannot understand the discussed issue during group discussions since I am distracted.					
Choices	Strongly agree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	27	57	68	40	19	211
Rate	12,80%	27,01%	32,23%	18,96%	9,00%	100%

Q.53 (8)	I cannot join the conversation during group discussions since I cannot understand the discussed issue.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	42	52	59	30	26	209
Rate	20,10%	24,88%	28,23%	14,35%	12,44%	100%

Q.54 (8.f)	Even if I understand the discussed issue during group discussions, I cannot join the conversation because of inadequacy of my language skills.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	41	24	49	53	43	210
Rate	19,52%	11,43%	23,33%	25,24%	20,48%	100%

Q.55 (8.a)	Since I avoid public speaking, I cannot join the conversation during group discussions.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	28	28	51	50	53	210
Rate	13,33%	13,33%	24,29%	23,81%	20,48%	100%

Q.56 (8.d)	I watch video records of group discussions.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	79	56	66	7	3	211
Rate	37,44%	26,54%	31,28%	3,32%	1,42%	100%

Q.57 (8.d)	As I have the chance to watch video recordings of classes, I am disinterested in group discussions.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	140	31	25	9	6	211
Rate	66,35%	14,69%	11,85%	4,27%	2,84%	100%

Q.58 (8.d)	I try to regularly watch video recordings of group discussions after classes.		
Choices	Yes	No	Total
Answers	24	181	205
Rate	11,71%	88,29%	100%

Q.59 (8.d)	I watch video recordingds of group discussions if I feel need while doing my home works.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	58	38	60	36	16	208
Rate	27,88%	18,27%	28,85%	17,31%	7,69%	100%

Q.60 (8.d)	I watch video recordings of group discussions before juries.			
Choices	Never	Perhaps	Absolutely	Total
Answers	93	102	14	209
Rate	44,50%	48,80%	6,70%	100%

Q.61 (8.d)	If I apply to video recordings of group discussions, I watch several videos successively at a sitting.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	85	40	47	30	37	209
Rate	40,67%	19,14%	22,49%	14,35%	3,35%	100%

Q.62 (8.d)	If I apply to video recordings of group discussions, I watch only parts that I feel need to revise by pausing, winding back and forward.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	51	27	50	47	33	208
Rate	24,52%	12,98%	24,04%	22,60%	15,87%	100%

Q.63 (9.a)	During a desk-critique, I would like an instructor to clearly tell me how to improve my work.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	4	4	22	57	121	208
Rate	1,92%	1,92%	10,58%	27,40%	58,17%	100%

Q.64 (9.b)	I think that, during a desk-critique, instructors make equivocal explanations.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	3	15	40	61	90	209
Rate	1,44%	7,18%	19,14%	29,19%	43,06%	100%

Q.65 (9.b)	I am troubled with that different instructors to make different explanations.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	10	20	44	59	75	208
Rate	4,81%	9,62%	21,15%	28,37%	36,06%	100%

Q.66 (10.a)	I have difficulty in presenting my work during juries since I get extremely excited.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	11	21	43	51	82	208
Rate	5,29%	10,10%	20,67%	24,52%	39,42%	100%

Q.67 (10.d)	I get into the panic because of the crowd in juries.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	17	21	37	38	95	208
Rate	8,17%	10,10%	17,79%	18,27%	45,67%	100%

Q.68 (10.d)	In order not to get jury excitements, I would like to be allowed to leave the studio after submitting my work.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	28	24	42	33	82	209
Rate	13,40%	11,48%	20,10%	15,79%	39,23%	100%

Q.69 (10.c)	I have difficulty in presenting my work during juries because of inadequacy of my language skills.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	40	37	35	39	58	209
Rate	19,14%	17,70%	16,75%	18,66%	27,75%	100%

Q.70 (10.c)	I under-perform during juries because of my inadequate language skills.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	40	42	39	37	50	208
Rate	19,23%	20,19%	18,75%	17,79%	24,04%	100%

Q.71 (10.c)	I can understand the discussed issues but have difficulty in replying questions because of the inadequacy of my language skills during juries.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	37	38	45	40	48	208
Rate	17,79%	18,27%	21,63%	19,23%	23,08%	100%

Q.72 (10.e)	I regard negative criticisms during juries as opportunities to see missing points in my work and gain a new perspective.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	8	16	61	81	42	208
Rate	3,85%	7,69%	29,33%	38,94%	20,19%	100%

Q.73 (10.e)	I under-perform when receiving negative criticisms during juries.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	8	28	62	62	48	208
Rate	3,85%	13,46%	29,81%	29,81%	23,08%	100%

Q.74 (10.b)	Before taking this course, I was already experienced in public speaking.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	71	50	43	29	14	207
Rate	34,30%	24,15%	20,77%	14,01%	6,71%	100%

Q.75 (10.a)	I can share my opinions comfortably in online media.					
Choices	Never	Rarely	Sometimes	Usually	Always	Total
Answers	24	27	56	49	52	208
Rate	11,54%	12,98%	26,92%	23,56%	25,00%	100%

Q.76 (10.a)	I prepare for my presentation in advance before juries.					
Choices	Strongly disagree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	5	11	31	68	94	209
Rate	2,39%	5,26%	14,83%	32,54%	44,98%	100%

Q.77 (10.a)	I prefer to present my work by reading my presentation text during juries.					
Choices	Strongly agree	Disagree	Undecided	Agree	Strongly agree	Total
Answers	50	40	52	25	40	207
Rate	24,15%	19,32%	25,12%	12,08%	19,32%	100%