Guiding Young Players As Designers

Josh Andres
IBM Research Australia & RMIT Univ.
josh.andres@au1.ibm.com

Jennifer C. Lai
IBM Research Australia
jlai@us.ibm.com

Florian 'Floyd' Mueller
RMIT University - Melbourne Australia.
florian.mueller@rmit.edu.au

Abstract

Players often have playfulness and motivation to play and make games on their own. By tapping into these instincts and guiding players in designing their own games to solve a problem, new models of collaboration between designers and players can be unlocked. In support of this, we present results from a five week case study with 25 children aged 8-10 where they designed their own games within a given context. This ongoing exploration resulted in three design themes: 1) This

Figure 1: Focusing on spontaneity through autonomy supports players' design process.

Setting a common goal helps people design together, in this case using sensing data. 2) Focusing on spontaneity through autonomy. And 3) Supporting player mobility with the artefacts. We hope this ongoing exploration can be a starting point in aiding designers to guide players as designers.

Author Keywords

Bodily Interaction; Co-design; Game design; Play.

ACM Classification Keywords

H.5.m. [Information Interfaces and Presentation]: Miscellaneous.

Introduction

Using gamified co-design to tap into the playfulness and motivation of players to play and designing games is an emerging area in HCI [1, 2]. Previous studies [2, 3] applied these principles in the school environment by conducting workshops allowing players and designers to co create experiences. We learn that players as designers need guidance as they do not have deep expertise in game making and therefore may not always know what is best for them. As Moser [4] argued their input is of great value when it can be set to solve a problem. Such collaboration can be improved by considering group dynamics of children [5].

Various approaches have explored gamification and co-design in the school environment [3, 4, 6-8], where

participants co create along with designers. In parallel previous studies [9, 10] have focused on the importance of play for children; through play, players (and play makers) become equals, developed intrinsic interest, and as they embody play enter a state where the environment, the boundaries of a workshop and the task at hand become flexible, igniting new ideas. Yet our knowledge of how to tap into the natural playfulness and motivation of players as designers is worth exploring to infuse some of the qualities that play offers to unlock new collaboration models in which designers can guide players and support their spontaneity to solve a problem.

The role of users and designers in co creating is often a negotiation and guiding process [11]. In regards to children, play and exploration are spontaneous [12, 13], and according to the literature it is suggested that play can support student collaboration and learning [14]. Consequently, we wonder how we can tap into this natural playfulness and motivation to guide players in designing their own games.

In this paper we explore this idea by setting a context, using narrative and developing artefacts that spawn from observing the group, consulting the teachers and the literature, while remaining aware of tapping into the players' natural playfulness and motivation. In this case by turning the players low step count into an opportunity for them to design for [15].

Approach
To gain understanding of the players and their environment we partnered with a local school to tap into the teachers' knowledge and work with children. We conducted various meetings with the teachers where the idea of guiding players as designers was explored. The topic proposed by the school was to get players more physically active, and to use Indigenous Australian Games as a source of inspiration to design games from.

We explored literature by consulting with a subject matter expert [16, 17] and considered which physical, digital or combined forms the artefacts could take to serve as an exploratory vehicle. Mobile phones would limit the children to a single interface to interact with, and portable NFC tags readers [18] may have limited opportunities for the players to retrieve concepts [19]. We selected game cards as they provide a simple form to display content, and previous studies show that game cards can support the design process [20, 21].

We created 18 cards divided into five pillars: 1) Acting out/Imitation 2) Using Objects 3) Mind & Memory 4) Body Movement 5) Other. The pillars represent recurring themes in Indigenous Australian Games; many of the games were influenced by the natural environment around Indigenous communities, from interacting with the space to imitating animals. There is emphasis on make-believe throughout the literature, and as in many cultures, games help transfer culture to the next generations as young ones play and imitate their elders [17]. The Indigenous Australian Games became a source of inspiration to create the artefacts and to guide players in designing their own games to become more physically active.

Participants and Pre workshop
A five week case study was conducted with 25 students of grade four, aged 8-10 (12 girls and 13 boys) from a primary school in regional Victoria, Australia. According to the literature this age group is exposed to digital experiences, and knows what real engagement feels

Workshop one
https://goo.gl/HtsN4v

Workshop two
https://goo.gl/dJl9ov

Semi-structured interviews
https://goo.gl/Z2IewK

like; this however is not the case in the school environment [22]. In guiding players as designers in the given context, understanding their environment and user journey was important in providing better user experience in the study [23].

Pre Workshop
We explained to the class that we were interested in game making and as they play a lot of games we wanted to learn from them. 15 Fitbit Zips were allocated with the help of the teacher. We mentioned that we were interested in learning about their experience with the devices, and that we would return in two weeks. The initial two weeks of step count data were considered the baseline activity for the group.

Workshop One
Each group received a set of cards with the instruction that they could combine them in any way they wanted. They workshopped as we went around observing and reminding the players to note down which cards they used and their game idea, so that they could present and play test it for the class. The cards were left in the classroom for them for the following two weeks.

The group's baseline was calculated and presented to the class (726k); the resulting excitement was followed by showing the class where they should be (1.181k). This set the problem for the class; we informed the players that to improve their score, we had prepared cards for them to create games from. With help from the teacher, groups of five were formed, with a view to balancing imposing, louder players with quieter ones in each group, in order to reduce arguments and improve collaboration [5].

Workshop Two
Compared to the baseline the group step count score increased by 20k steps per week (748k). However once again we showed the class where they should be (1.181k) and how their score was still below the level. This time they had experienced progression and visualised their efforts, which served as motivation to kick off the second workshop. The classroom teacher commented that some of the players had started to combine the cards with other games and objects in order to fulfil their desires to create games and get more steps. To support this approach we considered the idea of providing a tangible, universal game device. We went back to the observational and meeting notes and noticed technology as a common theme supported by the literature [24, 25]. In response, we programmed Sony Move controllers so that the players could leverage lights and haptic feedback in their games.

Data Sources And Analysis
Two different data sources were used to analyse the participants' play experiences. In addition to the pre-study conversations and notes, video footage was taken during the workshops, and semi-structured interviews of 30 minutes' duration were conducted in the final week. The classroom teacher was provided with a diary to collect notes and stories about the players behaviour.

The main author watched the footage and the semi structured interviews three times as recommended in grounded theory [26]. Through this process clustering common themes,which were presented to our lab peers, who come from different backgrounds (HCI, game design and computer science), to gain feedback.

Observations
Players' Interactions
The classroom teacher observed that students were highly focused during the workshops, and that providing

space to explore and play to solve a challenge was well received. The players returned to using the cards voluntarily during the time in between workshops to autonomously explore other combinations. Questions like, *"Teacher, can we look at the cards before recess time to make a game?"* triggered other players to explore the cards also. At the beginning of the second workshop, a player said, *"I want to know the class score every day, but we have to wait until the workshop",* suggesting the desire to see instant feedback of the group's efforts rather than just his or her individual score on the device. A player commented, *"I like how you can use your imagination, and pretend the controllers are like anything,"* which aligned with the intent of the controllers as universal objects to support game making. *"It was good that you brought in cards to help us make the games".* Through the physicality of the cards and the controllers, players used their play knowledge to create new games, while connecting with other players.

Physical Activity
As a result of wearing a device and knowing their step count levels, players became more aware of their daily scores: *"I know I can score more than Billie, but James is the champion – one day he scored 8.000 steps".* The players helped to create group awareness by voicing their scores and desires to score higher. *"The games have done a lot for us, we are not just helping you, you have been helping us."* Another participant commented: *"We improved in our steps, and I like how the Fitbits came into the project to help us enjoy even more".* Even though we never mentioned calories, two of the players said: *"The devices helped us burn more calories".* These statements align with the designers' goal of informing and guiding players in designing their own games within the given context; they also serve as reflection thoughts for the group.

The classroom teacher mentioned, *"The students started using the cards with the connection to create new games and score more steps for the class; in particular one of the groups started combining the cards with sports".*

Proposed themes
From this ongoing research the following themes emerged which provide initial understanding in tapping into the natural playfulness and motivations of players as designers.

Setting a common goal helps people design together
Our Experience: In our study we used 'sensing data' as it relates to the goal suggested by the teachers to get players more physically active. By informing and presenting players with their step count data, this became the seed to self reflect and experiment. We noticed that using the groups' step count as a collective figure supported the idea of unity and mutual encouragement among the players, and as such nourishing an environment to work together towards a common goal. In terms of game design, creating group momentum aids collaboration and players to strive for outcomes [27, 28].

Resulting Theme: We encourage designers to consider using sensing data from the group, making the challenge personal and creating a common goal. Feedback for the group's efforts as a whole is then provided in the form of an aggregated group score. In terms of games, two crucial aspects for players are fulfilled: productivity and connectedness to others [27, 29].

Focusing on spontaneity Through autonomy
Our Experience: In accordance with the classroom teacher and the semi-structured interviews, leaving the artefacts for the players to explore was well received as it offered autonomy. In supporting the players' natural spontaneity to play and their self expression, we observed that the group workshop setting was not suitable for some players: it was too 'public' for them to express themselves. Having access to the artefacts at any point allowed them to work in a smaller group, or

alone, and at any time, which in part deals with group dynamics [5].

Resulting Theme: We encourage designers to consider providing autonomy to the players to explore and design their own game experiences within the provided context, rather than only exploring within specific periods of time, such as in a workshop, which could decrease spontaneity to explore and create. In terms of designing new experiences, autonomy aligns to the rhythms of the player and supports ongoing exploration, which according to the literature provides control, allows mastery [30], and presents new co-creation models between the player and the designer [11].

Supporting player mobility with the artefacts

Our Experience: Over time the players started combining the artefacts with sports and props in their games; some were strategic about which cards and sports to combine to generate a higher step count. Supporting players' mobility was a key factor in this context, rather than limiting to screen size. By observing how the players' user experience evolved we were able to support their exploration [23]. The introduced universal object (Sony controllers) supported mobility and enabled players to leverage haptic feedback and lights in their games.

Resulting Theme: We encourage designers to consider player mobility and using tangible objects to explore a problem solving activity to support multi player interaction, complementing players' exploration, co-creation, and social interaction [11, 25, 31].

Acknowledgments

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