KEEP OUR MEMORIES: ELEMENTARY SCHOOL STUDENTS CO-DESIGN GRADUATION ALBUM VIDEOS USING GOOGLE+

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Abstract

This paper describes an across-classroom participatory design. The students, as stakeholders, shared photos, participated in discussions and group-designed their graduation album videos using Google+ in a primary school. This design activity spanned over two and a half months, and data were collected from a number of sources, such as the content of the Google+ site, comments posted by the students, questionnaires and interviews. The findings indicated that this pioneering practice helps the students to develop various generic skills such as IT and design skills, collaboration skills, and organisational skills. The study also highlighted the students' perspectives and the enhanced student responsibility and also demonstrated that the Google+ functionality has the potential to improve the students' engagement and boost their design activity through their visible accomplishment. The conclusions reached by this study were that giving the students a dominant role in an across-classroom collaboration design activity using social networking can be useful for developing a diverse range of student capabilities and can play a significant role in their learning.

Keywords: participatory design, Google+, design by learning, social networking.

1. Introduction

The appearance of social networking, which has brought changes to various pedagogical and technological applications, has affected all aspects of people's lives [1]. Social networking services not only use accessible and scalable communication techniques but also play a key role in promoting interaction, delivering education and providing communication between individuals [2]. These services can support educational activities and enable student interaction, collaboration, active participation, and information and resource sharing possibilities [3]. Google+ is also a social networking service that was released in July 2011. The features offered by this service should attract people who want to share their thoughts, ideas, and information on the Web [4]. In particular, Google+ uses circles to group one's contacts, which offers the potential to share between the private and the public space. Circles are contacts that you can group using different criteria, such as interests or types of contact (business, family, friends, colleagues, and interest-related contacts). Google+ is flexible because a user can limit their updates to specific circles of followers [4]. The benefit of Google+ is that users can manage their appearance on the Web: all content does not have to be shown to all followers but can rather be shown to a selected circle.

In fact, students are living social network digital lives today and consequently demand more autonomy, connectivity, interaction and social-experiential learning opportunities in their

learning context [5]. Using these social networks in an educational and instructional context is a potentially powerful idea simply because students spend significant time on these online networking activities [5]. Alexander encouraged teachers to explore meaningful ways to apply educational activities to these social networking servces and practices [6]. Google+ has the potential to improve students' collaboration through circles, to allow students to conduct research for projects using "stream", to improve student-instructor relationships through social networking, and to support blended e-learning with its hangout functionality [7].

This paper attempts to contribute to an explicit understanding of a design activity in primary school that built realistic digital graduation album videos via the across-classroom student participation using Google+. This activity was named "Keep our Memories" to celebrate the upcoming graduation, and these graduating students played a prominent role in the graduation album video design process. Google+ relies on circles and uses drag and drop; it can offer the participating students opportunities to easily organise their friendships for communication, discussions and photo sharing for an across-classroom cooperation.

Given the dominance of social constructivist and participatory approaches to learning, which keep students out of the design thought, the opportunity to contribute to the across-classroom activities for students in the primary educational environment is not commonplace. The student's freedom to discuss their learning is even suppressed, while we seek the students' active involvement [8]; there is a scarcity of studies that focus on exposing the students' thoughts and desires from the critical design perspective [9]. In this study, an essential requirement was to work

with the students in accordance with a democratic participatory design and to construct an open dialogue between the students and the educators about the video design project. The essence of the participatory design approach is part of a broad democratic philosophy that espouses the participation of different people in the decision-making process. This philosophy focuses on collaborating with others rather than designing 'for' them [10]. Participatory design could also bridge the gaps or disagreements between others to allow people to reach a consensus, thus improving designs and promoting effectiveness [11]. For these reasons, participatory design is used in this study to empower students by involving them in the design process. Participatory design gives students the opportunity to experience their design via their perspectives in an active mode, rather than the relatively passive one that is implicit in traditional didactic teaching. In particular, the teachers did not dominate or tell the students how to design.

Therefore, the main objective of this study is to examine the potential for using Google+ in student design activities, hoping to elicit students' perspectives by exploiting participatory design. The study further tried to examine the students' interaction and participant conditions, to understand the student reflections and attitudes in this study and to explore the impact of using Google+ and its functionalities on student learning. It is hoped that this study can serve as the basis for further study in the across-classroom student participation and collaboration and as a survey of Google+ applications in primary education.

2. Promoting the students' voice in education

The student is the "insider" in the educational context; students' empowerment should be

accompanied by an exploration of new methods for extracting their needs, desires, and expectations [12]. Educational activities that encourage students to play a prominent role through cooperative and participatory design are drawing the interest of an increasing number of researchers [13][14][15]. Teachers should seek or arrange educational activities to facilitate effective learning, encouraging a high degree of ownership and increasing students' leadership and responsibility for the learning process [16]. When students are equal stakeholders in the design, they contribute experiences and views that, by definition, are closer to their own way of thinking and acting [17]. Liu and Hsiao also further point out that the design project presents the students with an authentic challenge and requires the students to tap into their diverse intelligences, such as artistic, logical, linguistic and musical talents, to accomplish the task. The students are engaged in activities ranging from brainstorming, gathering and researching information, writing, and creating artwork, to programming and evaluating [18]. Through hands-on participation in activities, the students are expected to take more responsibility for their learning, they can express their opinion and are provided with the opportunity to participate in real-world tasks that are meaningful to them [19].

3. Social networking in an educational context

More recently, social networking services have been productively used for learning and instruction in schools [20]. Attwell argued that the networked participation that is characteristic of social networking allows the instructors and students to work together to share their ideas and experiences [21]. Gillet and his colleagues also thought that using these social networking

services in an educational context is attractive for these young users. These students will be given a chance to acquire new knowledge through a subliminal, effective and smooth learning process while taking part in enjoyable interactive situations mediated through interesting and motivating tools and content [22]. Lockyer and Patterson believed that social networking sites support collaborative learning, engage individuals in critical thinking, and enhance communication and writing skills by activating members to work in personalised environments [23]. These social networking services should be used to implement pedagogical strategies intended to support, facilitate, enhance and improve learning processes [24]. These services can supply students and teachers with a wide variety of didactic and methodological tools that can be fitted to their respective learning objectives and individual needs, providing a positive effect on their performance and achievement [24].

4. Google+

Google+ is a multilingual social networking and identity service owned and was launched in July, 2011. Google+ originally launched as Google Circles, a name alluding to its method for organising friendship information. The main features and services on Google+ are as follows:

- **Circles:** circles enable users to organise people into groups for sharing. Although other users may be able to view a list of people in a user's collection of circles, they cannot view the names of those circles. The privacy settings also allow users to hide the users in their circles as well as to hide who has them in their circles. Users are not mutually in each other's circles until they are notified and have each manually

drag-and-dropped the other user to one of their circles.

- **Stream**: The stream enables the users to discuss, comment, and share. The stream occupies the middle of three columns on the web page where the users see updates from those in their circles. There is an input box where the user can enter a post. Along with the text entry field, there are icons for uploading and sharing photos and videos. The stream can be filtered to show only posts from specific circles.

- **Hangouts:** Hangouts provides a place to facilitate group video chat. Hangouts can be generated and used as an instant video conferencing tool with circles or with selected contacts in a circle.

- **Photos:** Photos enables users to upload, share and find photos. In addition, it provides an online photo editor tool, "**Creative Kit",** to conveniently allow users to revise their photos, add text or special image effects to them, and then store them directly in an online web album.

Google+ offers the ability for users to share information, communicate, collaborate, and build different communities using circles. In education, teachers can arrange to share classroom or school-related information, organise class discussions or project designs, and supplement instructional content. Students can group friends into categories, allowing different degrees of access to content or shared information.

5. Participatory design

Involvement and cooperation are essential factors in making students feel as though they are co-owners of the educational process and responsible for successfully incorporating this process into the learning environment. The

methodology necessitates that participating students have hands-on experience with the interactive environment so that they can efficiently transform their ideas into a prototype artifact [14]. Several researchers have used participatory design methodologies to design educational software, with students as participants. For instance, Roda described the way in which a multidisciplinary team of students managed to create a digital gallery of artwork. The students' participation appears to have had encouraging side effects as well [25]. Triantafyllakos pointed out that participatory design methodologies involve students and teachers directly in design development, based on the assumption that ''as a result of their extensive experience with common educational tasks''. The methodology assigns students a primary role in the design process, confronting design dilemmas through discussion and democratic decision making. PD could be used to bridge the gap between student and student or between students and teachers, particularly in terms of their differing perceptions of the effective characteristics of learning environments, leading to improved design and effectiveness [26]. In addition, PD can enable students and teachers to cooperate in the design of applications that enhance the typical educational processes, which students have extensive experience in, and that are well-suited to the technological, social and cultural particularities of each educational environment [8].

6. Participants and the Procedure

A total of 137 upcoming graduated students from primary school, representing four classrooms, and their classroom instructors participated in this activity. Due to a school rule that reassigns students in class every two years, the students have had three or four opportunities to re-cultivate

new classmates in a new classroom, so that almost all had different degrees of friendships with the other classroom students.

This study adopted the PD framework (initial exploration, discovery process and prototyping) for design and development, all stages were conducted in the computer classroom over two and a half months; the students could proceed with the project during their weekly two-hour computer class time. Therefore, the three stages in detail are presented as follows:

- **Initial exploration:** During the first week, the teachers made sure that all participating students had a Gmail account and directed them to use Google+ and its functions. The students started to build up their circles using Google+ and search and to join their classmates' circles. Next, they uploaded their photos into the web albums, labelled the names of classmates who showed up in the photos, and shared these and interacted with their classmates in the circles. Older photographs could be uploaded by scanning. Moreover, the students could edit, revise and adjust photos using the online photo editor "**Creative Kit"**. When a student wants to "like" these photos, he or she could "+1" or could directly leave messages in the right field of this photo. The interface assistant makes it convenient for the students to set up these photos to share privately or publicly; it can also allow the students to upload photos into other classmates' web albums if they gain permission. These activities were carried out simultaneously.
- **Discovery process:** During this stage, the students grouped into teams of four or five members to design the video. The members were responsible for their team. All team members could brainstorm to discuss and

decide what they wanted to use in their video album. Moreover, they were asked to create video scripts and to elaborate the features of the video such as subtitles and background music. During the brainstorming, some communication aids such as the asynchronous **stream** and the synchronous **hangout** services were provided to help the students to reach decisions. In this context, the classroom teachers participated as coordinators in the students' discussions and provided technical consulting and support. These discussions proceeded on Google+.

- **Prototyping:** During this final stage, the students started to make the video. The video editing process was conducted in the computer classrooms using Picasa to edit their videos. The selected photos were matched with subtitles and then were ready to put into the video. Next, the students jointly determined an appropriate background song for the graduation atmosphere. The video length was limited to the length of the song that they selected. Evaluation and revision occurred continuously throughout this stage while uploading the video artifacts. The students would also see other video artifacts in public within Google+; the teachers and students would also provide suggestions and obtain feedback.

7. Data Analysis and Discussion

Data were collected primarily using three approaches: questionnaire, interview and classroom observation. These approaches were used to obtain a complete understanding of the students' perceptions and reactions to the experience of using Google+ in the across-classroom collaborative participatory design activity. The questionnaire collected

responses on a 5-point Likert scale and these questionnaire results are shown in table 1.

Table 1. Student responses to the questionnaire

Question	Mean	SD
1. I have prior experience using Google+ or other social networks.	3.86	0.93
2. I am more interested in photo and movie editing after completing this activity.	4.01	1.42
3. I increased my resource collection and management abilities through this activity.	4.36	1.15
4. I enhanced my capabilities in picture and video editing.	3.98	1.34
5. The process of interacting with students using Google+ is very interesting.	4.62	0.96
6. I think that this design activity is boring.	1.09	0.35
7. The graduation album video design is interesting and deeply meaningful.	3.94	1.82
8. I am satisfied with the final design artifact that we created.	4.01	1.24
9. I think that Google+ is easy to use, especially the circles and the hangouts.	4.57	1.58
10. I can easily find the friends' photos that I want to use and effectively manage my own photos on Google+.	3.99	0.91
11. Completing the work gave me a higher sense of accomplishment.	4.38	1.67
12. I was able to work together with my best friends or others using Google+.	4.61	0.64
13. I felt totally free to express my thoughts and opinions without any type of restriction.	4.06	0.82
14. To do make our artifact more perfect, we must make greater efforts.	3.82	1.24
15. I hope that our graduate video album is better than our peers'.	4.06	1.29
16. I have enhanced my ability in communication and coordination.	3.82	1.75
17. I interacted more with my friends or other students using Google+.	4.51	1.82
18. I respect others' views and want others to respect me.	4.09	1.93
19. I am willing to give advice to others and to look out for others.	3.42	1.46
20. I feel that this activity increases the class cohesion.	3.59	0.86

The interaction records on Google+ were consulted and classroom observations were conducted. The results of the interviews and the classroom observation were integrated with those obtained from the questionnaire to achieve a consistent understanding of the children's perception of this design activity. These valuable results from the questionnaire, interview, web records and observations were discussed and are summarised in the following.

- **Promote their learning motivation and active participation:**

Clearly, the findings indicate that the design team about graduation and the student participation in the design using Google+ had a positive effect on student preference and promoted their learning motivation. From the classroom data, the teachers also thought that the project promoted the students' sense of class-identity and sense of "mission" in the design process. The questionnaire and interview results also revealed that the students significantly increased their interest and involvement throughout the design project. These findings are consistent with previous studies: social networking can improve motivation, learner involvement and active authorship [27], although no previous study has asked this question about the design theme in detail. In addition, the results showed the striking effect of the students' high autonomy and the convenience of social networking for their participation. The students could design and cooperatively complete the video artifact. Some interviews are shown as follows:

Student B: I pay attention to the discussion messages sent by Google+ whether these messages are from my stream board or on my friends'.

Student K: I wish we had more opportunities to participate in such activities in the future

- **The teachers' role change:**

In this study, the change in the dimension of control from teacher-centred towards student-centred had important consequences for the role of the teacher. The teacher was no longer the authority figure and seen as the source of knowledge, as in the transmission mode of designing, but becomes more of a facilitator. The teacher still had the responsibility of planning for learning and supporting and guiding the learning experiences [28]. It is argued that the teacher is not abandoning responsibility by giving greater autonomy to the student; the teacher's major responsibility is to provide a framework for support and guidance [29].

- **Exchange diverse perspectives of students:**

In the design and discussion process, the students bring out many different views and preferences regarding how to design and construct the video and the photo assignments. The students have the opportunity to exchange their opinions and views through Google+ and to mutually observe and recognise the others' diverse perspectives regarding video design subjects. Moreover, through collaboration, the students enhance their design capability, develop communication skills and obtain multiple design perspectives. In addition, online group interactions encourage the quieter group members who rarely share information with others in the traditional classrooms to contribute [30]. More importantly, the students not only learn to express their views but also learn to respect others. The final outcomes of the across-classroom participatory design are attributed to the exploitation of the students' tacit knowledge and the activation of their collective intelligence; the learners were engaged in the process of collaborative learning and reflective thinking. Critics are united in their belief that when appropriate pedagogical approaches to embrace social networking are employed, learners can gain positive learning outcomes [31]. In addition, a number of case studies show that students gain valuable technological and domain-specific knowledge from their participation [32], and they develop basic social skills, such as the ability to cooperate with an interdisciplinary team and the ability to respect their fellow students' judgment and beliefs [26].

- **Increase ability and responsibility:**

Some observations resulted from the analysis data: students can develop a sense of mutual trust, increase the potential for group cooperation, and establish a positive interactive atmosphere. All of the participants indicated that the design activity was enjoyable and interesting and that they felt free to express their thoughts. The students are expected to take more responsibility for their design; students have choices and are provided with opportunities to participate in theme-based projects that are meaningful for them. Moreover, the students significantly increased their time on-task behaviour and internalised some design skills through their design projects, as well as developing interpersonal communication, problem solving, group decision-making, and team-building skills by participating in both independent and collaborative work. Moreover, their self-efficacy and interdependence was enhanced, and they developed more positive attitudes about themselves.

- **Google+ benefits:**

Google+ offers unprecedented opportunities to work collaboratively, given the right situation, tools and support. In addition, most groups of students reported using Google+ to support 'discussions' about work. One example is using the hangout to communicate with the other group members in another classroom about photo sharing. Google+ and its related services (Picasa) provide students with the opportunity to effectively use various technologies as tools in the planning, development, and presentation of their design. Nearly all of the student participants opined that the Google+ platform was easy to use. By using this platform, the students learn how to select and organise information from the social networking site; also, the teachers can keep track of the student's process in the project. The teachers can also directly provide comments. Some of the student comments included the following:

Student K: I think this Google+ is quite practical. I can create circles (groups of people) by drag and drop and only share things with the circles I choose: I also can have Hangouts for conversations, share resources, and much more.

Teacher B: it allows me to upload my photos taken from my smart phone or any mobile devices directly to Google+. It's very convenient to not manually upload photos so that only administrators can see them unless deciding to share them.

8. Conclusion

The empirical study of this contribution offers an across-classroom student participatory design utilising Google+ in primary education. The design activity assigns the students a dominant role in the design process, confronting design through discussion and democratic decision making. The project shifts the learning focus from "teacher teaching" to student centred "learning by design." All of the participants experience the project together, which brought out different perspectives and enabled them to design hands-on, mutually sharing and learning from each other. The students' responses indicated that they were satisfied overall with their video artifacts and found this activity is enjoyable and interesting. The results of this study showed that engaging primary school students in a multimedia video design project can have a positive impact on their learning and motivation. During the activity, the teacher observed clearly the power of participatory design in how the students developed their design ideas in conjunction with their peers. The students mastered the various skills through peer designing and collaborative activities, such as ICT skills, collaboration and organisational skills. The students improved their friendships and

increased the class cohesion while building their video artifacts. This study also suggests that there is an urgent need for a change in across-classroom collaboration. Although there are now many more ways to conduct learning activities through social networking, it would be worthwhile to explore how best to assess students in these new types of activities, examine performance with different groups of friends for the participants, or to extend the research to different schools or regions to provide us with exciting research results. Finally, educators should seriously consider applying different approaches or themes to make use of social networking to facilitate more frequent interaction among students.

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