

Intergenerational Programs Review: Study Design and Characteristics of Intervention, Outcomes, and Effectiveness

Teresa Martins, Luís Midão, Silvia Martínez Veiga, Lisa Dequech, Grazyna Busse, Mariola Bertram, Alix McDonald, Gemma Gilliland, Carmen Orte, Marga Vives & Elísio Costa

To cite this article: Teresa Martins, Luís Midão, Silvia Martínez Veiga, Lisa Dequech, Grazyna Busse, Mariola Bertram, Alix McDonald, Gemma Gilliland, Carmen Orte, Marga Vives & Elísio Costa (2019) Intergenerational Programs Review: Study Design and Characteristics of Intervention, Outcomes, and Effectiveness, *Journal of Intergenerational Relationships*, 17:1, 93-109, DOI: [10.1080/15350770.2018.1500333](https://doi.org/10.1080/15350770.2018.1500333)

To link to this article: <https://doi.org/10.1080/15350770.2018.1500333>



Published online: 16 Dec 2018.



Submit your article to this journal [↗](#)




View Crossmark data [↗](#)

SCHOLARLY



Research

Intergenerational Programs Review: Study Design and Characteristics of Intervention, Outcomes, and Effectiveness

Teresa Martins^a, Luís Midão^a, Sílvia Martínez Veiga^a, Lisa Dequech^a,
Grazyna Busse^b, Mariola Bertram^b, Alix McDonald^c, Gemma Gilliland^c,
Carmen Orte^d, Marga Vives^d, and Elísio Costa ^a

^aUCIBIO, REQUIMTE, Faculty of Pharmacy and Competence Center on Active and Healthy Ageing of University of Porto (Porto4Ageing), University of Porto, Porto, Portugal; ^bEducational Centre for Intergenerational Integration HIPOKAMP, Lodz, Poland; ^cThe Centre for Lifelong Learning, University of Strathclyde, Glasgow, UK; ^dDepartment of Pedagogy and Didactics, University of Balearic Islands, Balearic Islands, Spain

ABSTRACT

There is a growing interest in intergenerational connectivity through intergenerational programs. In this work, a review of intergenerational programs was performed, with focus on the program design and objectives as well as in their outcomes.

We used a systematic review method in which we screened 3,796 articles. After analyzing titles, abstracts, and full paper analysis, 16 articles were retained. Each study was reviewed, and data were extracted related to target population, study design, characteristics of intervention, outcomes, and effectiveness.

Intergenerational programs included educational programs and art, information technology development, cultural heritage, health education, and therapeutic activities. Most of the programs collected both quantitative and/or qualitative data. Seven studies collected data in the beginning and at the end of the program. Significant diversity in sample size and intervention length was found. Measurement of outcomes was performed in both young and/or elderly group of participants. Programs impact evaluation varied between studies, including validated scales, interviews, observation, focus groups, and conversation analysis, narratives, videotaped sessions, and field notes.



Our study highlighted the diversity in the design of studies and in the program's effectiveness evaluation. More randomized design studies are required to support researchers and practitioners in the development of future intergenerational programs.

KEYWORDS

Elderly; intergenerational; systematic review; young people

Introduction

The number of people worldwide aged over 60 years is expected to double by 2050 and more than triple by 2100, which is related to the increase in average life

CONTACT Elísio Costa  emcosta@ff.up.pt  Laboratory of Biochemistry, Department of Biological Sciences, University of Porto, Rua de Jorge Viterbo Ferreira, 228, Porto 4050–313, Portugal

Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/wjir.

expectancy (Bongaarts, 2009; Raleigh, 2009). Reduction in child mortality, improved access to employment opportunities and education, more gender equality, and the promotion of reproductive health and access to family planning have all contributed to reductions in birthrates (Canning & Schultz, 2012). Moreover, advancements in public health and medical technologies, along with improvements in living conditions, mean that people are living longer and, in many cases, healthier lives than ever before, particularly at advanced ages. This trend emerged first in more economically developed countries, but we can also see it now in economically developing countries (Lunefeld & Stratton, 2013).

This aging population is associated with new social issues, such as the increase in cases of elderly people suffering from isolation and loneliness, for whom social and interpersonal relationships could be beneficial. In this scenario, “intergenerational relations” could constitute an opportunity for an exchange of experiences, knowledge and values between generations, as well as improvement in the quality of life of the elderly (Courtin & Knapp, 2017; Liu, 2017). Intergenerational relationships must be understood as a form of lifelong learning (Withnall, 2017).

There is a growing interest in intergenerational connectivity through intergenerational programs, which has emerged as a response to the demographic changes and its interrelated transformations, namely at economic, social, and familiar levels (Seedsman, 2013; Vieira & Sousa, 2016). Intergenerational programs are tools that allow for the exchange of resources and learning among older and younger generations for the sake of social and individual benefits (Granville, 2002; Vieira & Sousa, 2016). Most of the intergenerational programs are implemented to change stereotypes and attitudes between younger and older people, with good results (Dionigi, 2015). However, these programs can also be used with other objectives, namely to promote active aging among older adults.

In literature, there is growing evidence that supports the implementation of intergenerational programs and their success predictors. However, the definition of intergenerational programs is not clear, its effectiveness is weak and there is a need to build a firm conceptual framework to help in its development (Jarrott, 2011; Vanderven, 2011). In this work, a systematic review of intergenerational programs was performed, with focus on the program design and objectives as well as in their outcomes. This work could be important to support researchers and practitioners in the design and implementation of future intergenerational programs, and contribute to the process of conceptual definition of these programs.

Material and methods

Search strategy and selection

An online database search was conducted on Education Resources Information Centre (ERIC), PubMed, and PsycINFO databases, using “intergenerational

programs,” “intergenerational activities,” or “intergenerational interaction” as keywords. The initial search resulted in 3,796 publications. This was followed by a selection process guided by the inclusion and exclusion criteria: (a) published in English; (b) publication between 2008 and 2016; (c) intergenerational intervention involving older adults (50 or more years) and younger people (30 or less years); (d) presented an experimental design or a case study design; (e) included data about study design and characteristics of intervention, outcomes, and effectiveness. We also excluded duplicate publications and irrelevant studies. After title and abstract analysis, we excluded 3,755 articles. After full paper analysis, we excluded 25 articles due to the absence of data about evaluation of the intergenerational program, while 16 articles were retained (Figure 1). We considered quantitative, qualitative, and mixed studies.

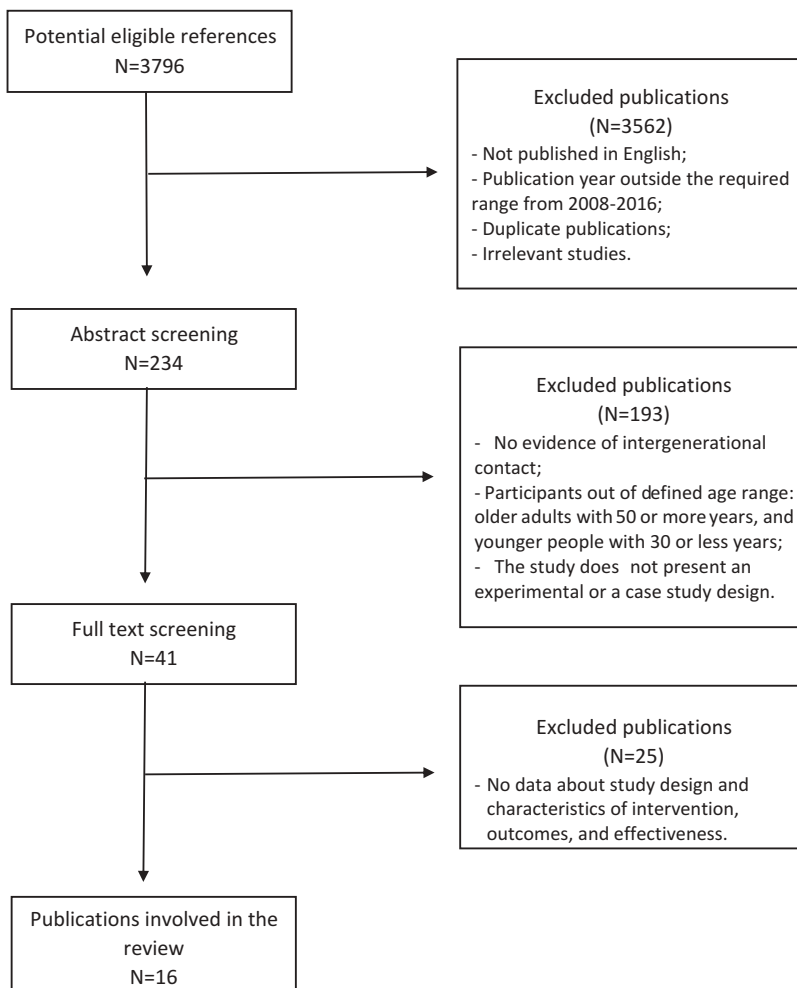


Figure 1. Flow diagram of selection studies.

Data extraction

From selected articles, each study was reviewed and data were extracted, including target population, study design and setting, aims, characteristics of intervention, outcomes, and effectiveness of the intergenerational program. We also analyzed the articles according to the classification of Kuehne and Melville (Kuehne & Melville, 2014), where they reviewed the theories mobilized in intergenerational practice and organized them in theories that were focused on people and groups in interactive contexts, and others focused on the individual development. Considering the first group of theories, the authors found four meaningful references:

- *Contact theory*—if the appropriate conditions are guaranteed, the interpersonal contact can effectively reduce prejudice and discrimination among groups with different ages and positively improve attitudinal change between generations;
- *Social capital theory*—people and families fit into contexts/communities and the social relationships they establish in these communities influence individual and community well-being, resulting in social capital that is generated when people work together toward a common goal, facilitating learning;
- *Situated and contextualized learning theory*—intergenerational meetings where children and older people work together on a task, in which an individual action may have real consequences;
- *Empowerment theory*—intergenerational relationships emerge as a community strategy to obtain more empowerment, increasing the access to resources for the younger and older people, contributing to the awareness that taking care of each other is a shared responsibility.

In the group of theories focused on the individual development, the authors identified two theories:

- *Human development theory*—the psychosocial and educational benefits of the interaction between older and younger people are highlighted;
- *Personality theory*—the importance of others in interpersonal relationships and in the construction of personality is evidenced.

Results

The results of this systematic review were organized around seven major aspects: study population, study design and setting, theories mobilized, aims, intervention content, outcomes measured, and effectiveness.

Table 1 shows detailed information for each of the publications included in this systematic review. In the 16 articles evaluated, we find a significant diversity in relation to the population sample. Analyzing the sample size, we noticed that we have articles where the sample size of the younger participants ranged from 7 to 760 participants. In case of older participants, the samples size ranged between 6 and 400 participants. Considering the total sample, in 7 studies less than 40 people participated, in 5 studies there were between 40 and 100 participants, and in 4 of the studies more than 100 people were involved. We also found that the studies had different focus/target audiences. Two studies were focused on older adults (Morita & Kobayashi, 2013; Tabuchi & Miura, 2016), four had younger participants as their target (Chase, 2011; Faria, Dauenhauer, & Steitz, 2010; Werner, Teufel, Holtgrave, & Brown, 2012; Whiteland, 2016), and the biggest number of articles ($n = 10$) focused on both groups. We also found that 31.25% ($n = 5$) and 37.5% ($n = 6$) programs involved children who were 8–12-years old and university students, respectively. In the groups of older participants, we found a variation of ages over 50.

Most of the programs collected both quantitative and qualitative data (43.75%, $n = 7$), 25% ($n = 4$) collect only quantitative, and 31.25% ($n = 5$) only qualitative data. Seven studies (43.75%) collected data at the beginning and at the end of the program (pre- and post-test); four of them collected quantitative and qualitative data, two only quantitative, and one only qualitative data. Only two studies presented a case-control design. The programs were run in schools or universities ($n = 6$), in the community ($n = 2$), in senior centers ($n = 5$), out-of-school environments ($n = 1$), in religious residences ($n = 1$), or via e-mail ($n = 1$).

In terms of theories mobilized in the intergenerational programs, we can relate 14 studies with people and groups in interactive contexts theories (5—contact theory, 4—situated and contextualized learning theory, 3—social capital theory, and 2—empowerment theory) and 2 studies with individual development theory (personality theory).

With regards to intervention length and activities, there was high variability between studies. The length ranged from one single session (Tabuchi & Miura, 2016) to four academic semesters (Clyne, Cordella, Sch??Pbach, & Maher, 2013; Faria et al., 2010; Gamliel & Gabay, 2014; Hegeman, Roodin, Gilliland, & Ó'Flathabháin, 2010). In terms of key activities, intergenerational programs were based on educational programs (31.25%, $n = 5$), which included activities from children and adults reading together, to learning activities integrated in course curriculums in group settings to activities involving one-on-one contact for several hours, to classes in a nursing/retirement homes with active participation of older adults in the course activities. We also identified art activities (12.5%, $n = 2$), like creating hand puppets, writing scripts and dramatizing personal stories, intergenerational



Table 1. Characteristics of the 16 articles included in this revision.

REF	Intervention content					Outcomes measures			Effectiveness		
	Location	Study population	Study design and setting	Theories mobilized	Aims	Length	Key activities	Method instrument		Contents	YG
(Whitehead, 2016)	USA	15 students (11–12 years old) 10 older adults (55 years old or +)	Mixed method Elementary classroom Pre-post-test	Contact theory	Changes in attitudes toward aging and the elderly	45 min/week/5 weeks	Art	YV; CV/VP FAQ CVAQ	Vision, attitude, and perception of children toward older adults	Although no changes in attitudes were observed, child developed a new meaning toward their understanding of aging and older adults	Not evaluated
(Hewson et al., 2015)	USA	25 children (15 months–5-years old) 10 older adults (50-years old or +) Control group: 20 children (12 months–5 years) 4 older adults (65 years old or +)	Quantitative data Adult day services	Contact theory	Compare the differences in social behaviors caused by intergenerational programs based on contact theory in comparison to intergenerational programs without the contact theory tenets.	20/30min sessions	Cultural heritage and health education	YG & EG: IOS	Social behavior	Contact theory led to more desirable social behavior of both elders and children during the intergenerational program, compared with an intergenerational program that lacks some or all the contact theory tenets. Intergenerational programs contact theory based had: >Rates of intergenerational interaction >Rates of solitary behavior < Rates of watching (without interaction)	

(Continued)

Table 1. (Continued).

REF	Intervention content					Outcomes measures			Effectiveness		
	Location	Study population	Study design and setting	Theories mobilized	Aims	Length	Key activities	Method instrument	Contents	YG	EG
(St John, 2009)	USA	12 children (8–10-years old) with language and reading concerns 6 older adults with mild dementia and neurocognitive deficits	Mixed method Assisting living residence Pre-post-test	Contact theory	Feasibility of an intergenerational program in people with communication disorders	45 min/week/8 weeks	Education	YG: C/voA EG: MMSE AMCQ	Children's perception toward elderly Mood, communication, and cognitive status of the elderly	Children's perceptions face to older adults improved Changes in reading behaviors	Improvements in the quality of life of the elderly and positive changes in mood and affection
(Gamliel & Gabay, 2014)	Israel	32 children (11–12-years old) 29 older adults (66–77-years old)	Mixed method Primary schools	Situated and contextualized learning theory	Effects of digital education on intergenerational empowerment and social interaction	2h/week/1 semester	Computer use, learning	YG & EG: Closed-ended interviews; 28 items survey; observation	Empowerment, knowledge exchange, and attitude toward the other group	Knowledge exchanges empowered both groups and allowed them to reach out to each other Greater communication and perception between groups	
(Wilson et al., 2013)	Canada	7 university social work students 7 older adults	Mixed method University	Situated and contextualized learning theory	Facilitation an intergenerational Digital Storytelling course	5 days	Cultural heritage	YG: 17 item survey EG: 22 item survey	Experience with the intergenerational component, overall experience with the workshop, learning experience	Intergenerational component was identified as a highlight of the course Improved awareness of older adult issues and knowledge of working with aging populations	Better perception and understanding of younger generations

(Continued)



Table 1. (Continued).

REF	Location	Study population	Study design and setting	Theories	Intervention content			Outcomes measures			Effectiveness	
					Aims	Length	Key activities	Method	Instrument	Contents		YG
(Werner et al., 2012)	USA	760 children (9-years old) Older adults	Quantitative data Pre-post-test Out-of-school environments	Theories mobilized Situating and contextualized learning theory	Evaluation of an intergenerational program for childhood obesity prevention	10 lessons/4 to 10 weeks	Health education	Key activities	YG: AGS	Identification of changes in children nutrition and physical activity, >Likely to read food labels >Motivation to knowledge and behaviors >Physical activity <Daily screen time	>Fruit and vegetable consumption >Likely to read food labels >Motivation to knowledge and behaviors >Physical activity <Daily screen time	Not evaluated
(Jarrott & Smith, 2011)	Japan	22 undergraduate students 25 older adults (60–75-years old)	Quantitative data Community centers	Social capital theory	Promoting intergenerational through engagement in community service	54 contact hours	Education	Education	YG: 20 item survey EG: 20 item survey	Intergenerational program characteristics and impact	Improvement in relationships with the elderly and understanding of aging	Increased motivation to learn
(Clyne et al., 2013)	Australia	29 students Adults	Qualitative data University	Empowerment theory	Intergenerational encounters to promote language competences and feelings of belonging	1 h/fortnight/1 semester	Education and cultural heritage	Education and cultural heritage	YG: Focus group/ Questionnaires/ diaries EG: Phone interviews YG & EG: Analysis of conversations between both generations	Perception of benefits to the students' empathy and understanding of linguistic gains	> Conversational skills Lasting relationships were built	> Understanding of younger people > Satisfaction from feeling and being useful to the community > Feeling of inclusion Lasting relationships were built

(Continued)

Table 1. (Continued).

REF	Intervention content				Outcomes measures			Effectiveness			
	Location	Study population	Study design and setting	Theories mobilized	Aims	Length	Key activities		Method instrument	Contents	YG
(Isaki & Harmon, 2015)	USA	225 faculty students 148 older adults	Mixed method Pre-post-test	Social capital theory	Build a multidisciplinary base for gerontology service learning	Several hours	Education	YG & EG: 3 surveys	Civic engagement of young people, and attitudes toward the elderly	Satisfaction with the intergenerational activities Self-knowledge and perception of their own value	
(Faria et al., 2010)	USA	37 graduate students 400 older adults with varying degrees of independence	Qualitative data	Situated and contextualized learning theory	Actively promote learning opportunities for students and older adults	1 semester	Education	YG: 3 questions survey	Generative scale in the elderly "Explicit" and "implicit" pedagogy of the course that details students' educational growth	Intergenerational service-learning course work may help foster geriatric competencies among graduate and undergraduate students.	Not evaluated
(Chase, 2011)	USA	23graduate students 34 older adults Control group: 29 students	Quantitative data Pre-posttest	Contact theory	To determine if the use of an older e-mail pal was an effective way to influence student attitudes.	6 weeks	Computer use learning	YG: ASD (Polizzi's revised version)	Children's attitudes toward elderly	Significant improvement in attitude toward older adults as compared to the control group.	Not evaluated

(Continued)



Table 1. (Continued).

REF	Location	Study population	Study design and setting	Theories mobilized	Intervention content			Outcomes measures			Effectiveness
					Aims	Length	Key activities	Method instrument	Contents	YG	
(Tabuchi & Miura, 2016)	Japan	Male participants (18–22years) 48 older males (63 –77- years old)	Mixed method	Personality theory	Effects of young people's reactions to changes in older people's generativity	1 session	Therapy reminescence	JGS Analysis of narratives	Generativity	Not evaluated	>Generativity when young recipients responded in an empathic manner <Generativity when the young recipients responded in a neutral manner.
(Hegeman et al., 2010)	USA	509 students 312 older adults	Mixed method Pre-posttest	Social capital theory	Engage three generations in joint service-learning projects.	4 semesters	Education	CEQ LGS YG & EG: SS	Civic engagement Generativity Satisfaction	No civic engagement differences were assessed Both generations were satisfied with the program	
(Hatton-Yeo & Ohsako, 2000)	USA	7 children (3–16months) 8 women (ages 70–94)	Qualitative data	Contact theory	To explore two unique populations actively participating in an intergenerational music experience	6/11 h sessions	Art	Analysis of the videotaped sessions Field notes EG: Journals; Questionnaire	Participants' awareness of others, particularly in dyadic relationships, and how interactions facilitate learning	Creation of affection bonds Relationships have sustained on-going interest and enthusiasm Dynamic interaction	

(Continued)

Table 1. (Continued).

REF	Intervention content					Outcomes measures			Effectiveness			
	Location	Study population	Study design and setting	Theories mobilized	Aims	Length	Key activities	Method instrument		Contents	YG	EG
[30]	Australia	9 teenage boys (14 –16- years old) 6 older males (60 – 75- years)	Qualitative data Pre-posttest	Schools	Empowerment theory	To investigate the mentors' experiences of the program, their views about the teenage boys, and the structure of the program.	Weekly	Cultural heritage	EG: Interviews Focus group	Feelings, values, and feeling usefulness	Not evaluated	Increased self-esteem Decreased intergenerational gap
(Morita & Kobayashi, 2013)	Japan	20 children (5 –6-years old) 25 older adults (71 to 101-years)	Qualitative data	Adults day care center	Personality theory	Compare a social-oriented program with a performance-based intergenerational program in older adults	Visits 1 or 2 a month/ 1 month	Art and education	EG: Observation	Visual attention, facial expression, commitment, behavior, and intergenerational conversation	Not evaluated	Performance-based programs led to improved conversations Social-oriented programs had greater visual attention

Note: **AGS:** Active Generations survey; **AMCQ:** Adult mood and communication questionnaire; **ASD:** Aging Semantic Differential; **CEQ:** Civic Engagement Questions; **CVAIP:** Children's View of Aging Identification Pairs; **CVAQ:** Children's View of Aging Questionnaire; **CVoA:** Children's Views on Aging; **EG:** elderly group; **EQ:** Empowerment questionnaires; **FAQ:** Facts on Aging Quiz; **IOS:** Intergenerational Observation Scale; **JGS:** Japanese Generativity Scale; **LGS:** Loyola Generativity Scale; **MMSE:** Mini-Mental State Exam; **SS:** Satisfaction Survey; **YG:** young group.

music sessions, and computer-based learning (12.5%, $n = 2$), where pairs of older adults and children undertook activities in computer labs at primary schools or exchanged e-mails. In cultural heritage activities (12.5%, $n = 2$), we saw activities like workshops where older adult storytellers shared personal life stories. We also identified health education activities (6.25%, $n = 1$), like an intergenerational, childhood obesity prevention program, and therapeutic activity (6.25%, $n = 1$) where participants told stories to younger “listeners” in secret who were instructed to respond either empathetically or neutrally. The remaining three intergenerational programs were based on the combination of two different key activities, related to cultural heritage and health education, and art and education.

The measurement of outcomes associated with intergenerational programs was performed in the revised programs (62.5%, $n = 10$) in both young and elderly groups of participants. In the remaining programs, the authors only measured outputs in the younger group (25.0%, $n = 4$) or in the group of elderly participants (12.5%, $n = 2$). The instruments used to evaluate the impact of the programs differed between studies, including validated scales, interviews, observation, focus groups, and analysis of conversations, narratives, videotaped sessions, and field notes. The scales used to evaluate the impact of the intergenerational programs on the elderly were the MMSE (Mini-Mental State Exam), AMCQ (Adult Mood and Communication Questionnaire), ASD (Aging Semantic Differential), and IOS (Intergenerational Observation Scale); EQ (Empowerment Questionnaires) and SS (Satisfaction Surveys) were used to measure how intergenerational programs had affected both younger and older adults. To evaluate attitudes/perceptions, different tools were used in the different studies, including JGS (Japanese Generativity Scale), CEQ (Civic Engagement Quiz), CVAIP (Children’s View of Aging Identification Pairs), FAQ (Facts on Aging Quiz), CVAQ (Children’s View on Aging Questionnaire), CVoA (Children’s Views on Aging), and AGS (Active Generations Survey).

All selected intergenerational programs demonstrated some type of improvement in the evaluated domains. In relation to the younger groups, it was highlighted that one of the results of these projects is the construction of new meanings in relation to aging and older people, being explicitly mentioned in four articles. Increased understanding of younger generations is also one of the results reported in three studies from the perspective of older people. In eight studies, the authors concluded that these programs contributed to a significant increase in the interaction between younger and older generations, revealing evidence of mutual learning. Six studies evidenced that these projects improved competences like reading competences, language skills, eating habits, artistic skills, and others in younger and older participants. The studies also reported effectiveness in increased well-being and feeling of belonging among the older participants.

Discussion

The interest in intergenerational programs is widely accepted for both practitioners and researchers, as they appear to have positive benefits for both young and older adults. However, most of the intergenerational programs described in literature are not evidence based, and their effectiveness has not been evaluated. In our work, we reviewed 16 intergenerational programs published in peer-reviewed journals, in which the effectiveness was evaluated. Globally, we found a great variability between studies, namely in study design and setting, intervention content, and outcomes measured, which make it difficult to design and implement new evidence-based programs.

In the study population, a huge variation in the number of children and older adults was assessed, from 14 (Hewson, Danbrook, & Sieppert, 2015) to 821 participants (Hegeman et al., 2010). The studies that were used in this systematic review targeted a diverse range of both young and older participants ages: the younger were between 3 months (St John, 2009) and 16 years (Wilson, Cordier, & Wilson Whatley, 2013), while the older participants were between 50- (Jarrott & Smith, 2011) and 101-years old (Morita & Kobayashi, 2013). One of the studies did not specify how many children were involved (Tabuchi & Miura, 2016) and 2 did not mention the number of older adults that were included (Clyne et al., 2013; Werner et al., 2012). The studies also targeted both healthy older adults and elderly people with different health conditions, such as dementia and neurocognitive deficits. Sample size and participant ages seemed to not influence significantly the effectiveness of intervention, as some improvements were found in all articles included in this work. However, in the interventions involving adults with neurocognitive deficits (Isaki & Harmon, 2015), although the perception of children in relation to adults improved, the reverse did not occur—there were no significant changes in the way the adults perceived children. No changes in younger attitudes toward the older adults were found in another article (Whiteland, 2016). In this case, the students interacted regularly with a grandparent, which may have influenced the results obtained.

In the study design and setting, we found studies that collected quantitative or qualitative data, or both. Almost half of the studies used pre- and post-program questionnaires, and of the 16 articles, only 2 used control groups (one of them used both students and older adults control groups, while the other used only students in control group (Chase, 2011; Jarrott & Smith, 2011)). Although control groups have rarely been used by the analyzed articles, they seemed to be important for understanding the results, and to what extent the changes were achieved by the program itself, or by other conditions. The interventions ran in different locations—most were developed in schools/universities and in retirement homes, others were developed in the community, outside-the-school environment, in a religious residence,

or via e-mail. The ways used to bring the younger and older adults into contact with each other does not seem to have any influence on the impact of these intergenerational programs either.

Regarding the intervention length, the time that young and older adults spend together seems to be decisive for achieving the goals. In studies in which contact was only 4/6 hours, no significant changes were recorded, except for one that occurred in a religious residence. Thus, a longer follow-up, with weekly/biweekly sessions, seems to be important for these intergenerational programs, giving participants time to get to know each other, to feel comfortable in a strange environment, to create bonds, and therefore be more effective. Although each program undertook different activities, whether it was educational programs, art activities, computer-based learning activities, activities related to cultural heritage, health education activities, or therapeutic activities, the objectives were achieved and therefore the activities did not seem to be the determining factor for success, but rather it was the contact between the generations themselves, regardless of the content of the sessions.

The measurement of the results of all the intergenerational programs did not follow any pattern and the tools were completely different. Indeed, not all articles analyzed the impact of the program on both the youngest and the oldest. In addition, the evaluation tools used were different, including video recordings, focus groups, observation, interviews, and scales. Even the scales used were different among articles. Each article used one (or more) scale(s); therefore, there is no consensus among the different studies. It is also important to emphasize that the different scales used evaluated different parameters, so this lack of uniformity is an obstacle to making conclusions.

There are some limitations in this systematic review. While we took steps to eliminate bias when possible, we are aware that the selection of databases, determination of inclusion criteria, and interpretation of the findings all introduced potential sources of bias. Our search criteria were designed to identify intergenerational programs in which the information about target population, study design and setting, theories mobilized, aims, characteristics of intervention, outcomes, and effectiveness was available. Only papers that included information about all previous aspects were included, which may have led to exclusion of some important papers in this field. Moreover, another limitation of our work is related to the language selection of our review, English, which may potentially led to exclusion of relevant papers. A meta-analysis would be desirable, but due to the lack of uniformity among papers, and considering different outcomes and samples, it is not possible to perform it.

In conclusion, intergenerational programs are a form of social intervention, whose key element is intergenerational education, a non-formal and informal pedagogical approach that connects different generations around daily themes, facilitating the transfer and exchange of knowledge, skills,

abilities, and resources, allowing different generations to experience both similarities and differences by learning not only about others but also about themselves.

Successful intergenerational programs have some characteristics in common. In addition to demonstrating mutual benefits to participants, involving at least two non-familiar, non-adjacent generations, these programs embrace social and political problems relevant to the generations involved. They promote greater awareness and understanding among the younger and older generations and the growth of self-esteem for both generations (Hatton-Yeo & Ohsako, 2000). All the programs analyzed have had good results, as these programs have enriched the lives of both children and older people. For the children, there was evidence of higher self-esteem, better academic performance, improved social skills, and increased motivation to learn. There are also reports of more positive attitudes toward themselves and older adults. For older adults, there is evidence of more productive use of time, reaffirmation of value, greater satisfaction with life, improved cognitive function, improved mental and physical health, and improved self-esteem.

There are many steps still to take in the context of Intergenerational programs and it is necessary to do more investigation into the evaluation, implications, and knowledge of participants' motivations. Several authors are unanimous about the urgency to develop mechanisms for evaluating intergenerational programs, as this is one of the most pointed weaknesses.

Acknowledgments

This work received financial support from the European Union under the European Commission's Erasmus+ Programme Key Action2 Strategic Partnerships (Adult Education)/SACHI2 Project Grant Agreement n° 2016-1-ES01-KA204-024999 and from the European Union (FEDER funds POCI/01/0145/FEDER/007728) and National Funds (FCT/MEC, Fundação para a Ciência e Tecnologia and Ministério da Educação e Ciência) under the Partnership Agreement PT2020 UID/MULTI/04378/2013.

Disclosure statement

The authors declare no conflict of interest.

Funding

This work received financial support from the European Union under the European Commission's Erasmus+ Programme Key Action2 Strategic Partnerships (Adult Education)/SACHI2 Project Grant Agreement n° 2016-1-ES01-KA204-024999 and from the European Union (FEDER funds POCI/01/0145/FEDER/007728) and National Funds

(FCT/MEC, Fundação para a Ciência e Tecnologia and Ministério da Educação e Ciência) under the Partnership Agreement PT2020 UID/MULTI/04378/2013.

ORCID

Elísio Costa  <http://orcid.org/0000-0003-1158-1480>

References

- Bongaarts, J. (2009). Human population growth and the demographic transition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1532), 2985–2990. doi:10.1098/rstb.2009.0137
- Canning, D., & Schultz, T. P. (2012). The economic consequences of reproductive health and family planning. *Lancet*, 380(9837), 165–171. doi:10.1016/S0140-6736(12)60827-7
- Chase, C. A. (2011). An intergenerational e-mail pal project on attitudes of college students toward older adults. *Educational Gerontology*, 37(1), 27–37. doi:10.1080/03601270903534804
- Clyne, M., Cordella, M., Schüpbach, D., & Maher, B. (2013). Connecting younger second-language learners and older bilinguals: Interconnectedness and social inclusion. *International Journal Multiling*, 10(4), 375–393. doi:10.1080/14790718.2013.832120
- Courtin, E., & Knapp, M. (2017). Social isolation, loneliness and health in old age: A scoping review. *Health & Social Care in the Community*, 25(3), 799–812. doi:10.1111/hsc.12311
- Dionigi, R. A. (2015). Stereotypes of aging: Their effects on the health of older adults. *Journal Geriatrics*, 2015(7), 1–9. doi:10.1155/2015/954027
- Faria, D. F., Dauenhauer, J. A., & Steitz, D. W. (2010). Fostering social work gerontological competencies: Qualitative analysis of an intergenerational service-learning course. *Gerontology & Geriatrics Education*, 31(1), 92–113. doi:10.1080/02701960903578378
- Gamliel, T., & Gabay, N. (2014). Knowledge exchange, social interactions, and empowerment in an intergenerational technology program at school. *Educational Gerontology*, 40(8), 597–617. doi:10.1080/03601277.2013.863097
- Granville, G. (2002). *A review of intergenerational practice in the UK*. Stoke-on-Trent, UK: Beth Johnson.
- Hatton-Yeo, A., & Ohsako, T. (2000). Intergenerational programmes: Public policy and research implications—An international perspective. [Internet]. [cited 2017 Oct 16]. Retrieved from <http://www.unesco.org/education/ue/pdf/intergen.pdf>
- Hegeman, C. R., Roodin, P., Gilliland, K. A., & Ó'Flathabháin, K. B. (2010). Intergenerational service learning: Linking three generations: Concept, history, and outcome assessment. *Gerontology & Geriatrics Education*, 31(1), 37–54. doi:10.1080/02701960903584418
- Hewson, J., Danbrook, C., & Sieppert, J. (2015). Engaging post-secondary students and older adults in an intergenerational digital storytelling course. *Contemporary Issues Education Researcher*, 8(3), 135–142. doi:10.19030/cier.v8i3.9345
- Isaki, E., & Harmon, M. T. (2015). Children and adults reading interactively. *Communication Disorders Quarterly*, 36(2), 90–101. doi:10.1177/1525740114529154
- Jarrott, S. E. (2011). Where have we been and where are we going? Content analysis of evaluation research of intergenerational programs. *Journal of Intergenerational Relationships*, 9(1), 37–52. doi:10.1080/15350770.2011.544594

- Jarrott, S. E., & Smith, C. L. (2011). The complement of research and theory in practice: Contact theory at work in nonfamilial intergenerational programs. *The Gerontologist*, 51(1), 112–121. doi:10.1093/geront/gnq058
- Kuehne, V. S., & Melville, J. (2014). The state of our art: A review of theories used in intergenerational program research (2003–2014) and ways forward. *Journal of Intergenerational Relationships*, 12(4), 317–346. doi:10.1080/15350770.2014.958969
- Liu, W. (2017). Intergenerational emotion and solidarity in transitional China: Comparisons of two kinds of “ken lao” families in Shanghai. *Journal of Chinese Sociology*, 4(10), 1–22. doi:10.1186/s40711-017-0058-1
- Lunenfeld, B., & Stratton, P. (2013). The clinical consequences of an ageing world and preventive strategies. *Best practice & Research Clinical Obstetrics & Gynaecology*, 27(5), 643–659. doi:10.1016/j.bpobgyn.2013.02.005
- Morita, K., & Kobayashi, M. (2013). Interactive programs with preschool children bring smiles and conversation to older adults: Time-sampling study. *BMC Geriatrics*, 13(1), 111. doi:10.1186/1471-2318-13-111
- Raleigh, V. (2009). World population and health in transition. *British Medical Journal*, 319(7215), 981–984. doi:10.1136/bmj.319.7215.981
- Seedsman, T. A. (2013). Mosaic of contemporary issues, insights, and perspectives surrounding intergenerational practice. *Journal of Intergenerational Relationships*, 11(4), 347–355. doi:10.1080/15350770.2013.839309
- St John, P. A. (2009). Growing up and growing old: Communities in counterpoint. *Early Child development and Care*, 179(6), 733–746. doi:10.1080/03004430902944882
- Tabuchi, M., & Miura, A. (2016). Intergenerational interactions when transmitting wisdom from older to younger generations. *Educational Gerontology*, 42(8), 585–592. doi:10.1080/03601277.2016.1205392
- Vandervan, K. (2011). The road to intergenerational theory is under construction: A continuing story. *Journal of Intergenerational Relationships*, 9(1), 22–36. doi:10.1080/15350770.2011.544206
- Vieira, S., & Sousa, L. (2016). Intergenerational practice: Contributing to a conceptual framework. *International Journal of Lifelong education*, 35(4), 396–412. doi:10.1080/02601370.2016.1196248
- Werner, D., Teufel, J., Holtgrave, P. L., & Brown, S. L. (2012). Active generations: An intergenerational approach to preventing childhood obesity. *The Journal of School Health*, 82(8), 380–386. doi:10.1111/j.1746-1561.2012.00713.x
- Whiteland, S. R. (2016). Exploring aging attitudes through a puppet making research study. *International Journal Education Arts*, 17(3), 1–30.
- Wilson, N. J., Cordier, R., & Wilson Whatley, L. (2013). Older male mentors’ perceptions of a men’s shed intergenerational mentoring program. *Australian Occupational Therapy Journal*, 60(6), 416–426. doi:10.1111/1440-1630.12090
- Withnall, A. (2017). Intergenerational relationships and lifelong learning: Missing links. *Journal of Intergenerational Relationships*, 15(1), 4–13. doi:10.1080/15350770.2017.1260393