

## PLAYING IN URBAN GREEN SPACES ACCORDING TO TWO GENERATIONS

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## ABSTRACT

**Purpose:** the evolution of technology and the appearance and access to new toys, replacing popular games, in which children could observe and learn about the natural environment while playing. The present work analyses Urban Green Spaces (UGS) as play spaces.

**Methodology/Approach:** students from the First Cycle of Basic Education were asked through an anonymous questionnaire, as well as their parents/guardians, about the use of UGS to play, in order to obtain a comparison between generations.

**Findings:** UGS are important as spaces for playing, since they provide free space in the city and are enhancers of more popular games that promote physical exercise. In addition to enrich contact with the natural environment, the UGS also promote learning and socialization.

**Research Limitation/implication:** More than half of the world's population lives in urban areas and it is estimated their growth, by 2050, 68% of Humans will live in cities. As cities grow and become denser, the population tends to have less contact with Urban Green Spaces, however several studies point out that UGS are a provider of health and well-being.

**Originality:** the UGS are now important in providing a service to the inhabitants of cities, to which it is very difficult to substitute.

**KEYWORD:** urban green spaces, ecosystem services, play, popular games.

## BRINCAR EM ESPAÇOS VERDES URBANOS SEGUNDO DUAS GERAÇÕES

## RESUMO

**Propósito:** Objetivo: a evolução da tecnologia e o surgimento e acesso a novos brinquedos, substituindo as brincadeiras populares, nas quais as crianças puderam observar e aprender sobre o ambiente natural enquanto brincavam. O presente trabalho analisa os Espaços Verdes Urbanos (UGS) como espaços de lazer.

**Metodologia/Abordagem:** questionaram-se os alunos do 1.º Ciclo do Ensino Básico, através de um questionário anónimo, bem como os seus pais/responsáveis, sobre a utilização da UGS para brincar, para obter uma comparação entre gerações.

**Resultados:** as UGS são importantes como espaços de brincadeiras, uma vez que disponibilizam espaço livre na cidade e potenciam jogos mais populares que promovem o exercício físico. As UGS enriquecem o contato com o ambiente natural e promovem a aprendizagem e socialização.

**Implicação da pesquisa:** Mais da metade da população mundial vive em áreas urbanas e estima-se seu crescimento, até 2050, 68% dos humanos viverão em cidades. À medida que as cidades crescem e se adensam, a população tende a ter menos contato com os Espaços Verdes Urbanos, porém vários estudos apontam que as UGS são provedoras de saúde e bem-estar.

**Originalidade:** as UGS são hoje importantes na prestação de um serviço aos habitantes das cidades, ao qual é muito difícil substituir.

**PALAVRAS-CHAVE:** espaços verdes urbanos, serviços ecossistêmicos, brincar, jogos populares.

## 1. INTRODUCTION

More than half of the world's population lives in urban areas and it is estimated their growth, by 2050, 68% of Humans will live in cities (Khor et al., 2022). As cities grow and become denser, the population tends to have less contact with Urban Green Spaces (UGS), however several studies point out that UGS are a provider of health and well-being (Holt, et al., 2019; Cleary et al., 2019; Gailey, 2022; Sillman et al., 2022). In addition, the evolution of technology and the appearance and access to new toys, replacing popular games, in which children could observe and learn about the natural environment while playing.

Playing is important for children, since it is during this act that they interact with the world around them which, in turn, enhances their development and learning through socialization, playful experiences and symbolic representations that are essential for the formation of their personality and autonomy (Dantas, 2017). It is also during playing time that children develop reasoning and reflection skills, as well as a sense of responsibility and morality (Teixeira, 2017). It is, therefore, important that this time spent playing is of quality, so that the child can develop and acquire knowledge as best as possible.

Several studies have referred various ecosystem services that UGS provide (Deng et al., 2019; Pudifoot et al., 2021; Liu & Russo, 2021; Sen & Guchhait, 2021). UGS also provide space and recreational moments for children. They are distinguished by offering open space to play, allowing games different from the technological ones that children increasingly have and, above all, games with a more physical nature, also less common today, when compared to the games played by children in the past (Andrusaityte et al., 2020; Sikorska et al., 2020; Bozkurt, 2021; El-Kholy et al., 2022). Furthermore, Andrusaityte et al. (2020) observed in their study the existence of a positive association between the use of UGS and the reduction of general risks to the health in general and to the mental health of children in particular. In addition, this practice of physical exercise promoted by certain games, can also improve the children's school performance, namely greater attention and concentration when carrying out school tasks. (Ma et al., 2015).

When children play in an UGS, it is important for them an intellectual development to allow them to explore the entire space and also to allow them to create their own games, including using materials and objects that they find in the own place, not confining them, therefore, to a single place of which the playground can be an example, or simply limiting their games in general (Del Pulgar et al, 2020; El-Kholy et al., 2022). Thus, the design of the park or garden is also important (El-Kholy et al., 2022).

Another aspect to be taken into account when designing an UGS is the games that children play there, so that suitable places can be created for those activities. Therefore, the present work aims to study the current role that UGS in the town of Bragança (Portugal) have in the games of children of the First Cycle of Basic Education and consequent learning. In addition, it is also intended to find out the role that these spaces had in the generation of their parents/guardians, regarding the same issues.

## 2. Methodology

Doc Diogo Albino Sá Vargas school was taken as a case study. It is located in the town of Bragança, located in the Northeast of Portugal. The school is a private one and is intended for students in the First Cycle of Basic Education.

Students and their parents/guardians were surveyed using an anonymous questionnaire. The questionnaires mainly consisted of closed multiple choice questions, but also had some open questions so that respondents could freely express their opinion. The questionnaires provided to students were completed during school time, while questionnaires provided to parents/guardian were completed at home. Since the questionnaires were designed to be completed by the students

themselves, it was decided not to include first-year students in the study, since it was understood that the ability to read and comprehend would not be enough to be able to do it alone and anonymously in order to complete the questionnaire.

Both questionnaires (students and parents/guardians) focused on the same key points, in order to understand the experience of each generation, but naturally adapting the questions to each group of respondents.

After collecting the questionnaires done on paper, they were converted to an editable digital format so that they could be manipulated in statistical software. The processing of data from closed questions was carried out using descriptive statistics, while data from open questions were subject to prior content analysis and respective categorization.

### 3. Results

#### 3.1. Respondents

A total of forty (40) students and thirty (30) parents/guardians were surveyed. 20% of the students surveyed attended the second year of schooling, 40% the third year of schooling and 40% attended the fourth year of schooling. The students surveyed were between seven and eleven years old.

#### 3.2. Playing moments in urban green spaces

Fig. 1. shows the games that the surveyed parents played when they were children in a park or garden and those that the surveyed students currently play in parks and gardens.

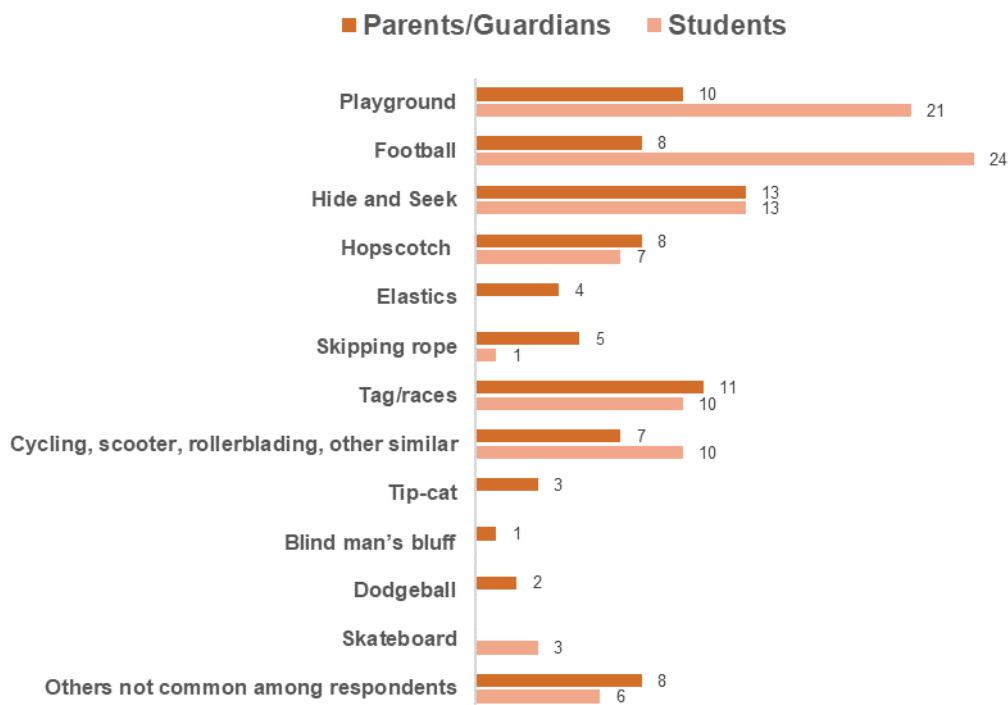


Fig. 1 Games that parents/guardians played when they were children and the ones that students currently play in parks/gardens.

It can be seen that in the past, that is, when parents/guardians were children, parks and gardens were often places for games such as “hide and seek” (13) or “Tag/races” (11). Nowadays, children spend their time in the UGS playing football (24) and using the playground (21). It should also be noted that the playground was also used at the time of parents/guardians were children (10), although it was not as popular as it is today.

UGS play an important role in carrying out these activities, since many of the students surveyed stated in the open questions that they learned to skate, play football, etc., precisely there.

When in an UGS, the children surveyed today have, above all, games that require consumer goods or equipment, such as football or the playground, having gained popularity compared to the time of their parents/guardians, to which can still be highlighted bicycles, scooters, rollerbladings, or even skateboardings, which was not mentioned at the time of their parents and that in the meantime gained popularity. On the other hand, popular games such as hopscotch, elastics, skipping rope, blind man's bluff and dodgeball have lost expression.

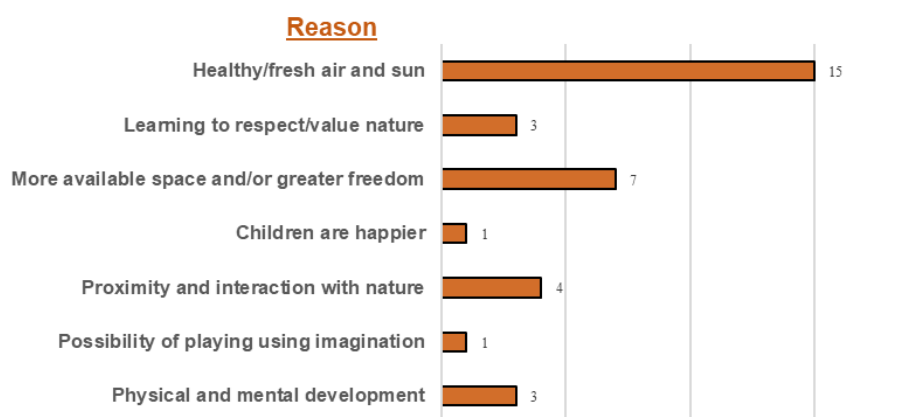
### 3.3. Playing in urban green spaces

The reasons given by guardians when stating that it is important for children to play in the UGS and the reasons why students consider that the UGS are good places to play are shown in Fig. 2. In this question it was possible to indicate more than one reason.

#### Parents/Guardians

Do you think it's important to play in green spaces, especially for children's development?

Yes: 100%  
No: 0%



#### Students

Do you think green spaces are good places to play?

Yes: 92,5%  
No: 7,5%



Figure 2 Play in urban green spaces.

All parents surveyed (100%) consider that it is important for children to play in UGS. Most of the reasons given to justify their statement are related to health/fresh air and sun (15), followed by the existence of more available space and/or greater freedom (7). Although less frequently, proximity and interaction with nature (4), physical and mental development (3), learning to respect/value nature (3), the possibility of playing using imagination (1) and the fact that children are happier in UGS (1) were also pointed.

Most of the students surveyed (92.5%) consider that UGS are good places to play, as opposed to 7.5% who do not consider it at all. One of the reasons given to support the statement that UGS are good places to play, refers the fact that there is more space available and/or greater freedom to play (10), while others like and/or find it fun to play in an UGS (7) or simply consider that UGS are healthy places (6). Other reasons were pointed out by students, although less frequently.

Most students (95%) also stated that when playing in an UGS they were not alone, thus emphasizing the role of UGS in the interaction and socialization of children.

#### 4. Discussion

The games that children play today have changed when compared to the generation of their parents/guardians, like other changes that have occurred in society. As children, current parents/guardians preferred games that did not require consumer goods. On the other hand, the children surveyed prefer games that require goods and equipment, such as football, playgrounds and skateboarding. Although the games that take place today are different, UGS continue to be places that promote games related to physical exercise, which is a positive aspect.

The playground was already important at the time that the parents/guardians were children and it still is today. Although this equipment does not promote, at least in a direct way, any interaction with the natural environment, it can be important on several levels, since it promotes physical exercise, intellectual development and imagination, depending on how it is designed.

The increasing number of urban population may contribute to greater density and, consequently, to the existence of fewer open spaces (Khor et al., 2022). Thus, UGS play a key role in cities, since they allow activities not possible anywhere else. In addition, when there is a lack of other equipment nearby, parks and gardens can be used as multifunctional spaces where it is possible to carry out certain activities and games informally. For example, it was mentioned by some of the students surveyed that they used parks and gardens to skating or rollerblading, playing football and even learning to practice these activities in an UGS. According to the study by Girma et al. (2019), UGS can also benefit from the practice of these activities, since a good parks design and gardens, in order to allow the practice of such activities, combined with proximity, improves their use.

On the one hand, these games (football, skateboarding, biking, rollerblading, etc.) promote the practice of physical exercise, which is beneficial, and also encourages children to play games more than those involving technology. However, since they require objects (the ball, the skateboard, the bicycle, etc.) they can prevent children from interacting with nature (Del Pulgar et al., 2020) and, consequently, prevent the discovery and learning about nature while playing these games. This encounters the concern of the parents/guardians surveyed, who mentioned that there should be a greater number of lessons in UGS, so that children can interact and learn about the natural environment.

Among students' open responses, which stated that UGS are not a good place to play, there is the report that playing in the UGS damages plants. Also, the study by Del Pulgar et al. (2020) refers this issue, stating that one of the factors that may discourage interaction with nature is, ironically, the most careful aspect that certain parks and gardens have, being immediately connoted with the words "do not touch" or "not to step on", leading the population to consider that UGS are mere

aesthetic cities elements. However, taking into account that UGS are often the only contact that the urban child has with the natural world, it is important that he/she can interact with them.

## 5. Conclusions

In the current urban context and in a tendency to densify the city, UGS provide open urban spaces that allow contact with nature and outdoor recreation. In addition, they are also places where games that stimulate physical and intellectual development take place.

Although the games that parents/guardians had in the UGS when they were children have changed when compared to nowadays games, playing in UGS is still important as it allows and encourage children to play games that promote physical exercise.

Nowadays, most of the games that the children surveyed play in UGS require the use of consumer goods, contrary to the time of their parents/guardians. However, both generations mentioned the free space to play and the contact with nature as an added value of UGS.

UGS also promote learning. In addition to the interaction with nature mentioned by some students, which promotes knowledge of the natural environment, it was found that several students learned to play football, skate, rollerblade, etc., in UGS.

Most of the games mentioned by the students surveyed are popular games, so it appears that UGS may play an important role in their conservation and transmission between generations. However, a new study is needed to explore this issue.

It is also verified that UGS promote children's socialization, since they mention that they usually play together when they are in these places.

## 6. References

- Andrusaityte, S., Grazuleviciene, R., Dedele, A., & Balseviciene, B. (2020). The effect of residential greenness and city park visiting habits on preschool Children's mental and general health in Lithuania: A cross-sectional study. *Int. J. Hyg. Environ. Health* 223, 142–150. <https://doi.org/10.1016/j.ijheh.2019.09.009>
- Bozkurt, M., (2021). Metropolitan children's physical fitness: The relationship between overweight and obesity prevalence, socioeconomic status, urban green space access, and physical activity. *Urban For. Urban Green.* 64, 127272. <https://doi.org/10.1016/j.ufug.2021.127272>
- Cleary, A., Roiko, A., Burton, N.W., Fielding, K.S., Murray, Z., & Turrell, G. (2019). Changes in perceptions of urban green space are related to changes in psychological well-being: Cross-sectional and longitudinal study of mid-aged urban residents. *Heal. Place* 59, 102201. <https://doi.org/10.1016/j.healthplace.2019.102201>
- Deng, S., Ma, J., Zhang, L., Jia, Z., & Ma, L. (2019). Microclimate simulation and model optimization of the effect of roadway green space on atmospheric particulate matter. *Environ. Pollut.* 246, 932–944. <https://doi.org/10.1016/j.envpol.2018.12.026>
- El-Kholy, S.A., Moustafa, Y.M., & El-Ela, M.A.S.A. (2022). Urban park design and children's physical activity levels: an investigation of design characteristics of green areas and playgrounds. *J. Eng. Appl. Sci.* 69, 1–20. <https://doi.org/10.1186/s44147-022-00152-x>
- Gailey, S. (2022). Moving to greener pastures: Health selection into neighborhood greenspace among a highly mobile and diverse population in California. *Soc. Sci. Med.* 315, 115411. <https://doi.org/10.1016/j.socscimed.2022.115411>
- Girma, Y., Terefe, H., & Pauleit, S. (2019). Urban green spaces use and management in rapidly urbanizing countries:- The case of emerging towns of Oromia special zone surrounding Finfinne, Ethiopia. *Urban For. Urban Green.* 43, 126357. <https://doi.org/10.1016/j.ufug.2019.05.019>

- Holt, E.W., Lombard, Q.K., Best, N., Smiley-Smith, S., & Quinn, J.E. (2019). Active and passive use of green space, health, and well-being amongst university students. *Int. J. Environ. Res. Public Health* 16. <https://doi.org/10.3390/ijerph16030424>
- Khor, N., Arimah, B., Otieno Otieno, R., van Oostrum, M., Mutinda, M., Oginga Martins, J., Arku, G., Broto, V. C., Chatwin, M., Dijkstra, L., Ayyoob Sharifi, S. J., Sverdlik, A., Simon, D., Florio, P., Freire, S., Kemper, T., Melchiorri, M.; Schiavina, M., Alessandrini, A., Natale, F., Ghio, D., Draily, O., Westman, L., Huang, P., Robin, E., Unnikrishnan, H. (2022). **World Cities Report 2022: Envisaging the Future of Cities**. Nairobi: United Nations Human Settlements Programme (UN-Habitat).
- Liu, O.Y., & Russo, A. (2021). Assessing the contribution of urban green spaces in green infrastructure strategy planning for urban ecosystem conditions and services. *Sustain. Cities Soc.* 68. <https://doi.org/10.1016/j.scs.2021.102772>
- Ma, J.K., Mare, L. Le, & Gurd, B.J. (2015). Four minutes of in-class high-intensity interval activity improves selective attention in 9- to 11-year olds. *Appl. Physiol. Nutr. Metab.* 40, 238–244. <https://doi.org/10.1139/apnm-2014-0309>
- Del Pulgar, C.P., Anguelovski, I., & Connolly, J. (2020). Toward a green and playful city: Understanding the social and political production of children's relational wellbeing in Barcelona. *Cities* 96, 102438. <https://doi.org/10.1016/j.cities.2019.102438>
- Pudifoot, B., Cárdenas, M.L., Buytaert, W., Paul, J.D., Narraway, C.L., & Loïselle, S. (2021). When It Rains, It Pours: Integrating Citizen Science Methods to Understand Resilience of Urban Green Spaces. *Front. Water* 3. <https://doi.org/10.3389/frwa.2021.654493>
- Sen, S., & Guchhait, S.K. (2021). Urban green space in India: Perception of cultural ecosystem services and psychology of situatedness and connectedness. *Ecol. Indic.* 123, 107338. <https://doi.org/10.1016/j.ecolind.2021.107338>
- Sikorska, D., Łaskiewicz, E., Krauze, K., & Sikorski, P. (2020). The role of informal green spaces in reducing inequalities in urban green space availability to children and seniors. *Environ. Sci. Policy* 108, 144–154. <https://doi.org/10.1016/j.envsci.2020.03.007>
- Sillman, D., Rigolon, A., Browning, M.H.E.M., Yoon, H. (Violet), & McAnirlin, O. (2022). Do sex and gender modify the association between green space and physical health? A systematic review. *Environ. Res.* 209, 112869. <https://doi.org/10.1016/j.envres.2022.112869>

## DECLARATION OF CONTRIBUTIONS TO THE ARTICLE - CRediT

ROLE	BMartins	Lsantos
Conceptualization – Ideas; formulation or evolution of overarching research goals and aims.	X	X
Data curation – Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.	X	X
Formal analysis – Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.	X	X
Funding acquisition - Acquisition of the financial support for the project leading to this publication.	X	X
Investigation – Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.	X	X
Methodology – Development or design of methodology; creation of models.	X	X
Project administration – Management and coordination responsibility for the research activity planning and execution.	X	X
Resources – Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.	X	X
Software – Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.	--	--
Supervision – Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.	X	
Validation – Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.	X	
Visualization – Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.	X	X
Writing – original draft – Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).	X	X
Writing – review & editing – Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.	X	X