Online Gaming Platforms as Intergenerational Contact Zones

This chapter attempts to build upon the current literature on digital gaming and provide background and justification for the construction of a comprehensive set of intergenerational game design principles for future applications.

Introduction

Following the digitization of societies, social interaction environments have increasingly extended beyond physical spaces to digital realms. Research progress in the area of digital inclusion has contributed to an understanding of how it facilitates social inclusion of older adults and contributes to their overall well-being (Bailey & Ngwenyama, 2011; Kaletka, Pelka, Diaz, Rissola, & Rastrelli, 2012; Kaplan, Sánchez, & Bradley, 2015; Smith & Chilcott, 2013) Digital inclusion benefits the young as well, with research indicating an impact on youth academic performance, employability, and social integration (Kaletka et al., 2012; Loos, 2014; ter Vrugte & de Jong, 2012).

Digital platforms have further demonstrated capabilities for bridging various generations, often on the basis of equitable participation, with goals of promoting the exchange of ideas or knowledge, greater family cohesion, and joint participation in community study and improvement endeavors (Sánchez, Kaplan, & Bradley, 2015). In proposing that the virtual environment is a pertinent dimension to be recognized as a source of Intergenerational Contact Zones (ICZs), we contend that it is important to consider ways to design and facilitate virtual platforms for intergenerational contact and relationship building.

In the broader virtual environment, digital gaming as part of the discourse cannot be neglected, though traditionally, it is seen as the domain of the young, particularly male users. In recent years, the gaming industries and researchers have increasingly branched out to target other user groups such as females and the elderly. There has also been an increase in attention to gameplay designs that have a substantial IG interaction component, although in general, digital games for intergenerational (IG) play and bonding remain a novel idea.

Digital Game Design Principles for ICZs

The remainder of this chapter puts forth a series of design principles with relevant examples that we believe to be critical for inclusion in digital gaming platforms intended to serve as ICZs.

Pre-Stage: Participatory Design Process and Preparation

Prior to game designing, involving the intended target users during the pre-stage development through participatory design is a viable strategy for addressing different age groups' socio-psychological preferences and needs. This can come in forms of both passive and active involvement ranging from surveys and interviews to focus group discussions, co-designing sessions and prototypical testing. For example, Blast from the Past, 1 a digital game specifically designed for gameplay between grandparents and grandchildren, employed player-centered design methodologies. Other than ethnographic inquiries, the team involved seniors and children from the very start through sessions of brainstorming, co-design, focus group discussions and finally prototypical testing. Through iterative developments, the target audiences contributed recommendations for game design adjustments at each stage.

A more passive pre-stage game design process was adopted in developing the Distributed Hide and Seek game. 2 Building upon observations of playgroups between grandparents and preschool grandchildren, as well as cultural probe analysis of IG activities, the team explored how the nature of interaction (episodic and open-ended creative play) and diverse IG roles (with seniors as "Organiser, Instructor, Carer, Co-player, Entertainer or Observer," and kids as "Accomplice, Apprentice, the Cared-for, Co-player or Audience") can be translated into technological form (Vetere, Nolan & Raman, 2006).
Gameplay Design Content: Social Dynamics

Designing to leverage on the different generational skillsets

IG gameplay builds upon or caters to the differing experiences and capabilities of each age group. This can happen through:

1. designing games that are easy for generations to utilize their respective skillsets to collaborate for a common goal, or
2. game designs that allow generations to compete on a more equitable ground, considering their technological and knowledge competencies.

These themes are evident in the design of the game *Age Invaders* for which grandchildren, parents, and grandparents are identified as the target group users. Whereas the game element of avoiding laser beams and rockets favors younger participants, the feature which draws on players' acquired knowledge (which involves detection and use of visual cues for solving cognitive problems) favors the older participants. Also, the laser beam speed is an adjustable game parameter to help leverage the playing field.

Furthermore, the game's "hyperspace mode" with combined quiz and movement gameplay makes it more effective for both generations to adopt collaborative play strategies that draw upon the strengths of each generation (Figure 1) (Khoo, Cheok, Nguyen, & Pan, 2008).

![Question: Choose a tropical fruit](image)

*Figure 1: An illustration of the Hyperspace mode whereby gameplay taps on the different strengths of generations to make meaningful collaborative play. (Source: Khoo et al., 2008)*

It is also recommended to consider designing for "vicarious play," referring to co-located gameplay whereby only one party is actively in control of the gaming console/controls, with other parties participating mentally and verbally at the side. Such role separations are mainly observable when there is a disparity in skillsets due to age differences. As noted by De Schutter and Abeele (2010), vicarious play is one of the most common styles of IG gameplay, but rarely is it an intentional design feature or characteristic. De Schutter and Abeele have suggested a few possible features for better integrating less active participation into gameplay, for example "by having them solve puzzles, keep an eye out for hints on the corners of the screen, or even search the Internet for more information while the other player is controlling the game".

Designing for larger breadth of generational involvement

Another recommendation is to pay more attention to intermediary age groups that are commonly neglected in IG gameplays. According to our understanding of the concept of ICZs, they are age inclusive, and this goes beyond simply engaging older adults, children and youths. Furthermore, from Voida and Greenberg's (2012) study, it is emphasized that there is advantage in incorporating the intermediary age groups as they can assume facilitator roles in ensuring positive gaming experiences between the young and the aged, which can be tricky and conflict-ridden given the different capabilities and familiarity with gaming. For example in *Age Invaders*, parents can assume a mediator role and participate through operating the computer from a distance in real time (catering to parents who are often absent from home due to work). Seniors and youths play against each other in physical spaces, whereas parents are connected through the virtual world and can add a layer of complexity to the gameplay by choosing to help either team (Figures 2 and 3).
Gameplay Supporting Features

Multigenerational design considerations

As a basis to effective IG gameplay, gaming equipment and technological features should be conducive for multigenerational usage. This includes ensuring larger visual interfaces, such as on-screen texts and graphics for the ease of seniors’ reading, and the provision of gaming equipment that incorporates lightweight and ergonomic designs that are suitable for both senior and children usage. For example, gaming tools can be made adjustable so as to fit children's smaller build.

Gameplay configuration processes that facilitate IG role switching

Through legible configuration processes that can be picked up through simple observation, transitions between IG gameplay roles can be facilitated, and vicarious players can easily transit to an active decision maker/game controller. For example, Voida and Greenberg (2012) recommended in their paper that strategies to make configuration processes more visible across the whole group would be to take advantage of "large, shared display, or providing audio feedback so the configurer could more publicly model configuration skills." They further suggest how it would be helpful to incorporate both options of gameplay inputs on a single device as well as distributed/multiple devices. For example one gaming console could control all players' inputs if desired, or all consoles used for the game can be individually controlled to enter separate players' inputs. This allows for the initial situation of a single configurer as a model for others to learn from, before transiting to all parties taking control of their own input choices (Voida & Greenberg, 2012).
Language considerations

For IG digital gaming that transcends geographical boundaries, language proficiency might become a barrier to effective interaction. In that respect, language translation functions, or pre-set gaming comments and phrases are recommended. For example, De Schutter and Abeele (2010) suggested automated translation tools in gaming chats. Pre-set gaming comments and phrases could also be crafted by game designers such that in order to communicate, players can choose from a list of responses in their native language with corresponding translations. It is also prudent to introduce relevant digital gaming terminologies with brief explanations alongside chat functions to facilitate effective assimilation of newcomers to the online gaming community.

Online or offline community/Administrative support

It should also be considered to establish an IG online discussion platform/forum, or an IG gaming community circle online that serves as support to the actual IG gameplay. This is firstly to allow the ease of identifying suitable gaming partners with similar interests/skillsets, which will be useful if the IG gameplay designed is not tailored to any specific target groups. Typically, a programming function can be used to organize players’ profile information, whereby players can be sorted into categories like age, interests, skills and language, and the system can make autosuggestions and pairings to suitable players. Otherwise, a manual search system could be designed for players to build up their own friend lists. This supporting gameplay feature could also be incorporated into the digital game itself in the event that a separate online portal is not feasible. Online communities also serve to facilitate discussions of the gameplay between generations, whereby players can actively share and contribute information regarding the IG gameplay, empowering themselves in the process.

Other than online support, offline support in the form of physical places offering access and training to digital games are recommended as well. Such support could also be intergenerational in nature, thereby proffering opportunities for integrated gameplay experiences that are reinforced by both physical and virtual IG interaction. A plausible reference can be telecenters, which are places whereby digital services are embedded and typically managed by community-based organizations, serving as easy access points that allow for community-wide participation in ICT (Bailey & Ngwenyama, 2011; Kaletka et al., 2012).

Physical and Virtual Space Interplay

Through virtual gameplay, players' attributed meanings and attachment to physical spaces can potentially be influenced. Similarly, gameplay elements in physical spaces can facilitate the meanings and values constructed for virtual gaming environments. This is a compelling relationship which digital game designers can try to design for. For example, when playing Distributed Hide and Seek, new memories and meanings can be formed in the players' houses (the physical playing medium) (Figure 4), whereby players can now relate certain areas of the house to memorable IG interactions from the game. Although this is not intended by the game designers, it shows the potential of utilizing digital games to connect to the physical dimension in order to enhance meaningful connections between players, in this case across different generations.

Referencing an IG collaborative project (not a digital game), Historypin 3 is an example whereby through online and offline IG collaborations and documentation, collective new meanings have been constructed for old public places. The IG interactions were also more meaningful and longer lasting as they were anchored in these physical spaces. Expanding this idea, there is also a developmental potential for games like the Distributed Hide and Seek: by extending the gameplay site from homes into public spaces with internet connection, exploration of different places ascertains interest in continuous play, which allows for meaningful development and anchoring of IG relationships over time and place despite limited physical contact.

![Figure 4: Gameplay mechanism for Distributed Hide and Seek](Source: Vetere, Nolan & Raman, 2006)
Conclusion

Virtual environments as ICZs can serve as enticing and meaningful meeting places for different generations. As this chapter shows, designing digital games as ICZs include the need to consider factors related to both the hardware and software. In the least, gameplay processes, supporting features and equipment should not just be designed to accommodate and cater to the differing needs and skillsets of multi-generational groups but to also facilitate inter-player sharing of gameplay/game scenario-related knowledge, skills, and perspectives. Furthermore, as a review of the literature shows, objectives and opportunities for IG contact and collaboration tend to vary in large part as a function of specific IG gameplay typologies (e.g., co-located or distributed gameplay, educational PC or recreational console gaming).

Further developments in IG digital gameplay can also include establishing an online resource and learning hub in order to better integrate educational learning alongside recreational play. As mentioned previously, online communities facilitate collaborative sharing and contribution of information and knowledge, and a formalized learning network and system can greatly benefit IG digital gameplay that allows its users to devise creative learning content themselves. An example of a learning network, Ulm's IG learning network KOJALA, 4 demonstrates its power as a virtual place of exchange by allowing different age groups to connect with each other on projects of mutual interests. Through this platform, generations learn from each other regardless of time and place, and the ease of IG collaboration both online and offline is achieved.

Tapping into the idea of the KOJALA learning network system and referring back to the Distributed Hide and Seek - if the hide-and-seek game site does extend into various public spaces, it becomes feasible to envision the creation of an online resource hub whereby players can upload and share information regarding potential or popular game sites, such as providing maps, photos and digital plans. This is also similar to the Historypin online archive that can be jointly updated by users. By using the online platform to access these data, educational learning can also be integrated more easily as users can update each other on sites with educational value (e.g., historical or nature), supplemented with information that the grandparents can pick up on to share as do-you-know facts with their grandchildren during the game. Such content could be determined by and shared amongst users and integrated into educational hide and seek trails.

This combination of online learning hubs and digital gameplay offers excellent insights to help game designers integrate learning objectives in their game design, as well as merge virtual and physical spaces in ways that build more meaningful and lasting intergenerational relationships.

References


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1 Blast from the Past is “a Nintendo Wii game that combines a variety of quiz mechanics and two mini-games (i.e., a digital version of a folklore game and a building game in which a monument from the 1950’s is constructed within a time travelling narrative)” (De Schutter & Abeele, 2014).

2 Distributed Hide and Seek is designed to specifically target grandparents and grandchildren who stay apart, with objectives to facilitate open-ended play as opposed to prescriptive play. The hider allocates virtual gifts in the seeker’s house using a touchscreen (pre-installed maps), and the seeker seeks by moving around the house with a “magic wand” (Bluetooth PDA) that tracks his movements. Vocal communication happens throughout the game.

3 “Historypin.com is an online, global archive to which people can add photos, audio, video, stories, and memories by pinning them to a particular place and time on the Historypin map. The Historypin app also lets people add and explore content while walking around their local areas. Since its launch, Historypin has been a catalyst for numerous online and offline collaborations between older and younger people” (Armstrong, 2012)

4 KOJALA is an Internet-based competence platform by ZAWiW, whereby through a virtual market place, users can place and browse offers for collaborative projects. This is supported by the users’ visiting cards (similar to profiling), and KOJALA hosts the formation of working groups for users who have connected and agreed to embark on collaborative work.

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