



# Intergenerational programs: What can school-age children and older people expect from them? A systematic review

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Published online: 28 January 2019  
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## Abstract

Over the past 40 years, there has been a growing trend for intergenerational initiatives worldwide. Intergenerational programs (IGPs) aim to facilitate cooperation and exchange among different age groups. While most studies highlight the benefits for each generation, the programs and study designs vary widely. We conducted a systematic review of the scientific literature between 2005 and 2015 to: (1) characterize and define the IGPs studied and (2) identify the benefits for school-age children and older people aged 60 years or over. First, 53 articles with defined keywords were collected from online databases. Then, using inclusion and exclusion criteria, 11 articles were selected. These were classified according to methodological quality and were analyzed one by one. The content of the programs varied: three involved artistic activities, three educational activities, one health, three open-ended activities, and one was organized around a citizen's project. Concerning the benefits of IGPs for children and older adults, some studies highlighted significant differences in positive attitudes, behaviors, confidence, and competence for the children, and significant differences in mental and physical health, and quality of life for older adults. However, it should be noted that those benefits are not systematic. Our findings are discussed in the light of the meaningfulness of the activities and the role of IGPs, organization of the program, and participants' knowledge of the other generation. Future studies may wish to consider searching for additional variables to further refine our understanding of the benefits for participants.

**Keywords** Intergenerational programs · Children · Older adults · Systematic review · Benefits

## Introduction

An intergenerational program (IGP) is a form of human service that involves ongoing and organized interactions between members of younger and older age groups for the benefit of all participants (Newman et al. 1997). Intergenerational programs, which have been in existence for 40 years in several countries, engage volunteers of different ages in a variety of activities. They generally arise from practical concerns about strengthening social cohesion, creating links between generations, and setting up and encouraging community initiatives. The aim of intergenerational programs is

to increase contact and understanding, to create meaningful relationships, to foster emotional and social growth, and to achieve various educational or community goals (Kaplan 2002; Ayala et al. 2007; Newman and Hatton-Yeo 2008).

From a theoretical perspective, intergenerational programs are traditionally based on Erikson's lifespan approach (Erikson 1963) and Allport's contact theory (Allport 1954). Erikson's lifespan approach is based on the view that relationships between children and older people bring benefits for both. With regard to developmental stages, Erikson highlights parallel developmental needs, in a unique synergy between these generations. Intergenerational programs involve interactions among skipped generations, and are based on the view that the generational synergy found in natural families could be captured in social models. For example, Murayama et al. (2015) suggested that intergenerational programs could be key health promoters among the elderly, by decreasing the risk of social isolation and loneliness, and providing a greater sense of meaningfulness. According to Allport's (1954) contact theory, contact between members of

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Responsible editor: Marja J. Aartsen.

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disparate groups can reduce negative attitudes and generate positive attitudinal change. Intergenerational contacts, which are characterized by an intergenerational gap, can promote positive effects for all participants. Contact theory provides a useful guide for intergenerational practitioners, offering information about the development of intergenerational activities, program scheduling, staff training and materials (Jarrott and Smith 2011). For example, in Biggs and Knox (2014), the program's goals were to increase social activities across generations, to provide learning activities and to promote positive attitudes toward older adults. Further theories underlie other intergenerational programs. For example, the notion of empathy formation developed by Harter (1982) was used by Femia et al. (2008) to consider the socio-emotional development of children participating in a daily contact intergenerational program.

Given these theories, a number of recent studies have investigated the consequences of bringing older adults and children together, including living together. Overall, these programs seem to have benefits for both generations, improving the functioning and quality of life of the older people and changing children's stereotyped views of older people (Jarrott and Bruno 2003, 2007; Gaggioli et al. 2014). Specifically, they promote increased awareness and understanding between younger and older generations, and develop intergenerational relationships (Oberg 2007). The benefits for the young people include developing positive attitudes toward older adults (Meshel and McGlynn 2004; Lynott and Merola 2007; Femia et al. 2008; Dunham and Casadonte 2009; Heyman et al. 2011; Wescott and Healy 2011), better school attendance (Brabazon 1999; Kaplan 2002), and improved social skills (Rossberg-Gempton et al. 1999; Femia et al. 2008). Additionally, results depend on the type of IG program tested, the quality of IG interactions, the frequency and duration of IG exposure, and the ages of the children (Femia et al. 2008).

For older adults, the effects of intergenerational programs include increased self-esteem (Gamliel and Gabay 2014), improved well-being (Newman and Riess 1992; Meshel and McGlynn 2004; Hernandez and Gonzalez 2008), more social contact (Newman and Riess 1992), less distress (George and Singer 2011; George et al. 2011), improved memory function (Newman et al. 1995), enhanced physical mobility (Flora and Faulkner 2007), and a greater sense of social connectedness (Short-DeGraff and Diamond 1996; Varma et al. 2014). Peacock and O'Quin (2006) found that bridging generational gaps through intergenerational programs "can decrease loneliness, foster the development of new roles, and provide purpose and meaning in a life stage where limited opportunities for such may exist" (p. 368). Finally, intergenerational programs are important for both individual self-esteem and the ability to participate fully in society (Marshall and Hutchinson 2002; Gamliel and Gabay 2014).

While some research has shown the benefits of IGPs through sharing activities, skills or interests between generations, implementation of the programs differs greatly on several points. First, IGPs can generally be divided into several categories according to the intended purpose: older adults supporting or serving the young, young people supporting or serving older adults, older and young people collaborating to support the community, older adults and young people engaging in shared activities, and older adults and young people sharing sites (Ayala et al. 2007). Secondly, IGPs engage participants from diverse backgrounds, and their features depend on the characteristics of the participants (e.g., age and needs) and the care facilities in the country where they are implemented (e.g., schools and retirement homes). For example, Skropeta et al. (2014) explored the benefits of an intergenerational playground intervention for older people (with dementia), child carers (parents, grandparents or nannies), and children aged 0–4 years. Thirdly, participants are engaged over periods of various lengths, and IGPs can offer intensive contact, some involving high commitment and daily meetings, while in others, contacts are more optional, with infrequent and low commitment. In an exploratory study, Femia et al. (2008) evaluated the impact of a three-year IGP in a dual-purpose facility on children's socio-emotional development, behavior, school performance, and attitudes and behavior toward older adults. And finally, IGPs are set up with contrasting designs and activities, such as (a) artistic or leisure programs (i.e., gardening, music, reading, arts and crafts) (Belgrave 2011; George and Wagler 2014; Isaki and Harmon 2014), (b) educational programs designed to develop academic knowledge and skills (Fried et al. 2013; Cohen-Mansfield and Jensen 2015), or positive psychosocial change in attitudes among generations (e.g., Herrmann et al. 2005; Dunham and Casadonte 2009), (c) health programs using social contacts between generations to increase physical activities and/or quality of life (Chung 2009; Fujiwara et al. 2009; Perry and Weatherby 2011; Kamei et al. 2011), (d) open-ended activities promoting informal and spontaneous cross-age interactions including conversation and games (Epstein and Boisvert 2006; Lynott and Merola 2007; Femia et al. 2008; Heyman and Gutheil 2008; Holmes 2009; Morita and Kobayashi 2013; Skropeta et al. 2014), (e) taking part together in a pre-existing citizen's project (Marx et al. 2005), and (f) mixed approaches combining several actions and purposes (Gigliotti et al. 2005; Jarrott and Bruno 2007).

Despite the growing interest in IGPs, there have been few reviews of the subject. Kuehne and Melville (2014) examined the published research literature on IGPs, focusing on the theoretical perspectives. The scoping review of Galbraith et al. (2015) summarized the outcomes of IGPs for older persons with dementia and children. Cohen-Mansfield and Jensen (2015) explored the impact of IGPs in schools in the Tel-Aviv Region. And Lou and Dai (2017) used a systematic

review to examine IGPs in East Asia. Those reviews focused on the theoretical background of IGPs, specific areas, and specific participants. The most common model for IGPs is school-based programs and programs with school-age children (Newman and Hatton-Yeo 2008), probably because program design, expected benefits and research are the easiest to implement. Our objective was thus to study the results of research on this type of IGP, involving older people without dementia and children aged 5–12 years. A further reason for choosing children in this age group was that the interactions can be very similar in content and form, and enjoyable for all the participants, whereas adults have to adjust their language and communication with children under 5, and the conversations and concerns of adolescents (over 12) cannot be compared to those of young children. The 5- to 12-year-old age group was thus chosen because of the homogeneity in the interactions between children and older adults. Furthermore, the selection criteria excluded elderly people with dementia syndromes, because they would have had different relationships with the children. Likewise, we opted to focus on a specific age group of children to ensure that their interactions with the elderly would be comparable.

The purpose of this study was thus to review scientific studies about IGPs involving school-age children and older adults (60 years and over). Our specific objectives were: (1) to characterize and define the intergenerational programs investigated, and (2) to identify the benefits for children and older adults.

## Method

### Study design

For the purpose of this study, we conducted a systematic review of the literature. This is a scientific exercise to describe the current state of knowledge in a specific field in order to provide recommendations for future research and practical interventions (Mulrow 1994). Although meta-analyses are commonly performed, this technique was not appropriate in our case, because this type of analysis is only applicable when data are homogenous across studies (Eysenck 1995) and only yield similar quantitative outcomes (Bland, Meurer and Maldonado 1995). Consequently, when the data, sample sizes, and variables are heterogeneous in nature, a non-statistical synthesis is preferred (Eysenck 1995). The literature on the effects of intergenerational programs on children and older people is very heterogeneous in terms of factors such as study design (longitudinal and qualitative studies, longitudinal and quantitative studies, cross-sectional and qualitative studies, etc.), theoretical models (studies based on contact theory, social capital, or with no theoretical model), and type of intergenerational contact

(frequency and duration) and context (educational, opportunities to interact, daily contact). Due to this broad range of variables and instruments used to collect data, we thus decided to conduct a non-statistical synthesis, also known as a systematic review (Bland, Meurer and Maldonado 1995).

### Search strategy

We conducted an exhaustive search of the social sciences literature on intergenerational programs conducted over the last decade. An electronic search was performed using several online databases, including PsycINFO, MedLine, and PubMed. Additional articles were searched by exploring references from retrieved publications. The review of scientific and conceptual writings was carried out using the following key words: [“intergenerational” OR “intergenerational programs”] AND [“children” OR “school-age”] AND [“elderly” OR “aging” OR “older adults”]. The search strategy was deliberately designed to capture a broad range of references, tailored on individual databases, and based both on MESH heading/subject and free text search.

### Selection of studies

Papers were filtered for relevance in two steps. First, two reviewers independently reviewed all the titles and abstracts to exclude irrelevant articles. Only those studies that met all the inclusion criteria and presented none of the exclusion criteria were selected. We included:

1. Studies based on contemporary research on IGPs. For this reason, we included only studies published between January 2005 and January 2015 in order to have a clear overview of the current situation and to identify the benefits of IGPs for the generations today.
2. Studies with different designs (interviews, focus group, experimental research) assessing the benefits of IGPs for children and older adults.
3. Studies with adults aged over 60, wherever they lived (nursing home, assisted living facilities, at home, etc.) and with children aged 5 to 12 years.

We excluded studies that

1. Were not in English
2. Focused only on a description of IGPs or not based on empirical application (i.e., viewpoints of the benefit of IGPs, future trends for IGPs, etc.). Book chapters, comments or guest editorials were also excluded.
3. focused on people only indirectly involved in IGPs (staff, families, etc.)
4. Older adults with dementia (Alzheimer’s disease or related disorders).

After this initial selection by one or both of the reviewers and exclusion of duplicates, the second step involved retrieving the full text of the papers selected in step 1 for independent review by the two reviewers using the same criteria as before. The two reviewers then discussed the papers and agreed on inclusion.

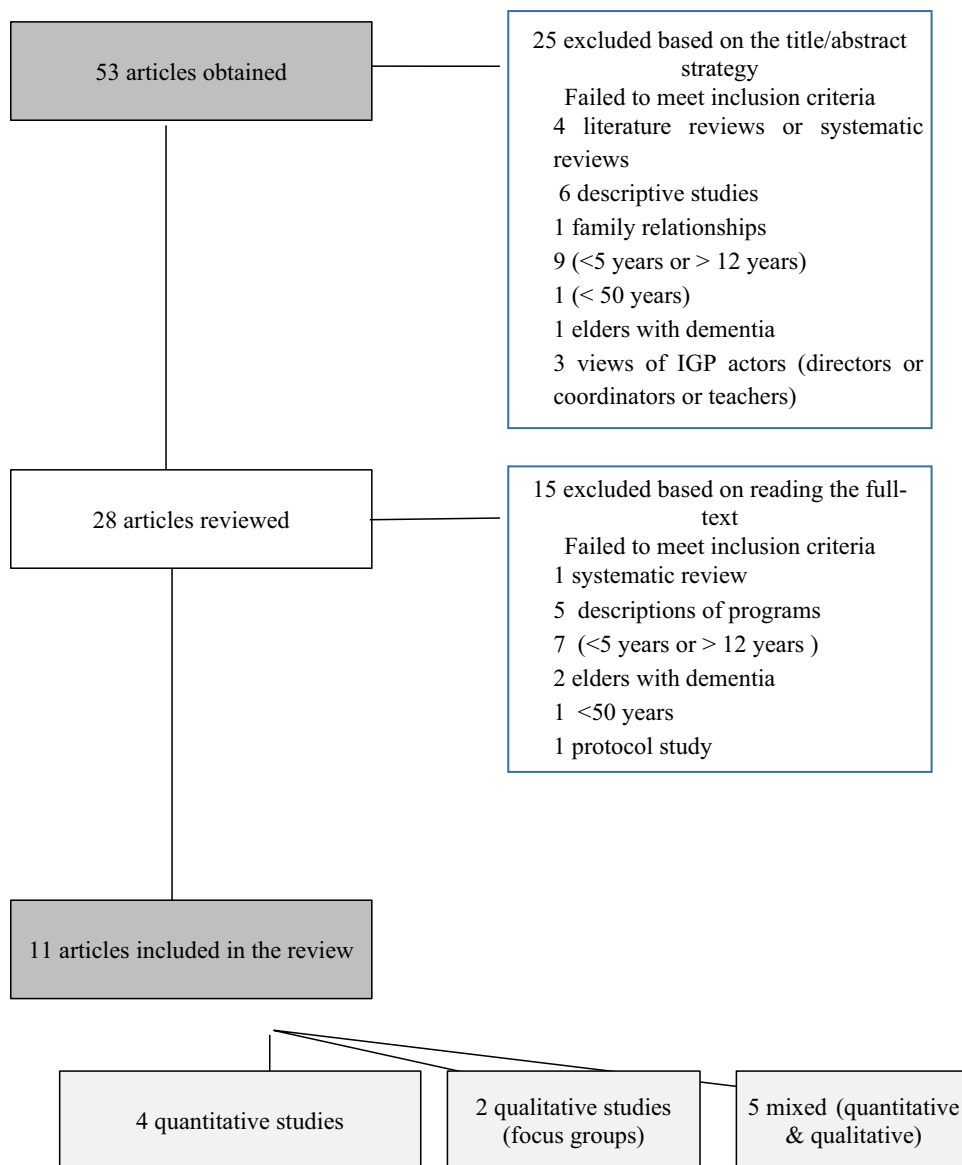
The electronic database search yielded 60 publications. After removal of duplicates, 53 full text articles were kept for detailed analysis. Twenty-five manuscripts were eliminated after reading the abstracts and 15 after reading the full text. Finally, 11 articles were selected. The reasons for elimination and the selection processes are illustrated in Fig. 1.

## Results

### Main characteristics of studies on IGPs

The main characteristics and results of the studies retained are summarized in Table 1. The 11 articles selected included six quantitative studies and two mixed studies (qualitative and quantitative), three using focus groups. Seven of the 11 studies were conducted in the USA, three in Japan and one in Israel. The number of participants in the studies varied considerably (see Table 1), from seven children (Perry and Weatherby 2011; Kamei et al. 2011) to 380 (Dunham and Casadonte 2009), and from five older adults (Biggs and Knox 2014) to 141 (Fujiwara et al. 2009). Eight (out of 11) evaluations of group interventions had sample sizes of

**Fig. 1** The identification of eligible studies for systematic review



**Table 1** Main characteristics of the 11 articles

Authors	Characteristics of sample	IG design and IG activity	Frequency and duration of IG exposure	Study design	Measures	Effects of IGP Summary of main results
Belgrave (2011)—USA	Children N=21 [9–10] Older adults N=26 residents in retirement living facility	Artistic or leisure program (Music program)	10 weeks (3 months) 30-min	Quantitative	Interaction between children and older adults Perceptions toward older adults Well-being of older adults	<i>For children</i> No effect on interaction between children and older adults over time No effect of perception toward older adults over time compared to a control group of children <i>For older adults</i> No effect of interaction between children and older adults over time More positive views toward children Increased well-being
Biggs and Knox (2014)—USA	Children N=13 girls [5–12] Older adults N=5 women over 75 years	Open-ended activities (Intergenerational contact)	Over 6 years Bimonthly	Focus group with children, parents, staff and older adults	Questions about benefits of IG contact	Four IG themes were identified: learning opportunity responses, relationship-building responses, social interaction responses, and personal change responses
Dunham and Casadonte (2009)—USA	Children N=211 Older adults N=11 5 men	Educational programs	14 weeks 10 h per week	Quantitative	Children's attitudes: -Feelings about older adults -Attitudes toward older adults -Expectations about older adults Motivation for helping Intentions to seek help	<i>For Children</i> More positive attitude toward aging than children in control group. The only predictor of intention to seek help from an older adult is expectations about older adults' ability to be helpful and the older volunteers' motives for helping.

Table 1 (continued)

Authors	Characteristics of sample	IG design and IG activity	Frequency and duration of IG exposure	Study design	Measures	Effects of IGP
Fujiwara et al. (2009)— JAP	Children N=141 Older adults N=67 Mean age = 68 15 men	Artistic or leisure program (REPRINTS programs Reading picture books)	18 months About one session per month	Quantitative	1. Social networks 2. Receiving and providing social support 3. Social activities 4. Self-rated health 5. Physical performance	<i>For older adults</i> Regarding social networks, increased frequency of communication with children compared to older adults in control group (social activity club without IGP) Increase in providing social support to friends or neighbors compared to the control group No effect on social activities Increase in self-rated health compared to control group  <i>For children</i> IGP increases empowerment score No effect of IGP on knowledge exchange Improvement in children's perception of their own teaching skills and in their assessment of seniors' learning skills More positive attitudes toward older adults  <i>For older adults</i> IGP increases empowerment score IGP did not change the older adults' assessment of their own teaching skills and knowledge contribution but significantly improved their assessment of children's knowledge contribution and teaching skills More positive attitudes toward children
Gamliel and Gabay (2014)—ISR	Children N=32 [11–12] Older adults N=29 [66–77]	Educational programs (MCP Digital education)	6 months Once a week 2 h per week	Quantitative	Empowerment Knowledge exchange Attitudes toward other group	<i>For children</i> IGP increases empowerment score No effect of IGP on knowledge exchange Improvement in children's perception of their own teaching skills and in their assessment of seniors' learning skills More positive attitudes toward older adults  <i>For older adults</i> IGP increases empowerment score IGP did not change the older adults' assessment of their own teaching skills and knowledge contribution but significantly improved their assessment of children's knowledge contribution and teaching skills More positive attitudes toward children





Table 1 (continued)

Authors	Characteristics of sample	IG design and IG activity	Frequency and duration of IG exposure	Study design	Measures	Effects of IGP
Murayama et al. (2015)—JAP	Children at elementary school and kindergarten Older adults N=80	Artistic or leisure program (REPRINTS program: Reading picture books)	3 years Every 1 to 2 weeks 15–30 min	Quantitative	Sense of coherence Comprehensibility Manageability Meaningfulness Depressive mood	Summary of main results  <i>For older adults</i> Sense of meaningfulness significantly increased for members of the intervention group with no change in control group (hobbies club without IG activities)  Multiple mediation analysis revealed that participation in the IGP was associated with a sense of manageability which was also significantly related to depressive mood  <i>For children and older adults</i> No increase in physical activity for either children or older people  No results indicated for enjoyment and feasibility
Perry and Weatherby (2011)—USA	Children N=7 [8–14] Mean age = 10 3 girls Older adults N=7 [60–85] Mean age = 70 6 women	Health programs (Physical activity—Tai Chi)	8 weeks Weekly 60 min	Quantitative and Focus group	Physical activity Enjoyment Feasibility Evaluation	



**Table 1** (continued)

Authors	Characteristics of sample	IG design and IG activity	Frequency and duration of IG exposure	Study design	Measures	Effects of IGP Summary of main results
Varma et al. (2014)— USA	NI Older adults N=46	Educational programs (Experience Corps Education program)	One school year 15 h per week	Focus group of older adults	Questions about stressors (negative experiences) and rewards (positive experiences)	5 key domains emerged: (1) <i>Intergenerational</i> Stressor: children's prob- lem behavior Rewards: working with and helping children, observ- ing/facilitating improve- ment or transformation in a child, and developing a special connection with a child) (2) <i>External to EC</i> Stressor: poor parenting and children's social stressors (3) <i>Interpersonal</i> Stressors: challenges in working with teachers Reward: bonding/making social connections (4) <i>Personal</i> Rewards: enjoyment, self- enhancement/achieve- ment, and being/feeling more active (5) <i>Structural</i> Reward: satisfaction with the structural elements of the EC program

NI not indicated

Experience Corps: program that helps struggling students improve readers. <http://www.aarp.org/experience-corps/>

REPRINTS Research of Productivity by Intergenerational Sympathy

MCP Multigenerational Connection Program

less than 100 (children and older adults) (Marx et al. 2005; Murayama et al. 2015; Belgrave 2011; Kamei et al. 2011; Perry and Weatherby 2011; Biggs and Knox 2014; Gamliel and Gabay 2014; Varma et al. 2014). Over half (eight out of 11) had sample sizes of between 21 and 100 (Marx et al. 2005; Murayama et al. 2015; Fujiwara et al. 2009; Belgrave 2011; Kamei et al. 2011; Perry and Weatherby 2011; Gamliel and Gabay 2014; Varma et al. 2014). Two studies (out of 11) had sample sizes of less than 20 (Perry and Weatherby 2011; Biggs and Knox 2014). Characteristics of the participants and information about them also varied: half the studies included information about both children and older adults (Kamei et al. 2011; Perry and Weatherby 2011; Belgrave 2011; Biggs and Knox 2014; Gamliel and Gabay 2014), four studies were of older adults only (Marx et al. 2005; Murayama et al. 2015; Fujiwara et al. 2009; Varma et al. 2014) and two studies were of children only (Lynott and Merola 2007; Dunham and Casadonte 2009). Four publications presented IGPs with comprehensive examination of their theoretical background, comprehensive description of the program, and standardized measures (Murayama et al. 2015; Lynott and Merola 2007; Fujiwara et al. 2009; Perry and Weatherby 2011). In addition, eight studies used a pre-test and a post-test (Marx et al. 2005; Murayama et al. 2015; Lynott and Merola 2007; Dunham and Casadonte 2009; Fujiwara et al. 2009; Belgrave 2011; Perry and Weatherby 2011; Gamliel and Gabay 2014), and five studies had a control group (Murayama et al. 2015; Dunham and Casadonte 2009; Fujiwara et al. 2009; Belgrave 2011; Kamei et al. 2011), which increased the methodological quality of these articles, reporting pre- and post-study measures, with or without implementation of the intergenerational program. It should be noted that the majority of studies failed to provide a clear description of the sample; most only specified the sample size, without giving mean age, gender or socio-economic status of the participants. Likewise, we noted the absence of information about the older people's health or cognitive functioning, and the absence of information about children's development and characteristics.

### Definition and characterization of IGPs

Our first objective was to characterize the IGPs selected for our review, and to identify their contexts, frequency and duration. The characteristics of the IGPs described in the selected articles are shown in Table 1. Three were identified as “educational programs” (Dunham and Casadonte 2009; Gamliel and Gabay 2014; Varma et al. 2014), and three promoted intergenerational “artistic programs” with interaction through music (Belgrave 2011) and reading picture books to children (Murayama et al. 2015; Fujiwara et al. 2009). One was organized “around a citizen's project”, namely community-service activities (Marx et al. 2005).

One promoted a “health program” involving physical activity (Tai Chi) for older adults and children (Perry and Weatherby 2011). Finally, three programs involved “open-ended activities”: organization of a girl scout group attending an assisted living facility (Biggs and Knox 2014), a dual-purpose facility bringing older adults and children into everyday contact (Kamei et al. 2011), and one organized around creating biographies and stories (Lynott and Merola 2007). Concerning the frequency and duration of the IG program (see Table 1), in six of the 11 studies, children and older adults met for 6 months or less (Lynott and Merola 2007; Dunham and Casadonte 2009; Belgrave 2011; Kamei et al. 2011; Perry and Weatherby 2011; Gamliel and Gabay 2014). In the remaining five studies, the participants met over a longer period: 6 years for Biggs and Knox (2014), 3 years for Murayama et al. (2015), 18 months for Fujiwara et al. (2009), and 1 year for Marx et al. (2005) and Varma et al. (2014). Most programs involved regular meetings: daily (Kamei et al. 2011), 10–15 h per week (Dunham and Casadonte 2009; Varma et al. 2014), weekly (Murayama et al. 2015; Belgrave 2011; Perry and Weatherby 2011; Gamliel and Gabay 2014), or bimonthly or monthly (Marx et al. 2005; Lynott and Merola 2007; Fujiwara et al. 2009; Biggs and Knox 2014).

### Benefits for school-age children and older adults

Our second objective was to identify the benefits for school-age children and older adults of participating in the IGPs. First, we analyze the 9 quantitative studies, and then, we report the results of the 3 qualitative studies (focus groups and interviews). One article is examined in both categories (quantitative and qualitative).

### Effects of IGPs on children

Six quantitative studies examined the effects of IGPs on children's attitudes and/or behavior. As shown in Table 1, two of these studies found that intergenerational programs can have a positive effect on children's attitudes (Dunham and Casadonte 2009; Gamliel and Gabay 2014), one had a mixed effect (Lynott and Merola 2007), and three had no effect (Belgrave 2011; Perry and Weatherby 2011; Kamei et al. 2011). With regard to the positive effects, results indicate that children had more positive attitudes toward the older people and understood them better after an IGP (Dunham and Casadonte 2009; Gamliel and Gabay 2014). In addition, Gamliel and Gabay (2014) observed that children discovered that they could be good teachers, while Dunham and Casadonte (2009) observed that children with more positive attitudes toward older adults (e.g., seeing them as being helpful in an IG science program) were more likely to seek their help. Lynott and Merola (2007) evaluated children's

attitudes toward older people during an IGP. Among the 17 attitudes assessed, only 9 improved over time (intelligence, behaves appropriately, valuable, healthy, good, relaxed, rich, warm and clean). In an IG music program, Belgrave (2011) found no effect on the interaction between children and older people over time, and no effect on children's perceptions of older people. Similar results were observed in Kamei et al. (2011). Finally, in a study of IG health programs (Tai chi), Perry and Weatherby (2011) observed no increase in physical activity.

### Effects of IGP for older adults

As shown in Table 1, seven of the 9 quantitative studies examined the effects of IGPs on older adults. Four studies found positive outcomes (Belgrave 2011; Fujiwara et al. 2009; Gamliel and Gabay 2014; Murayama et al. 2015), one had a mixed effect (Kamei et al. 2011), one had a specific effect (comparison of two different IGPs; Marx et al. 2005) and one had no effect (Perry and Weatherby 2011). Regarding the positive effects, the older participants perceived a greater sense of meaningfulness and manageability (Murayama et al. 2015), increased their empowerment score (Gamliel and Gabay 2014), had more positive views of children (Belgrave 2011; Gamliel and Gabay 2014), and increased the frequency of their communication with children (Fujiwara et al. 2009). In Fujiwara's study, older adults showed an improvement in their self-rated health after the IGP. In the study by Kamei et al. (2011), older participants had fewer depressive symptoms and better mental health over the period of the program, but their perceptions of children did not change significantly. Marx et al. (2005) compared two IGPs: traditional IGPs (e.g., playing board games) and a community-service activity. Results indicated that older participants preferred to be engaged in a community-service activity rather than in a traditional activity. Finally, in an IG health program (Tai chi), Perry and Weatherby (2011) observed no increase in the physical activity of the older people.

### Focus groups and interviews

To allow participants to express their feelings, knowledge, and ideas about intergenerational programs and about their own and the other generation, two studies used focus groups (Varma et al. 2014; Biggs and Knox 2014) and one used interviews (Kamei et al. 2011). Varma et al. (2014) and Biggs and Knox (2014) found that the views of both older adults and children changed. More positive attitudes appeared in children's essays after contact with older adults in an IG program (Biggs and Knox 2014). Varma et al. (2014) described the stressors (e.g., children's problem behavior, poor parenting, children's social stressors) and

rewards (e.g., helping children, observing changes in a child, and developing a special connection with a child) that older adults in focus groups encountered in the intergenerational program. Kamei et al. (2011) did not find any significant change for either children or older adults after participating in an IGP.

## Discussion

This study is a systematic review of the literature examining the effects of intergenerational programs on school-age children and older adults (60 years and over). Our objectives were to characterize and define IGPs involving school-age children and older adults, and identify the benefits for both groups. Despite variations in data collection in the 11 studies that were selected, we will focus on the most salient benefits of IGPs that emerge from our systematic review. We will then discuss the issues of IGP descriptions and outcome measures, and possible improvements for these two points.

While some studies highlight the benefits of IGPs for children and older adults, it should be noted that the benefits are not systematic (or are not assessed or adequately assessed). Indeed, among the six quantitative studies that evaluated the effect of IGPs on children, two found positive effects (Dunham and Casadonte 2009; Gamliel and Gabay 2014), one found a mixed effect (Lynott and Merola 2007), and three found no effect (Belgrave 2011; Perry and Weatherby 2011; Kamei et al. 2011). Of the seven quantitative studies that evaluated the effect of IGPs on older adults, four found positive outcomes (Belgrave 2011; Fujiwara et al. 2009; Gamliel and Gabay 2014; Murayama et al. 2015), one found a mixed effect (Kamei et al. 2011), one found a specific effect (comparison of two different IGPs, Marx et al. 2005), and one found no effect (Perry and Weatherby 2011).

Our systematic review highlights the conditions for an IGP to be effective and beneficial. Based on our results, the most salient factors for the success of the program and the benefits to participants concern first the meaningfulness of the activity, and secondly the knowledge that participants have of each other. First, the meaningfulness of activities seems to be essential, and particularly the sense of being useful. A feeling of being useful and competent seems to bring enjoyment to both groups of participants, although a real exchange based on mutual understanding and acceptance depends on the structure of the program. Marx et al. (2005), who compared community-service activities (e.g., making first-aid kits for a homeless shelter) and traditional activities (e.g., playing board games) found that the seniors were more enthusiastic about the community-service project, because they felt they had been more useful. The same result emerges from the qualitative study of Varma et al. (2014) in which the older participants expressed the view that being

able to help or provide meaningful assistance to children is a key issue of participating in an IGP. In the program based on digital technology (Gamliel and Gabay 2014), children were given the role of teacher (older adults learned from them). This increased their confidence by giving them a sense of being valued, accepted, useful and respected. By contrast, in Belgrave's study (2011), the authors were surprised by the infrequency of helping behavior, because older adults often enjoy helping others. It is possible that some activities could be an impediment (e.g., sitting side by side and facing an instructor). To be successful, IGPs should provide all the participants with a sense of being useful and competent. Secondly, changes in behavior observed in IGPs seem to be largely related to the knowledge that participants have of the other generation. This can raise apprehensions, such as children's problem behavior, children's social stressors or the challenge of working with children (Varma et al. 2014). In two studies, children benefited from being given information about seniors before the IG contact (Lynott and Merola 2007; Dunham and Casadonte 2009), or from learning how to be a good teacher (Gamliel and Gabay 2014), involving a significant commitment and level of participation. More particularly, Dunham and Casadonte (2009) observed three important factors that seem to affect children's reactions: (1) they need to know that the volunteers are competent and willing to help, (2) they need to know that the volunteers are in the classroom because they like children and want to help them, and (3) the participants need to get to know each other before the project starts. Thus, training could help ensure the role played by each participant in the different situations (learning about the needs and experiences of the other generation), and positive modeling could provide helpful support before and during the program. Taking time to ensure understanding between young and older people can have positive benefits for all, encouraging communication and exchange; thus, preparing each group to encounter the other generation can help ensure the success of intergenerational programs. Getting to know each other, observing and discovering others' needs, particularities and ways of interacting are some of the main requirements of intergenerational programs, and discovering new skills is one of the main beneficial aspects of these programs. This supports the view that intergenerational programs take time to set up, and that older adults and children gradually gain in positive emotions and interaction behaviors (Belgrave 2011).

In addition to identifying success criteria, this systematic review also highlights a number of weaknesses of IGP research, mainly regarding methodology. To provide an overview, we will now examine the description of programs, participants and the measurement of benefits for participants. Descriptions of the programs are extremely varied, often succinct and leaving out a great deal of essential information about their organization, context, justification

and related societal issues. In fact, few studies provide a clear description of their sample, particularly of the elderly groups. For example, they provide no information about the participants' physical health, functional capacity and social activities, all of which may be relevant to the success of the IGP, nor about where they live (e.g., in their own homes or in retirement homes) (Belgrave 2011). Similarly, little information is provided about the children's age and level of education, although these are important factors for academic and socio-emotional development, and more information is also needed about their experience with their own grandparents and their social skills. Indeed, the mixed results observed in this systematic review could be due to the heterogeneity of study methodologies and/or IGPs. Furthermore, more standardized measurements should be provided, particularly for older people without dementia and for school-age children who can be assessed and can respond to questionnaires. Reviewing previous studies on the benefits of these IGPs for children and older adults and repeating comparable, if not identical, measures would provide valuable information about the impacts on participants, and allow meaningful comparisons to be made.

Finally, it should be noted that only 11 studies met the inclusion criteria for this systematic review. Given the interest in IGPs in recent years, this may seem surprising. In fact, while there are a large number of studies, they are mostly descriptive (implementation of programs, activities, comments on activities, etc.) and do not evaluate the effects on the intergenerational relationships (with no defined outcomes).

### Recommendations for future IGPs

These observations lead to a number of recommendations for future IGPs and research on these programs. Studies should include detailed information about the participants (age and gender of all participants, health status and place of residence of the older people, and characteristics of children, including their perception of older people), the motivations of the participants (how they are informed and prepared to participate in the IGP), the quality of interactions (number, duration, and frequency), the activities. Studies that report the effects of intergenerational programs should provide as much information as possible about the participants and the actual programs. In addition, when these programs are long term, they should be monitored regularly in order to show when effects are observed, whether these effects increase over time, whether a ceiling effect is observed, or whether improvements continue. Finally, there are undoubtedly intergenerational programs being implemented around the world, and in-depth accounts and analysis of their benefits would be invaluable. The results of current studies show that intergenerational programs can not only improve the quality of

relationships between participants, but can also have cognitive, health and quality of life benefits. We believe that they can be an important means of changing people's perceptions of the elderly, showing how they can continue to play an important role in society, even at an advanced age. These programs deserve further study to highlight these benefits for children and the elderly. Our systematic review provides useful information for professionals interested in setting up IGPs and for researchers wishing to highlight the value of these programs.

### Current questions about intergenerational programs

This study highlights the characteristics and benefits of intergenerational programs, which generally aim to provide enjoyment, build confidence and change the attitudes of both generations. IGPs are often perceived positively, and are generally expected to be beneficial, based on the assumption that contact is sufficient to bring about positive change for all participants. However, our study also shows that the success of an IGP is not so self-evident. Extending the work of Kuehne and Melville (2014) and Galbraith et al. (2015), we focused on the conditions for successful implementation of IGPs and the IGP study. Although the articles selected for our study complement our knowledge of successful programs, we need more information about the objectives and participants of IGPs, and the measures should be more detailed to better understand the benefits and to repeat the most interesting experiences. While we have sought to provide a thorough overview of the benefits for seniors and children by adopting a comprehensive research strategy, we recognize that other variables can influence the success of IGPs, particularly the involvement of parents, teachers and caregivers, which were not included in this work. Similarly, planning, organizing, facilitating and monitoring progress during the IGP are essential to its success. Future studies should therefore consider looking for other variables to better understand the benefits of IGPs.

**Acknowledgements** This work was supported by the EA-2114 Psychologie des Ages de la Vie (Francois-Rabelais University).

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