Impact of Intergenerational Play on Young People's Perceptions Towards Old Adults

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Abstract. This study explored the impact of intergenerational play on young people's perceptions towards old adults. It analyzed how intergenerational play is associated with the three factors of ageism (i.e., antilocution, discrimination, and avoidance). To address the research question, seven research hypotheses were proposed. A total of 150 young people aged between 15 and 30 completed an online survey. To test the research hypotheses and determine the amount of variance in ageism attributable to gender and education level, a series of two-stage hierarchical regression analyses were carried out. The results of regression analyses revealed that the frequency of playing with parents and grandparents and the frequency of playing either against or collaboratively with old family members is not significantly associated with ageism. However, expecting to play with old family members, the quality of intergenerational play, the sense of closeness to old family members due to gameplay, and the enjoyment of playing with old family members were positively associated with young people's perceptions towards old adults. The findings indicate that young people's perceptions towards old adults are strongly associated with the quality and enjoyment of gameplay with old family members rather than the quantity of gameplay.

Keywords: Intergenerational play · Younger people · Older adults · Ageism

1 Introduction

1.1 Ageing and Ageism

The world population is ageing. By 2050, the number of people aged 60 years and over in the world is projected to double its size in 2015 [1]. Intergenerational communication and interactions are expected to play an important role in an aging society due to the likelihood that young people would interact with and provide support to a larger proportion of old adults in near future [2]. However, society generally has a negative attitude towards old adults [3]. Ageism is widespread and extremely common [4].

Negative attitudes about age can begin to form among children as young as six years old, and these attitudes will solidify as they grow older [5]. The research report published by Australian Human Rights Commission in 2013 indicated that ageing has predominantly negative connotations. In general, Australians aged 18–24 years were the most negative about old adults. The majority of Australians (71%) believed that age discrimination in Australia is common. In addition, negative portrayal of older Australians would result in negative behaviors towards older Australians. Similar findings

were reported in UK [5]. Ageism harms the public's health [5]. Stereotypes of ageing affect the physical and mental functioning, overall wellbeing and perceived quality of life of old adults [6]. Negative attitudes about age harm young people because they apply negative age stereotypes to themselves as they grow older. The self-perceptions of stigmatized groups can influence longevity [7]. People with more positive self-perceptions of ageing could live 7.5 years longer than those with less positive self-perception of ageing [7]. The negative effects of ageism indicate the need of methods to bridge intergenerational gap.

1.2   Gameplay as an Enjoyable Leisure Activity

Research has indicated the potential of joint activity to maintain relationships [8]. Flora and Segrin [9] explored the impact of activity type, social skills, relationship type and positivity on relationship maintenance. The results indicated that joint activity time is more satisfying and rewarding when people exhibited good social skills and interactions and perceived positivity in their partners. The quality of time spent together in the leisure events makes a significant impact on relationships. The authors stated

> Joint activity time may serve to maintain relationships largely because of the quality of social interaction exchanged during that time together. High quality interaction contributes to high leisure satisfaction, and the strong relationship between leisure satisfaction and relational satisfaction [9, p. 717].

Digital games are symbolic and cultural tools that promote meaningful interactions [10]. Lazzaro [11] examined why people play digital games, and concluded that "people play games not so much for the game itself as for the experience that the game creates: an exciting adrenaline rush, a vicarious adventure, a mental challenge; and the structure games provide for time, such as a moment of solitude or the company of friends" [p. 1]. The context of gameplay naturally provides situational factors for collaboration, competition, common goals and thoughts sharing which are key to satisfying interactions [2, 12]. Collaborative gameplay allows people to "make creative, playful and social use of their leisure time" [13, p 417].

1.3   Intergenerational Play and Intergenerational Perceptions

Previous research has explored the design and use of digital games for intergenerational interaction and learning [12, 14–16]. Theng et al. [17] investigated how Wii games could improve old adults' socialization. The results of this study showed that both old adults and teenaged players improved attitudes toward the other age group [17]. Zhang et al. [18] Investigated how the structures of talk-in-interaction during intergenerational play provide opportunities for situated learning between young people and old adults. Old adults learned gaming skills and made sense of collaborative gaming activities through young people's guidance. As old adults gradually became more experienced users, they were able to coordinate with their younger partners to overcome setbacks and engaged in mutual encouragement to reach a common goal. Chua et al. [2] conducted a two-group (i.e., experiment group and control group) pre-post design study to examine the impacts of intergenerational play on young people's perceptions towards

old adults. In this study, digital gameplay was viewed as a form of shared leisure activities in which individuals from different age groups could engage without much resistance. The results revealed that when older adults and young people play digital games together, they could develop positive perceptions towards both their particular play partners and the members of the other age group as spill-over effects. In addition, it was found that the more participants enjoyed intergenerational play, the greater attraction and less intergroup anxiety they reported. Chua et al. concluded that the results of this study could support the potential of intergenerational play in developing positive perceptions towards other age groups as a means of shared leisure activities.

In family contexts intergenerational play could serve as a resource for family interactions and communication, especially in families with communication difficulty [19]. It creates opportunities for family members in different age groups to pursue common goals and share experiences, resulted in improving family relationships [20]. Wang, Taylor and Sun [21] investigated the effects of digital gameplay among family members on family satisfaction and closeness. It was found that the more frequently family members play digital games together, the better family satisfaction and family closeness they have [21]. Costa and Veloso [16] reviewed the benefits of intergenerational play and summarized that intergenerational game-mediated interactions between different generations, especially between grandparents and grandchildren, have the potential to break age stereotypes, develop civic engagement, and give a sense of purpose and companionship. However, few studies have collected quantitative data to examine whether intergenerational play with family members affects intergenerational perceptions, especially young people's perceptions towards old adults.

1.4   Research Purpose and Hypotheses

The author conducted an online survey to investigate the patterns, benefits and challenges of intergenerational play between young people and old family members in 2018 [22]. The results of this study revealed that although young people aged 15+ do not frequently play digital games with their old family members (i.e., parents and grandparents), intergenerational play is a fun way to bond with family members. The motivation for intergenerational play is to maintain closeness and connection with family members. There are different portrayals of the value of intergenerational play within family contexts, such as common hobby among family members, getting every member involved during big festivals or family gathering, giving them something to talk about and a way to maintain contact across geographical distance. The author concluded that "(intergenerational play) is more about the quality of gameplay and related interaction than quantity" [22, p. 591].

Building on the findings of the author's prior study, the purpose of the current study was to examine whether intergenerational play affects young people's perceptions towards old adults. The findings of previous research conducted by other researchers have indicated the potential of intergenerational play in developing family relationships and young people's perceptions towards old adults [2, 16, 20, 21]. Therefore, the author proposed that intergenerational play as an enjoyable leisure activity is negatively associated with ageism (Fig. 1).
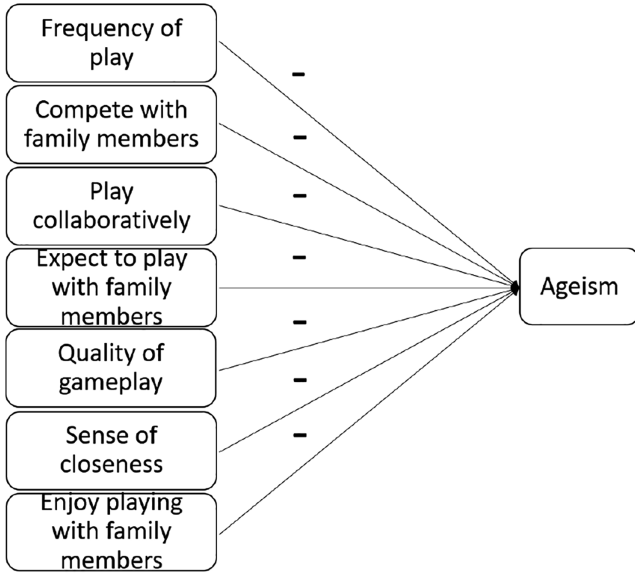
Fig. 1. Relationships between intergenerational play and ageism

This study did not use frequency of playing with family members as a gross measure of intergenerational play. Playing frequently with family members could increase the opportunities for meaningful interactions, but it did not depict the whole picture of intergenerational play. In this study intergenerational play was viewed as an enjoyable leisure activity that offers satisfying and rewarding interactions. Flora and Segrin [9] emphasized that "Without considering the quality of time spent together, joint leisure time cannot uniformly be guaranteed to enhance relationships" [9, p. 717]. Zhang [23] conceptualized older adults' social interactions in online games as communication methods, frequency of playing with other players, enjoyment of relationships and quality of gameplay, and found that enjoyment of relationships and quality of gameplay were significantly associated with older adults' social-emotional wellbeing. For young people, the motivation for playing games with family members is to maintain family closeness [22]. So, in this study the author examined seven of the factors involved in intergenerational play experiences: (1) frequency of gameplay with old family members, (2) play against with old family members, (3) play collaboratively with old family members, (4) expect to play with old family members, (5) quality of gameplay with old family members, (6) sense of closeness due to gameplay with old family members, and (7) enjoy playing with old family members. This study would test the hypotheses in Table 1.

Table 1. Summary of research hypotheses

Hypothesis 1	Higher frequency of playing with old family members is associated with lower level of ageism
Hypothesis 2	Higher frequency of competing with old family members is associated with lower level of ageism
Hypothesis 3	Higher frequency of playing collaboratively with old family members is associated with lower level of ageism
Hypothesis 4	Higher level of expecting to play with old family members is associated with lower level of ageism
Hypothesis 5	Higher quality of intergenerational play is associated with lower level of ageism
Hypothesis 6	Higher level of sense of closeness to family members is associated with lower level of ageism
Hypothesis 7	Higher level of enjoyment of playing with old family members is associated with lower level of ageism

2 Methods

2.1 Survey Design

A total of 150 young people who had played digital games with their old family members (e.g., parents and grandparents) completed an online survey. The participants were aged between 15 and 35 with an average age of 22.46. With regards to gender, roughly 55% of the participants were male and 45% were female. A significant majority of participants had a high school degree (25.2%), some college (28.5%) or a four-year degree (25.8%), while 4.6% had a Master's degree and 1.3% had a doctoral degree.

The online survey consisted of three sections. The first section asked questions related to intergenerational play experience, such as frequency of playing digital games with parents and grandparents, frequency of playing collaboratively or compete with old family members, closeness to old family members, and enjoyment and quality of gameplay. The second section asked questions measuring three factors of ageism. The third section asked demographic questions.

The Fraboni Scale of Ageism (FSA) was used to measure young people's ageism [24]. The FSA construct is derived from Butler's [25] definition of ageism which refers to a "…profound psychosocial disorder characterized by institutionalized and individual prejudice against the elderly, stereotyping, myth-making, distaste, and/or avoidance" [24, p. 14].

The FSA has a high internal reliability ($\alpha = .86$). It specifically measures three factors of ageism: (1) acceptance of others, (2) factual knowledge about elderly people, and (3) social desirability. The FSA has three subscales: Antilocution ($\alpha = .76$), Discrimination ($\alpha = .65$), and Avoidance ($\alpha = .77$). Fraboni et al. indicated that "the three primary factors are not independent, and because they represent theoretically additive constructs, division of the FSA into subscales is possibly not warranted" [24, p. 64]. In this study, we used all items of the three subscales to measure the three factors of

ageism. Items in the FSA (either negative or positive in content) were in a 5-point Likert format. Responses choices were presented as "Strongly disagree", "Disagree", "Neutral", "Agree", and "Strongly agree". Responses were scored from 5 to 1 for negative statements and 1 to 5 for positive statements with unanswered items scored as 3. Higher scores revealed a higher level of ageism.

2.2   Data Analysis

In this study multiple regression was the method of data analysis. The statistical goal of multiple regression is to produce a model in the form of a linear equation that represents the relationships between a dependent variable and a number of predictors or independent variables. A multiple correlation coefficient indexes the degree of linear association of one variable with a set of other variables, and the squared multiple correlations (R^2) indicate how much variance of dependent variable is explained by the model. In general, R^2 values, .01, .06, and .14 are considered to be small, medium, and large respectively [26].

To test the seven research hypotheses and understand the amount of variance in ageism attributable to gender and education level, a series of two-stage hierarchical regression analyses were carried out. For each analysis, each of the three factors of ageism was the dependent variable; gender and education level were entered to the first block as covariates; and each of the seven factors of intergenerational play was entered to the second block as predictor. For hierarchical multiple regression, researchers should look at the change of R^2 with and without the predictor rather than an overall model R^2 [23].

3   Results of Data Analysis

The means of antilocution ($M = 2.82$), discrimination ($M = 2.27$), and avoidance ($M = 2.52$) were lower than the neutral value of 3 on the 5-item Likert-type subscales. The R^2 change of frequency of playing with old family members, frequency of playing against with family members, and frequency of playing collaboratively with family members was not statistically different from zero.

Table 2 presents the analysis results for expecting to play with old family members. Gender and education level were not significant covariates for the three types of ageism. When expecting to play was added to the block, the prediction model for avoidance was statistically significant, F_c (1, 141) = 8.480, p_c = .004, R_c^2 = .057.

Table 3 describes that when quality of gameplay was added to Model 1, the second prediction models of discrimination and avoidance were significance. However, the R^2 changes for all three types of ageism were statistically different from zero. Quality of gameplay accounted for 1.3% of the variance of antilocution (F_c (1, 140) = 4.676, p_c = .032, R_c^2 = .013), 14.2% of the variance of discrimination (F_c (1, 140) = 23.639, p_c < .001, R_c^2 = .057), and 6.8% of the variance of avoidance (F_c (1, 140) = 10.216, p_c = .002, R_c^2 = .068).

Table 2. Results for expecting to play with old family members

Outcome measures	Model 1[a]			Model 2[b]			Change		
	F	p	R^2	F	p	R^2	F_c	p_c	R_c^2
Antilocution	.911	.405	.013	1.280	.284	.027	2.005	.159	.014
Discrimination	1.331	.268	.018	1.038	.378	.022	.464	.497	.003
Avoidance	.046	.955	.001	2.859	.039	.057	8.480	.004*	.057

Note. *p < .05, [a]Includes gender and education level, [b]Model 1 with expecting to play with old family members

Table 3. Results for quality of gameplay with old family members

Outcome measures	Model 1[a]			Model 2[b]			Change		
	F	p	R^2	F	p	R^2	F_c	p_c	R_c^2
Antilocution	.901	.409	.013	2.175	.094	.045	4.676	.032*	.013
Discrimination	1.301	.276	.018	8.886	<.001*	.160	23.639	<.001*	.142
Avoidance	.124	.883	.002	3.493	.017*	.070	10.216	.002*	.068

Note. *p < .05, [a]Includes gender and education level, [b]Model 1 with quality of gameplay with old family members

As shown in Table 4, the second prediction models for discrimination and avoidance were statistically significant when closeness to family members was added to Model 1. Their R^2 changes were also statistically significant. For discrimination, closeness to family members explained 14.2% of its variance, F_c (1, 140) = 23.622, p_c = < .001, R_c^2 = .142. For avoidance, closeness to family members explained 6.9% of its variance, F_c (1, 140) = 10.374, p_c = .002, R_c^2 = .069.

Table 4. Results for closeness to old family members due to gameplay

Outcome measures	Model 1[a]			Model 2[b]			Change		
	F	p	R^2	F	p	R^2	F_c	p_c	R_c^2
Antilocution	.911	.405	.013	1.378	.252	.029	2.295	.132	.016
Discrimination	1.282	.281	.018	8.866	<.001*	.160	23.622	<.001*	.142
Avoidance	.068	.934	.001	3.507	.017*	.070	10.374	.002*	.069

Note. *p < .05, [a]Includes gender and education level, [b]Model 1 with closeness to family members due to gameplay

Table 5 shows that all of the second prediction models were statistically significant when enjoyment of gameplay was entered. Enjoyment of gameplay accounted for 5.1% of the variance of antilocution (F_c (1, 141) = 7.637, p_c = .006, R_c^2 = .051), 10.2% of the variance of discrimination (F_c (1, 141) = 16.362, p_c < .001, R_c^2 = .102), and 7.6% of the variance of avoidance (F_c (1, 141) = 11.650, p_c = .001, R_c^2 = .079).

Table 5. Results for enjoyment of gameplay with old family members

Outcome measures	Model 1			Model 2			Change		
	F	p	R^2	F	p	R^2	F_c	p_c	R_c^2
Antilocution	.911	.405	.013	3.181	.026*	.063	7.637	.006*	.051
Discrimination	1.331	.268	.018	6.437	<.001*	.120	16.362	<.001*	.102
Avoidance	.046	.955	.001	3.916	.01*	.077	11.650	.001*	.076

Note. *p < .05, [a]Includes gender and education level, [b]Model 1 with enjoyment of gameplay with old family members

4   Discussion, Conclusion and Limitations

Previous study has indicated that although young people do not play digital games with their old family members frequently, intergenerational play is a fun way for them to bond with and stay close to family members [22]. In this study, intergenerational play was viewed as an enjoyable leisure activity in which people from different groups can engage in rewarding and satisfying social and emotional exchanges. The author focused on seven of the factors involved in intergenerational play experiences rather than quantity of gameplay alone, and investigated how each of those factors is associated with the three types of ageism (i.e., antilocution, discrimination and avoidance).

Consist with the findings of previous research, the positive social-emotional impacts of digital gameplay are not associated with the quantity of gameplay [26]. The findings of this study indicated that hypotheses 1–3 were not supported. The frequency of playing with old family members and the frequency of competing or playing collaboratively with old family members were not significantly related to young people's perceptions towards old adults. Instead, hypotheses 4–7 were all supported. Expecting to play with old family members explained 5.7% of the variance of avoidance. For the quality of gameplay and enjoyment of gameplay with old family members, the R2 changes for all three types of ageism were statistically different from zero. The magnitude of those R2 changes (see Tables 3 and 5) was medium to large based on the criteria of Cohen [26]. Closeness to old family members explained 14.2% of the variance of discrimination and 6.9% of the variance of avoidance. The magnitude of these two R2 changes was medium to large. Therefore, the findings of this study indicate that young people's perceptions towards old adults are strongly associated with the quality and enjoyment of gameplay with old family members rather than the quantity of gameplay. In addition, the results support the potential of intergenerational play as an enjoyable leisure activity in developing young people's perceptions towards old adults.

The author is aware of two limitations. First, the participants were aged 15 and over. So, the findings could not be applied to people younger than 15. Second, this study used a self-report questionnaire to measure young people's perceptions towards old adults. The results do not imply causal relationships. However, this study sheds light on the relationships between intergenerational play and positive perceptions towards old adults.

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