Creating A Social Media Based Continuous Interaction Platform For The Design Studio

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Abstract
Social Media offers enticing pedagogic opportunities. Unlike the users of Learning Management Systems (LMSs) or Personal Learning Environments (PLEs), the Social Media user has the ability to create a profile and form interactions with his/her contacts which have real life value and impact. In a learning context, considering the popularity of Social Media, user familiarity with the interface and the workflow can also be advantageous. A possible pedagogic implementation of social media could be a continuous interaction platform for the contemporary design studio which might help improve issues such as; efficiency of studio critiques, peer interaction, and homogeneous distribution of course load throughout the semester.

In this study the effectiveness of traditional and social media based design studio courses are investigated and compared. The sample population involved 78 4th year Graphic Design students enrolled in "Exhibiting and Exhibition Graphics" course, which was divided into a treatment and a control group each consisting 39 individuals. For the treatment group, the studio process was performed solely on social media and all interactions were kept strictly online. For the control group a standard studio process was employed. The evaluation of the aforementioned two processes was made both from the students' point of view – where students' opinions and experiences were compared, and from the instructors' point of view – where a panel evaluation of the submitted works were compared. According to findings the implementation of social media in design studios and the future of the concept are discussed.
Keywords – Social Media, Design Studio, Studio Critiques, Web 2.0, Facebook

Introduction

Social media is usually defined through the ideological and technological foundation introduced by Web 2.0. Contrary to the static, non-participatory and limited environment of Web 1.0, Web 2.0 provided an evolving, participatory and content-rich platform (Goodchild, 2007; O'Reilly, 2005; 2007; Özata, 2013; Singh, 2010; Stark, 2006). The Bulletin Board Systems from the 1980s and instant messaging services of the previous era, such as IRC, ICQ and Microsoft Messenger are considered as the precursors to social media and networking (Özünlü, 2012). Compared to the previous installment, Web 2.0 users aren't passive receptors of information anymore but are an active part of content creation. The content can be accessed independent of time and place, can be shared with larger audiences and it can be enriched with contribution from other users (Anklam, 2009; Boyd, 2012; Komito and Bates, 2009; McLoughlin and Lee, 2007; Robinson, 2007).Some prominent features of Social Media are: (1)the user can create a personal profile that is relatable for other users, (2) the user can form connections through following and befriending other users while starting open or private conversations, (3) the content can be shared, searched and referred back to independent of time and place(Boyd and Ellison, 2007; Conole and Culver, 2010).Additionally, efficient and effective communication features, satisfying curiosity about others, gaining popularity and forming/improving new relationships are listed as reasons for the prevalence of social media use amongst the young (Urista, Dong and Day, 2009).

Social media has become a widely researched subject especially in the field of education, as it is ubiquitous, accessible, responsive and continuously evolving. Academic studies on social media often focus on creating profiles, sharing material, leaving comments and forming friend/contact lists (Mazmani and Usluel, 2010).This study seeks to contribute to the growing body of research by proposing a framework for implementing and evaluating social media in design studio learning. The differences between the traditional design studio learning and a social media based design studio learning are investigated by contrasting student performances and opinions. Through the analysis of data, this study aims to determine whether the quality of learning and social interaction in the design studio environment changes depending on the learning platform. This study will also provide an initial groundwork for future studies, especially in the field of design.

Design Studio and Online Education

Design studio is a process during which learning occurs while all the skills and knowledge acquired by the student is focused on solving a design problem over a period of time. Design studios are particularly important in design education as they provide a simulation of the actual professional environment (Brusasco, 2000). The learning process in the design studio can be defined as a series of cyclical iterations based on a continuous dialogue between the instructor and the student, through which the given design problem is solved (Schön, 1987; Kurt, 2009)(Figure 1). Raw information is rarely provided during the design studio process, rather the student is expected to generate knowledge with the guidance of the instructor. This statement implies that the course of creating a solution is as important as the final product.

Critiques form the foundation of learning in the design studio. Critiques provide instructor and peer input that will improve the design solution that is being developed by the student. Critiques will lead to revisions, many times during the course of the design studio. There are several ways to receive critiques. Besides desk critiques with the instructor, students can also receive critiques during presentations, pin-ups, midterm juries, and final juries from their peers and guest designers/instructors. Usually the process is open and social, students can spectate their peers during critiques and assess their own progress by comparison.

The widely adopted traditional design studio mechanic has several well-documented shortcomings. Usually social interaction is limited to class hours during which the instructor is expected to provide desk critiques for 12 students in one 4 hour session on average (Tate and Osborne, 2013). Cochrane and Bateman (2010) report that students often fail to track and document their progress and have difficulty in remembering how they achieved a particular solution. This is due to the fact that the concept of design studio is foreign to the students whom haven't encountered a similar learning process before. As a result adaptation problems sometimes even extend to final years of education. Besides inadequate class hours and adaptation problems, workload distribution is also skewed. Kurt (2009) reports that in a typical traditional design studio usually 80% of the work is finished during the 10% of the duration of the course. Lastly presentations, pin-ups, juries and even desk critiques might become emotionally overwhelming and affect learning negatively as factors such as shame and fear come into the equation in such social circumstances (Utaberta, et al., 2011).

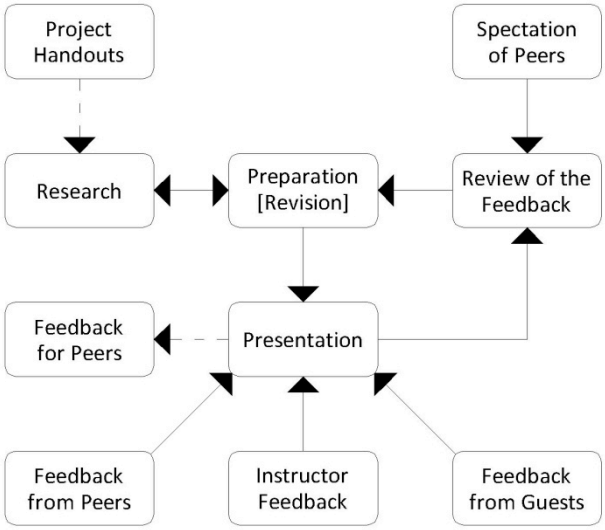

Figure 1. Interactions in a design studio environment.

Computer mediated communication stands out as an alternative to the social interactions of the traditional design studio environment. The positive and negative aspects of computer mediated communication has been scrutinized in numerous academic research (Rheingold, 1994; Jones, 1997; Robins and Webster, 1999). It is often argued that virtual communication experience is a simplified version of real-life social interaction. However, virtual communication experience do have real-life propagation and social consequences (Bayraktutan, 2013). In design studio context it can be argued that face to face social interaction during presentations, pin-ups,

critiques and juries is a more ideal situation compared to virtual communication experience where signifiers such as facial expressions, body language, tone of voice or the rhythm of speech are missing. Even though video cameras and conferencing options may be used as supporting tools, the quality of communication during a real-life interaction is hard to achieve (Hoyt, 2000). However the quality communication is a trade off for a communication environment without the limitations of time and space. Martin (2001) argues that subjects starts to compensate for the missing traits of communication by being more descriptive and actively seeking understanding. It can be argued that in a learning environment such behavior might be a positive. Cochrane and Bateman (2010) claim that increased amount of communication environment that is not bound by time and space limitations creates a unique situation for an improved learning environment. Virtual communication experience also creates an opportunity for mobility.

Considering the shortcomings of the traditional design studio environment and possible benefits of a computer mediated alternative, a continuous interaction platform is proposed in this study. The ability to provide unlimited communication and archival capabilities would be the best option for a host (Dickey, 2007; Jonassen, 1999). Social networking services proved to be the better host for the proposed continuous interaction platform as they provided a familiar interface for users, frequency of visits and interactions, profile creation and real-life social impact, easy system management and minimal downtime. Learning Management Systems (LMS) such as Adobe Connect, Blackboard or Moodle weren't considered as they were expensive, hard to manage/maintain, did not provide similar communication possibilities as social networking services, which was of utmost importance (Tu and Isaacs, 2000). Additionally form LMSs, limited access and limited mobility, unfamiliarity with the interface and dynamics of utilization created a risk of affecting learner performance negatively (Uden, 2007; McLaughlin et al., 2008).

In order to implement the continuous interaction platform, a private group was created on the social networking service Facebook. Among all social networking services Facebook was chosen as it was widespread, familiar, functional and reliable; meeting the previously mentioned host requirements. The prevalence and familiarity of the host system shortens the time period spent on orientation and adaptation. Additionally the Facebook app on smart phones enables the user to have truly continuous social interaction, as the user gets a continuous stream of notifications. Besides its advantages as the host, one major limitation is Facebook isn't designed for any educational process in mind and does not provide tools that focus on learning. Additionally, there is a continuous stream of events, media items, suggestions and advertisement acting as distractions. As Kaplan and Haenlein (2010) emphasized it was necessary to create guidelines and limitations while working with social media.

The Experiment and Procedure

In order to evaluate the proposed continuous interaction platform an experiment was devised involving 75 fourth year graphic design students. The sample population was divided into a treatment group of 40 students who experienced design studio on the continuous interaction platform and a control group of 35 students who experienced a traditional design studio environment. Due to very specific sampling requirements, purposive sampling was used for this qualitative study (Given 2008; Salkind 2006).

Sample population's grade point average (GPA) indicated that, members of both groups have achieved equivalent academic success on average. The sample population was required to be able to understand basic spatial relationships, basic ergonomics and basic visitor dynamics in order to solve the design problem presented in the experiment. These basic skills were acquired by the sample population during the elective Space and Exhibition Design course in the previous semester. Besides the general requirements the treatment group was required to have a familiarity as a user with the social networking service Facebook. Both groups were expected to receive critiques, share course related material, and actively participate in the ongoing discussion in their respective learning environments. Students were expected to receive at least three critiques throughout the duration of the course and were made aware of the fact that their cumulative contribution would affect their grading.

The design problem to be solved was designing an advertising and distribution stand for a selected periodical on a 5.25 x 3.0 meter area with a possible depth of 0.75 meters (Figure 2). There was a 2.0 x 3.0 x 0.5 meter niche on the surface of the given geometry which the student could move around, divide, and re-shape while keeping the ratio between positive and negative space. Students were expected to submit a single A2 paper at the end of the course showing a front view, a perspective view, measurements, and notes on concept and functionality. Students were given a template for the submission to minimize missing information as the evaluators of the project would be foreign to individual projects. Each submission was evaluated by three evaluators, all of whom had previously taught and practiced exhibition design. The evaluators were requested to grade the submissions according to quality of conceptualization/form, functionality/ergonomics, originality/creativity, and visuals/presentation on a 10 point scale.

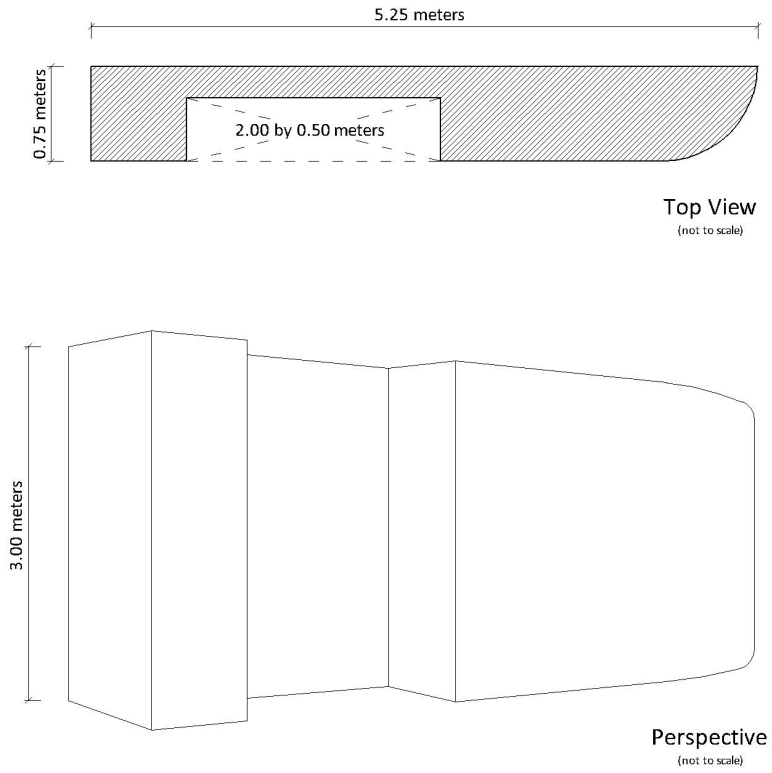

Figure 2. Top and perspective views of the given geometry.

The project was announced on the 21st of February 2014. Frameworks of interaction, communication, contribution and submission were explained in detail and a Q&A session followed. In addition there was a 4 day orientation period for the treatment group. The course of the project took 6 weeks and ended on the 10th of April 2014. The interactions of the treatment group was limited to strictly on Facebook whereas the control group attended a weekly 4 hour traditional design studio session.

There were two important limitations to this study. Due to initial connection problems some students failed to maintain a continuous access to Facebook group. These students have expressed that connection problems affected their performance and adaptation process. Second important limitation was the scale of the given design problem. Compared to 4th year design studio courses in other programs such as architecture and interior architecture, not only the overall scale of the project was small but also submission requirements were limited. This was to ensure that the online communication process while enabling the collection of more precise and relevant data.

Analysis and Discussion

The treatment and the control groups were compared using two distinct data sets. These data sets were: student activities throughout the course of the project and evaluation data of student submissions. The data didn't conform to normal distribution. Therefore 6 different non-parametric tests that are alternatives for the independent t-test were utilized (Wald-Wolfowitz Runs Test, Median Test, Mann-Whitney U Test, Kolmogorov-Smirnov Test, Kruskal-Wallis Test, and Jonckheere-Terpstra Test for Ordered Alternatives). Although all tests were pointing to same results, Mann-Whitney U test was employed as this test demonstrated a consistency with results.

Even though homogeneity tests couldn't be performed on the data, the student activity graphs shows parallels between both groups (Table 1, Figure 3). The density of activities for the treatment group suggests that the orientation and adaptation period was fairly short, implying that the treatment group has understood the dynamics of interaction and started acting accordingly in a short time. This might be due to the familiarity with Facebook interface. The graph shows that the treatment group has generated considerably more activity, however it should be noted that critiques sessions were longer for the control group. Considering this was the only course conducted over social media for the treatment group, it should also be noted that students' focus might shift and the amount of activity might decrease in case of additional courses conducted on Facebook.

When the contours created by activities from both groups are examined it can be seen that the density of activities increase and decrease similarly. For instance during the first week there was an increase in activities for both groups but during the second week activities diminished for both groups. Again there was a rise of activities on the third week again diminishing during the 4th week, which is the midterm week for the semester. This indicate that using the online continuous interaction platform won't change studying habits and dispersion of workload, contrary to expectation.

Student submissions were graded in four categories conceptualization/form, functionality/ergonomics, originality/creativity, and visuals/presentation over a 10 point scale. The results of analysis of each category and overall success are provided below (Table 2). In terms of general success there is a significant difference between the treatment and the control group suggesting that the perks provided by the continuous interaction platform such as ease of communication, high exposure to peer progress, ease of archiving and backtracking and freedom from time/space limitations. Also when comparisons between each category reveals that, there was a meaningful difference between the treatment and the control group in conceptualization/form and functionality/ergonomics categories, however there was no significant difference between both groups in originality/creativity and visuals/presentation categories.

Table 1. Student activity table.

		23 -Feb - Sunday	24 - Feb - Monday	25 - Feb - Tuesday	26 - Feb - Wed	27 -Feb - 2014	28 - Feb - 2014	01 - March - 2014	02 - March- 2014	03 - March - 2014	04 - March - 2014	05 - March - 2014	06 - March - 2014	07 - March - 2014	08 - March - 2014	09 - March - 2014	10 - March - 2014	11 - March - 2014	12 - March - 2014	13 - March - 2014	14 - March - 2014	15 - March - 2014	16 - March - 2014	17 - March - 2014	18 - March - 2014	19 - March - 2014	20 - March - 2014	21 - March- 2014	22 - March - 2014	23 - March - 2014	24 - March - 2014	25 - March - 2014	26 - March - 2014	27 - March - 2014	28 - March - 2014	29 - March - 2014	30 - March - 2014	31 - March - 2014	01 - April - 2014	02 - April - 2014	03 - April - 2014	04 - April - 2014	05 - April - 2014	06 - April - 2014	07 - April - 2014	08 - April - 2014	09 - April - 2014	10 - April - 2014	
Treatment	Share	19	29	27	20	13	0	1	2	1	1	6	16	5	10	8	2	3	7	5	5	1	5	4	2	3	8	2	1	0	2	4	0	2	0	3	1	0	0	1	6	3	5	6	5	11	28	16	**299**
	Comment	5	21	33	32	22	4	1	3	1	6	24	55	32	33	34	15	7	45	55	29	11	68	30	9	4	37	18	3	0	4	15	2	7	0	4	0	5	0	0	18	27	23	43	19	33	67	52	**956**
	Like	114	194	237	274	124	2	14	32	17	10	110	320	138	223	161	95	61	241	201	99	50	220	157	43	65	237	70	26	0	49	88	1	53	0	88	24	10	0	22	105	127	139	181	104	279	572	249	**5626**
Control	Critiques					5	2	0	0	1	1		18	2	0	0	0	0	4	16	1	0	0	1	0	0	6	0	0	0	0	0	0	4	1	0	0	0	0	0	24	2	0	0	1	0	3	0	**92**
	Attendance					30	0	0	0	0	0	0	22	0	0	0	0	0	0	28	0	0	0	0	0	0	16	0	0	0	0	0	0	18	0	0	0	0	0	0	28	0	0	0	0	0	0	**142**

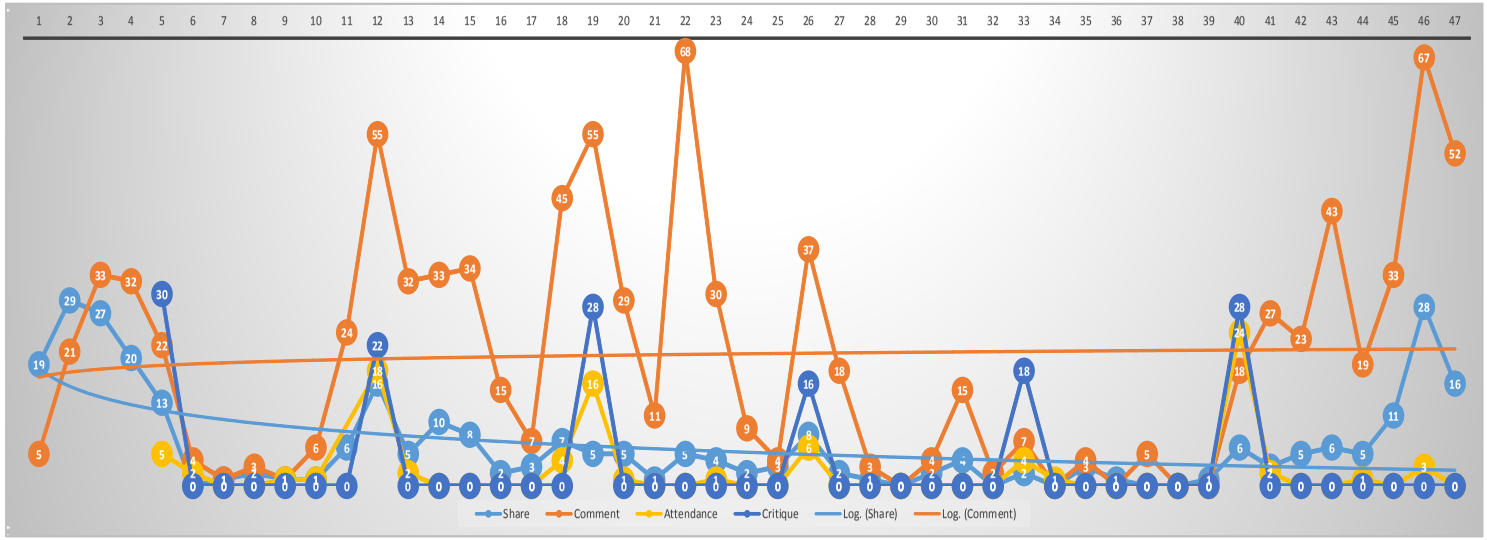

Figure 3. Student activity graph.

Table 2. Analysis of results for each category.

Analysis Category	Sig. Value
Overall Success	**0.000**
Conceptualization/Form	**0.003**
Functionality/Ergonomics	**0.013**
Originality/Creativity	0.072
Visuals/Presentation	0.069

The conceptualization/form category signifies the ability of student to analyze, understand and implement visual features of the selected periodical, reflecting visual cues while creating a coherent whole. The significant difference between the treatment and the control group might be a result of the access available to conceptualization processes of peers and the judgment free environment for analysis. The functionality/ergonomics category signifies the ability of student to provide functionality that is also ergonomic for given requirements. There is a significant difference between the treatment and control group in this second category. This might be due to the archiving and backtracking functionality that is built into the proposed continuous interaction platform. Also it should be considered that during the study session students had complete access to search engines unlike the traditional design studio environment. Treatment group could refer to professional examples and peers' solutions whereas the control group had limited access to such data.

On the other hand, there was no significant difference between the treatment and contol group for the originality/creativity category which focused on the originality of conceptual, formal and functional solutions proposed by the student. The lack of significant difference might imply that contrary to expectations, that is increased peer plagiarism would be encountered on the continuous interaction platform, the design solutions provided by students were sufficiently varied and original across the board. The visuals/presentation category was an assessment of the skills for preparing visuals and presentations. The lack of significant difference between the treatment and the control group for this category might be a result of the fact that the skills that are required for this category weren't addressed throughout this course. Also shared submission visuals failed to stimulate inspiration and a significant difference between groups.

Conclusions

Findings of this study suggests that implementing a social media based continuous interaction platform for design studio courses had created a positive impact on students' overall performance. It should be noted that the scale and the scope of the given design problem and submission requirements were modest, therefore current functionality of Facebook sufficiently supported the proposed continuous interaction platform. However, a larger scale and scope might require new tools and a new interaction framework. An alternative to the proposed continuous interaction platform could be a hybrid process, involving traditional sessions complemented with online

sessions for which there are several successful implementations, but it should also be considered that a hybrid approach might also cause the student to focus on a single platform while not benefiting from the other (English and Duncan-Howell, 2008; Longbottom, 2008; Tate and Osborne, 2013). Another improvement for the continuous interaction platform might be an open group approach. Anybody outside of the class roster can access and contribute to the discussion. However it should also be noted that open groups might cause increased levels of social discomfort, indifference towards interaction and pedagogical lurking (Kreijns et. al., 2007). Another point of concern for a continuous interaction platforms is the possible extensity of social media use in learning in the future. Although learning process is manageable with a single course, students might struggle to maintain focus with several courses on social media platforms.

In conclusion the findings of this study complements the growing body of research on the use of social media in learning environments. Although existing research on the subject have provided a solid foundation for this particular research, a complete implementation of social media learning, especially in the field of design education would require further research focusing on learning scenarios of differing context and scales. As the advantages and disadvantages of social media implementation in learning becomes clearer, it can only be expected that social media would become an intricate part of education with added features and tools specific for the task.

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