Game-Based Learning to Teach Assertive Communication ClickTalk for Enhancing Team Play

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Abstract. The rise of the computer as an "entertainment medium" has been achieved today only through computer games. But computer or video games have the potential and capability to function as "mediums of education" too. Can game-based learning provide learning experience and yet there is fun in changing behavior (assertive communication) for the individual? Game-based learning has been used to teach various skills to people with quite encouraging results. In this paper, a study was carried out to confirm the hypothesis that game-based learning can be a good platform to teach assertive communication delivering learning and fun because of its benefits and encouraging results from other research. A high-fidelity game-based learning prototype, ClickTalk was created for this purpose and it was evaluated with some interesting results.

Keywords: Game-based learning to teach assertive communication

1 Introduction

The first computer game was played on a PDP-11 computer (Bellis 2016) and over the years, the rise of the computer as an "entertainment medium" has been achieved only through computer games (Jayakanthan 2002). But computer or video games have the potential and capability to function as "mediums of education" too (Jayakanthan 2002).

Games–based learning (GBL), is also known as "Serious Games" (Corti 2006). Kevin (2006) mentioned that GBL has the potential to greatly improve training activities and initiatives in the organisation.

Game-based learning has the motivational virtues of video games and allows a simulated environment, learning by experience and make the experience compelling so that the learners can remember what and why something happened (Corti 2006).

Thus, game-based learning has been employed in various contexts such as teaching social skills to children (Thomas and DeRosier 2010), database analysis and design to IT graduates and post-graduates (Connolly et al. 2006), and historical knowledge to secondary schools students with quite encouraging results (Huizenga et al. 2009).

Incidentally, the global games market has now reached $99.6 billion this year (NewZoo 2016) and is growing rapidly. Is game-based learning a good platform to teach assertive communication delivering learning and fun because of the benefits and encouraging results from other research mentioned above?

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As such, a study was carried out to confirm the above hypothesis that game-based learning can be a good platform to teach assertive communication delivering learning and fun because of the above benefits and encouraging results from other research.

In order to carry out this study, a high-fidelity game-based learning prototype was created for this purpose and it was evaluated with some interesting results. (Note: a low-fidelity game-based learning prototype by the author in a different paper has proven the hypothesis that game-based learning is more effective than traditional classroom teaching or presentation).

What is novel or different about this paper's approach as compared to previous research is that users were recruited to develop game-based learning prototypes besides the one created by the author. Further research will develop on the one or two good prototypes. In other research papers, a development team designed only a single game prototype for evaluation and further research.

Section 2 of this report then looks at the background research on game-based learning and provides a summary of applications of game-based learning and their respective previous approaches.

Section 3 presents the details about ClickTalk, the high-fidelity game-based learning prototype that has been used to teach assertive communication in this study.

The methodology adopted for this paper is covered in Sect. 4. Section 5 looks at the results. Section 6 discusses the results and Sect. 7 presents the conclusions. The references for this paper are in Sect. 8.

2 Background

Here, we cover the background research related to game-based learning and also take a look at overall summary of previous game-based learning applications and the approaches used.

It has been mentioned that the trend is now going towards serious games - interesting games that inject learning for the individual (Squire 2003). Kurt (2003) mentioned that game-based learning is basically using computer technology to delight and "engage" players for the purpose of developing their new knowledge and skills.

It has been said that the younger generation of learners who have grown up in the midst of mobile phones, IPADs, graphic-rich movies, Xboxes and so forth cannot continue to be taught using traditional classroom teaching methods (Prensky 2001).

Kevin (2006) also mentioned that it is the motivational virtues of a game that "initially prompted training and development professionals" to look to games-based approaches. Games-based learning has more things to offer than just using fun to engage learners (Corti 2006).

In the past, "game-based learning environments were rather expensive" for many organisations (Pho and Dinscore 2015). However in recent years, health care organisations and medical schools have started to rely on games and simulations, and using such tools for practice is now the norm or even encouraged. In the US for instance, medical staff need to undergo virtual reality training for the placement of some stents and also many medical schools have come up with centres dedicated to simulation training.

Table in sub-Sect. 2.1 below shows some game-based learning employed over the years.

2.1 Summary of Applications and Previous Approaches used

Main category	Application areas	Title of approaches	Methods	Result 1: Significant 2: Mild 3: No improvement
Soft skill training	Collaboration, communication	Controlled study	Computer game	1 (Thomas and DeRosier 2010)
Hard skill training	Computer science	Experimental approach	Computer game	1 (Connolly et al. 2006)
	Science	Experimental approach	Mobile game	1 (Sung and Hwang 2013)
	History	Experimental approach	Mobile game	1 (Huizenga et al. 2009)

3 ClickTalk

ClickTalk is a high-fidelity game-based learning prototype created using HTML5, Javascript and the popular Phaser game engine for the purpose of teaching assertive communication to young adults and above. Its creation was inspired in fact after the focus group of users has created six game-based learning prototypes.

ClickTalk initially starts with a basic assertive quiz of five questions and if these questions are successfully answered, the learner can proceed to three stages.

Stage 1 – In this stage (Fig. 1), the learner is introduced to team communication. By pressing relevant keys on keyboard(one player use A,S,D,F keys and the other player, the arrow keys), two players can communicate assertively and help "rescue" koala bears to safety in a van from an impending earthquake. The notion here is that team communication is crucial as koala bears' lives are at stake in such a dangerous situation. With a score above 20, the player can proceed to next stage of the game. A successful rescue of big koala bear fetches 40 points while that of a small koala bear fetches only 20 points.

Fig. 1. Stage 1

Fig. 2. Correct dialogue selected and a proceed next choice to go to last stage

Stage 2 – In this stage, the learner will learn the use of I-message in assertive conversation and its format. In Fig. 2 above, there is an initial request given ("Hi John, can you be my partner for workshop activity?"). The learner has two choices as shown by the two yellow highlighted dialogues. The correct choice selected will gain for the learner some points and with that, the learner can proceed to the last stage. If wrong choice is selected, then points will be deducted.

Stage 3 – this is the only fun part which is a shooting game to "shoot down" arguments using "fog" fired from a machine gun turret.

4 Methodology

Currently, there has been little published research that get participants to actually "design" a game-based learning prototype. Much research has been on many participants using an already-designed game-based learning prototype and how they evaluated the results of using the game.

As we know, nowadays people from all walks of life play games. Go around the city and you will notice many people play mobile games. People have ideas from the many games they played but their ideas are not being tapped. In general, people(users) around us may offer fresh perspectives or creative ideas on a game-based learning prototype to teach assertive communication.

To capitalise on such a great source of ideas, this paper therefore decided to employ a user-centred design approach to develop a game-based learning prototype to teach assertive communication.

With this in mind, six participants were recruited on the James Cook University Singapore campus to form a focus group. Informed consent was first obtained from the participants before their participation in the study commenced.

The six participants attended a workshop session conducted on the topic of basic assertive communication for half an hour. They were then briefed on what is needed in game-based learning - such as assessment, scoring, some fun element and learning. With that knowledge in hand and some basic requirements and guidelines, they went on to

design their own game-based learning prototypes. Their prototypes are mentioned in the Results section.

From here, we also created ClickTalk mentioned earlier in Sect. 3 above (a high-fidelity prototype using HTML5/Javascript and Phaser game engine) and the focus group then helped to evaluate this ClickTalk prototype. Their evaluation is discussed in the Results section. The entire data collected was hence analysed and evaluated and alternatives were considered in the design. The response format being used in the questionnaires was the 5-point Likert scale.

5 Results

A total of six students of James Cook University formed the focus group. The following diagrams showed their demographics (Figs. 3, 4 and 5):-

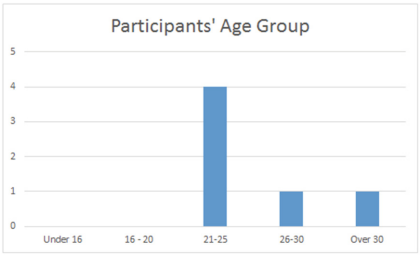

Fig. 3. Age group of participants

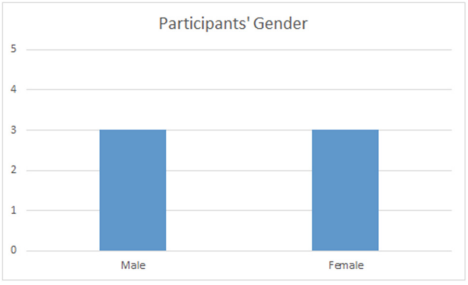

Fig. 4. Gender of participants

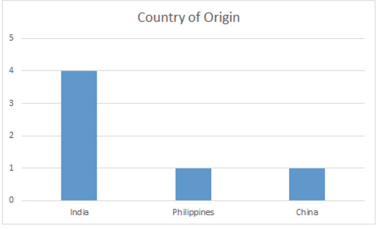

Fig. 5. Country of origin of participants

On evaluating the game-based learning HTML app prototype, ClickTalk, the participants views are summarised as follows:-

- All agree that ClickTalk makes the participants more effective, gives them a good overview of team communication and it is a good way to learn assertive communication.
- All also agree that ClickTalk is simple, user-friendly, pleasant, easy to learn and convenient to use.

- All agree that the app helps them to understand the different behavior types (passive, assertive and aggressive) and it will be popular in future classrooms and it is a good supplement to traditional classroom teaching.
- Majority feels ClickTalk is refreshing, fun to use, need to have and can be used successfully every time. Majority also finds it is productive to use ClickTalk and it gives them an idea of what to say during conflict and control over activities in a team.
- However, half of the participants prefers a neutral stand when it comes to whether there is any inconsistencies in using ClickTalk or whether they have seen anything like ClickTalk before.

The six user-designed prototypes are "Assertive Car Race", "Multi-Scenarios", "Assertive Trust", "Shoot the Alien", "Learn and Play" and "Just Coin It".

6 Discussion (Results Compared to Previous Works)

The six prototypes created by the focus group of participants are rather promising and the ideas are quite fresh. They are also of different game genres. From the evaluation of ClickTalk prototype given by the six participants in the previous section, the hypothesis about whether game-based learning is a good platform to teach assertive communication with learning and fun has therefore been proven right - participants agreed there is fun as they learn assertive communication concepts at the same time and they recommend the game-based learning app to anyone who wants to know more about assertive communication.

What then does this paper offer as compared to previous research?

Firstly, this paper employs user-centred design and the prototypes created are the "solutions" of users to the problem of a game-based learning prototype that can teach and yet fun to play.

Secondly, such an approach is more efficient and effective as compared to someone creating only one prototype and that may not be the best prototype. In this case, we can easily select one or two best prototypes out of the seven prototypes created (six prototypes including ClickTalk, the one created by author).

Also, the adage "users know what they want" has never been more true than in this instance. Users will always create something they like to see.

Overall, the results obtained are very encouraging as the case with other previous research on game-based learning.

ClickTalk can be further improved with more features to cover a basic assertive communication curriculum employed in classroom or business setting and possibly with more clearer learning outcomes. In further research, a bigger group of participants will be recruited and ClickTalk game can also be enhanced with the use of more sophisticated game engine and more random questions to test learner. The current prototype is a showcase of game-based learning.

Further research will also involve selecting one or two prototypes from the seven prototypes and develop them into interesting games for teaching assertive communication.

7 Conclusions

This paper uses a high-fidelity game-based learning (HTML5/Javascript/Phaser) prototype to conduct its experiment.

From the evaluation of the game-based learning prototype, it is worth to note that all participants agree that ClickTalk is simple, easy to use and remember, user-friendly, easy to learn, convenient and pleasant to use, refreshing and fun – all the adjectives of good product usability.

It is also important to note that the majority of participants want more fun than learning or equal amounts of fun and learning in a game-based learning app if it is to be implemented.

The above study shows how user-centered design involving users can help provide quite refreshing insights and solutions.

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