



Game Based Social Skills Apps to Enhance Collaboration Among Young Children: A Case Study

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Abstract. One of the latest trends in mobile phones is the wave of smart phone apps, which include game based social skills and collaboration apps for young children. Despite the massive development and invention on the game based apps, it is also noted that there are still limited studies that discuss on the right guideline in developing the game based social skill apps or to consolidate them into real life learning process. This study discusses about the efficacy of game based social skills apps about Japanese culture and etiquette of collaboration. The aims of this paper included: (1) To investigate and identify features for fostering collaboration through game based social skills apps. (2) To design and develop a model that integrates content, behavioural and applying components of collaboration, roles and relationship with learning Japanese culture and etiquette in game based social skills apps for pre-schooler's level (3–6 years old). To avoid selective attention bias and assess medium term retention, evaluation methodology uses the extended version of instruments of prior studies by assessing the effects of the game.

Keywords: Educational games · Game-based learning · Pre-schoolers
Case study · Culture intervention · Peer collaboration
Game based social skills apps

1 Introduction

Recently, the awareness on the good impacts in the usage of games apps for education is increasing. One of the latest trends in mobile phones is the wave of smart phone apps, which include game based social skills and collaboration apps for young children. In spite of that, the research conducted on methodologies and proper guidelines in developing game based social skills apps and how to consolidate the game apps in the real life scenario learning processes is still limited. In order to integrate them, the process depends highly on acquiring the evidence of game based social skills apps' effectiveness [1].

Children who experience difficulties with social communication and language skills are known to have problematic peer relationships [2]. They are less accepted than

typically-developing children [3] and can be at greater risk of being bullied [4]. Emerging evidence also suggests that they are less likely to be able to benefit from the collaborative activities with peers that are a common feature of educational settings [5]. Cultural content varies in different definition and perspectives. There is physical cultural heritage that influence a community's evolution and customs such as old buildings, historical monuments, archive documentations, artwork, machineries or even historical sites that provide evidence of previous human settlements. These are called tangible cultural heritage. Apart from that, there is also intangible heritage such as social belief, customary practises, philosophical and religious values, literatures, folk tales, behavioural rules and impacts from historical events on that particular society. It is evidenced that it is hard to preserve intangible heritage as the society evolved over the years. However, the game apps scenario is believed to be maintained and communicated effectively. As a matter of fact, the game apps are able to be recreated in physical settings and also stipulate a complete exposure in spoken language in a certain society, appreciation of traditional music and aesthetics matters.

Prior works on educational media's role in early childhood learning mainly paid attention on various types of topics such as early literacy prosocial skill acquisition and adoption of healthy behaviours. However, only few researches have investigated the role of learning culture in early childhood in order to promote the collaboration in the future [6].

Results of recent studies on collaboration and game based social skills apps show that the application of the components of collaboration, roles and relationship with culture in game based social skills apps for pre-schooler's level is still low [31, 32]. Conceptual design model needs to be developed in designing the features based on the intervention strategies to match between applying culture in game based social skills apps among young children and to improve their collaboration [31–33].

2 Research Questions

The research problem described in last Section has led to a formulation of four research questions for this paper. Each of these questions can be divided into a set of objectives, as follows:

1. What are the problems of existing models and frameworks of game based social skills apps for fostering collaboration for pre-schooler to better learning Japanese culture, etiquette and heritage?
2. How to develop a model of game based social skills apps that can enhance collaboration among pre-schooler to better learning Japanese culture, etiquette and heritage?
3. How can a prototype of Japanese culture game based social skills app for pre-schooler level based on the proposed conceptual model of GBSS apps enhancing collaboration and achieve better Japanese cultural awareness and heritage among young children?

4. What is the effect on collaboration and learning Japanese culture, etiquette and heritage when the proposed model of game based social skills apps is evaluated among pre-schoolers?

3 A Comparison Between Recent Research Projects

Recently, the usage of game based learning apps through touch screen devices is increasing for young children. Most of pre-schoolers have access to a device, such as tablet and smartphone (touch screen) at home or school. These devices (tablet and smartphone) have become essential part of many young children daily routine [7, 8]. According to the survey of 1028 children (3–5) years that was carried out by the National Literacy Trust, it demonstrated that more than 70% have access to a device such as tablet or smartphone (touch screen) at home and school [9]. In addition, the number of game based learning apps in the market is increasing. The attention of parents and teachers to this kind of apps (educational game) is rising. The lack of knowledge about these game based apps on education and collaboration is a cause for concern. Schuler 2012 reported that more than 80% of the top-selling apps in the Apple Apps Store are about pre-school, education, collaboration and culture. So, to see how this program have been selected and used, research and analysis are needed [10, 11].

In addition, teachers and parents have repeatedly asked researchers to investigate the effects of educational programs among young children. Due to the large number of these requests, an essential demand for study on the use of media and technology in pre-school age were observed [12–14]. A wide range of prior studies on the use of educational games for pre-school is largely focused on the training in the basic settings and not expressly on game analysis, social skills, collaboration and culture [15–17]. Also, according to the increasing use of technology among children, play and foster collaboration and learning culture in the virtual environment has become a challenge to investigate [18–20]. Few studies have pointed out that young children can use an extensive area of technologies in order to elevate collaboration and culture [21]. However, further research on the variety, collaboration and nurture it during games training is needed [21, 22] (Fig. 1).

4 Finding the Features of Collaborative Learning and Culture

To identify and compare existing models and frameworks in order to find features of collaborative learning and culture and provide an initial conceptual model of game based social skills to foster collaboration for pre-school level. Online survey of data searching is: IEEE Explore, Science Direct, Web of Science, Springer and Scopus to gather data from historical data, pilot study, experience survey and case study to approach these sub-objectives:

1. To identify problems of existing models and frameworks of game based social for fostering collaboration approach pre-schooler to better learning cultures

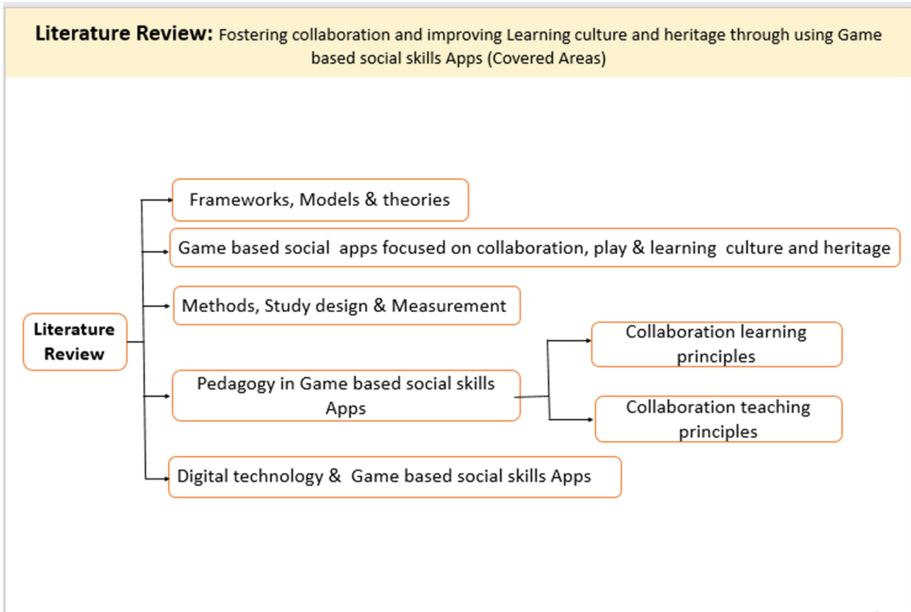


Fig. 1. Literature review: fostering collaboration and improving learning culture and heritage through game based social skills Apps (Covered Areas)

2. To find strengths of existing frameworks and models regarding learning and fostering collaboration
3. To search regarding outcomes of fostering collaboration and learning culture on existing studies about game based social skills apps
4. To search and select best measurement tools and methods used by these studies to evaluate their ideas.

5 Experiment

To determine the domain and features of exploratory research techniques, of existing methods and models of more effective game based social skills apps in order to find features of fostering collaboration. Top existing game based social skills apps that are mentioned as more effective on collaboration by researches, will be selected and evaluated. This phase is going to approach these sub-objectives:

1. To identify support/features of fostering collaboration of top existing game based social skills apps
2. To investigate overall design features: game genre, game element, theory of learning are used by these studies to foster collaboration and learning culture
3. To identify supporting (scaffolding) of use
4. To investigate the problems of pedagogy of top existing game based social skills apps.

6 Participation

Montessori education for pre-schooler is fundamentally a method of learning through playing game and collaboration. Through case study methods, a researcher is able to go beyond the quantitative statistical results and understand the behavioural conditions through the actor's perspective. By including both quantitative and qualitative data, case study helps explain both the process and outcome of a phenomenon through complete observation, reconstruction and analysis of the cases under investigation (Tellis 1997).

7 Observations and Interviews

'Go Pro' chestcam is a camera that is strapped to the child's chest and allows the recording of action as the child moves and interacts with other people and objects, including tablets without their care. In an isolated location, a well-trained researcher will conduct the experiment together with each individual child respondent. To start the session, the researcher will engage the child participant in some assessments of the child's ability to speak. Parents of participating children will have to complete a questionnaire via online on their child's media habits, behaviour, and family information. All experiment sessions will be recorded with "chestcam" video and audio.

8 Conclusion

From this study, it is evidenced that people are more aware of the positive impacts of game apps in learning process of various disciplines. One of the latest trends in mobile phones is the wave of smart phone apps, which include game based social skills and collaboration apps for young children. Unfortunately, there is still lack of studies concerning methodologies and proper guidelines in developing game apps that is able to integrate game based social skills in real life learning settings. To integrate such matters, the evidence of game based social skill effectiveness is definitely needed. This proposal purposed to report evaluation in the effectiveness of game based social skills apps about Japanese culture and etiquette of collaboration. The aims of this proposal included: (1) To investigate and identify features for fostering collaboration through games based social skills apps. (2) To design and develop a model that integrates content, behavioural and applying components of collaboration, roles and relationship with learning Japanese culture and etiquette in game based social skills apps for pre-schooler's level (3–6 years old). (3) To design and implement a novel prototype of game based social skills of Japanese culture app for pre-schooler level based on the proposed model of game based social skills apps. (4) To evaluate the proposed model of Japanese culture game based social skills and collaboration apps. The research methodology in this study used the extended version of instruments in previous studies by assessing the consequences of the game on raising awareness by avoiding selective attention bias and medium term retention. This research focuses to gain empirical

evidences of assessing the advantages of game based social skills in Japanese cultural and heritage recognition among young children.

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