

Essentiality of Safety Sign for Children: A Case Study of Safety Issues in Hong Kong Playgrounds

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Abstract. Play provides children with fun, enjoyment, and opportunities to develop their cognitive, physical, and interpersonal skills. Most children in densely populated cities, such as Hong Kong, visit public playgrounds, as there is often limited space to play at home. Among the many issues related to public playgrounds, safety is an important concern among caregivers, especially as the space between play facilities in Hong Kong playgrounds is narrow and the number of children playing at the playground often exceeds the playground's capacity. Despite the importance of safety, a recent field visit to a children's playground in Hong Kong showed that there were few safety signs in the playground areas. Taking a case study approach, this paper reviews the observed safety issues in Hong Kong playgrounds to discuss the necessity of safety signs for children.

Keywords: Children · Parental Care · Playground · Safety · Safety Signs

1 Introduction

Play is fundamental to children and important for their cognitive, physical and interpersonal development [1]. Play is an important business that all children should meant to experience in their childhood [2]. Children do not need to be taught how to play, but naturally enjoy it. Play gives children fun and enjoyment. Children often associate playing with moving physically, and running around is a common type of play for children [3]. Unless a family has a large backyard, children can only go to public playgrounds to play and run. Most children in densely populated cities such as Hong Kong do not have such yards. Similarly, most Hong Kong families cannot afford a private playground. As a result, most children in Hong Kong must visit public playgrounds. Children play with other children in shared playgrounds with different kinds of facilities. Their caregivers, whether their parents, grandparents, or housemaids, bring them to the playground after work or on weekends.

Safety is an important issue in playgrounds. Although the majority of playgrounds in Hong Kong are paved with rubber tiles, children may hurt themselves due to improper management of the play facilities and carelessness. Children must also be cau-

tious of knocking others down or bumping into play facilities. Parents are concerned about safety issues in playgrounds, especially because the space between play facilities in Hong Kong playgrounds is narrow and the number of children playing at a playground often exceeds its capacity. Despite the importance of and increasing concern for safety, on a recent field visit to a children's playground in Hong Kong, few safety signs were observed in the playground areas, and the visible safety messages were not designed for children playing. Taking a case study approach, this paper reviews the observed safety issues to discuss the necessity of safety signs for children in Hong Kong playgrounds and considers the design and location of the playground facilities.

2 Safety Issues in Hong Kong Playgrounds

2.1 Statistics

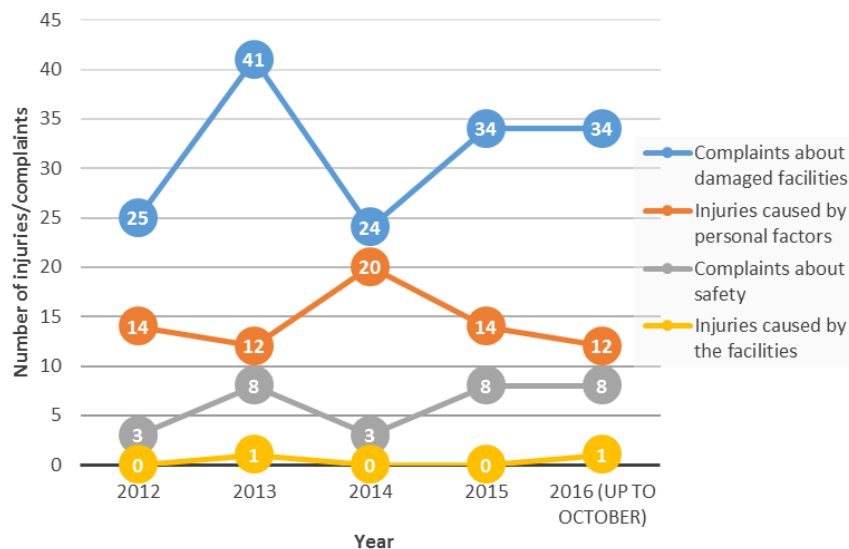


Fig. 1. Number of injuries caused by facilities and personal factors from 2012 to 2016 (extracted from the Official Record of Proceedings of the Legislative Council)

According to the Official Record of Proceedings of the Legislative Council, the number of injuries in public playgrounds from 2012 to 2016 was low. There were zero fatal injuries [4]. The Leisure and Cultural Services Department (LCSD), which is responsible for managing all public playgrounds in Hong Kong, received a number of complaints about safety and damaged facilities. Fig. 1 shows the data extracted from the Official Record of Proceedings.

In Hong Kong, the LCSD manages 634 public playgrounds [4]. Compared to the total number of playgrounds, the number of injuries and complaints was relatively low from 2012 to 2016. The highest number of complaints related to the damaged

facilities. While there were few injuries reported, the damaged facilities pose potential safety issues. Most injuries were caused by personal factors, such as shoving, chasing, and loss of balance [4].

2.2 The Selected Playground in the Study

The low number of reported injuries in playgrounds does not imply that safety issues are not a concern or that they have received sufficient attention. Rather, considering children's play patterns and the care provided by caregivers to children during play, it can be argued that the safety measures provided by the onsite facilities are still inadequate and that the low number of injuries was due to other factors. We conducted a case study to investigate the safety issues in playgrounds.

We selected a typical children's playground at Quarry Bay Park in Quarry Bay, which is in the Eastern district of Hong Kong. In 2011, the Eastern district was the most densely populated district (31,686 population/km²) on Hong Kong Island, with the largest population density of children aged 12 or below (2,748 population/km²) [5]. The playground is adjacent to residential areas and a shopping mall (Fig. 2).



Fig. 2. Location of the residential areas and shopping mall next to Quarry Bay Park in Hong Kong (modified from Google Maps)

The Quarry Bay Park playground had different play facilities. These included a large composite play structure for older children, a small composite play structure for younger children and children with disabilities, a sensory play area providing facilities related to touching, hearing, and sight, a rocking chair area with different themes, and a swing area with swings for different age groups and physical abilities. The playground was large (1,535m²), and many children visited on weekends.

We visited the playground on a weekend during winter. The researcher observed the behavior of the children and caregivers in the late afternoon, the busiest period of the day. We recorded safety related behavior and took photos.

3 Findings and Discussion

We observed the behavior of the children and their caregivers and identified safety issues. The careful and intensive care provided by the caregivers protected children from potential hazards and explained why children did not hurt themselves. Safety signs were needed in certain play areas to facilitate greater freedom of play.

3.1 Safety issues

One common safety issue was that children hit their heads on the fences or other railings of the facilities. For instance, Fig. 3a shows a composite play structure with a rock-like climbing structure. A girl found it challenging to climb on the structure. If she climbed to the highest step of the staircase, she might hit her head on the railing. Fig. 3b shows two sets of slides. Many children not only slid down, but also ran up the slides. They did not check whether other children were sliding down or running up when they played on the slides and could have easily knocked down other children on the slides.



Fig. 3a-b. Potential dangers on the playground (photographs by authors)

Children played on damaged play facilities. Fig. 4 shows a railing of a staircase on a composite play structure. The children climbed up and down the play structure using the railing, which was damaged and could be dangerous to children if they put their full body weight on it. While there were other damaged facilities, the playground users seemed to be unaware of them.



Fig. 4. A damaged railing on a composite play structure (photograph by authors)

Other safety issues, such as knocking down others while running or falling onto the ground due to uneven rubber tiles, were also common in the playground. However, these potential dangers were avoided because of the care provided by the caregivers.

3.2 Care given by the caregivers

At the entrance of the playground, a noticeboard reminded the users that “adult supervision is recommended.” As suggested, caregivers accompanied their children at the playground. This close and intensive supervision helped prevent danger but also hindered children from playing more freely. In addition, there were more adults than children in the playground, with nearly two caregivers for every child. The playground was therefore very crowded, which may lead to other safety issues.



Fig. 5. A sign at the entrance to the playground (photograph by authors)

For instance, in Fig. 6a, caregivers stood in front of the swings looking after their children. Some of the caregivers were taking photos of the children, and others were pushing their children from behind or helping them to sit on the seats. Most caregivers were standing to the side and watching. Fig. 6b shows some children playing in the rocking chairs. Similarly, their caregivers were watching over the children playing. In the composite play structure areas, most caregivers followed their children onto the play structure and provided help when needed. Some adults even blocked the way on

the composite play structure, and children who were running could collide with the adults' legs. From what was observed, not all of the caregivers were needed in the playground to provide care to the children. This excessive care could hinder children from playing freely and developing problem-solving skills. It also made interactions with other children difficult, as caregivers would often interfere in the play process.



Fig. 6a-b. Caregivers, including parents and housemaids accompanying children at the playground (photographs by authors)



Fig. 7. Western parents assisting their daughter at the playground (photograph by authors)

However, care was necessary when children were in potential danger. For instance, when children climbed too high and challenged themselves to climb higher, it was necessary to provide assistance. Fig. 7 shows a pair of parents helping their daughter to climb up the composite play structure. The child had climbed higher than the height of the adult, and the parents were teaching her where she should put her hands and legs so that she could move to the platform of the composite play structure. While this play facility was too challenging for the child given the gap between the climbing frames and the platform, she succeeded with her parents' help.

3.3 Safety signs in the playground

Caregivers provided excessive assistance to their children even though they were not challenging themselves in the playground. The caregivers were *worried* and preferred

to look after their children at all times. While they did not want their children to injure themselves, this stopped their children from playing freely and challenging themselves. To play freely and challenge themselves, children must understand the potential dangers in the playground. An active way is to stand next to the child, talk to him or her, and remind him or her about the potential dangers. A passive way would be to put safety signs around the playground so that children can read them and be aware of safety issues.






Fig. 8. Safety message on the rubber floor of the play area (photographs by authors)

However, in the selected playground, there were no safety signs related to the play facilities. The only safety message related to the play facilities appeared next to the see-saw ship, as shown in Fig. 8. The message “Please mind the gap” was displayed on the rubber floor of the play area. This was used to warn playground users not to be trapped by the gap between the ship and the group. Obviously, this message was not for children, as it used difficult vocabulary (縫隙). Safety signs would be more effective than textual safety messages for children [6], and it is unknown why safety signs designed specifically for children are not present at the playground.

Safety signs in playgrounds may facilitate children’s free play. Table 1 shows three different registered safety signs from the International Organization for Standardization [7]. These signs are related to the playground context. Children may need more education on how to understand these signs. Further research is also needed to test the efficiency of these signs. Both colors and pictograms are essential to convey the message of safety signs [8]. It is also necessary to understand children’s perceptions about different shapes and colors. Participatory design approaches involving children are effective ways to design signs for children.

Table 1. Registered safety signs related to safety issues in playgrounds (International Organization for Standardization)

Referents	Registered safety signs
Warning: Crushing	
Warning: Crushing of hands	
Warning: Overhead obstacle	

4 Conclusions

Playgrounds are popular places for children and their caregivers to enjoy their leisure time. Playing in a playground contributes to the cognitive, physical, and interpersonal development of children. In Hong Kong, playgrounds feature various dangers, and caregivers often provide excessive care to ensure that their children are not hurt. Although this has kept the number of injuries low, it hinders children from playing freely and challenging their abilities.

We argued that safety signs for children in playgrounds are essential to encourage children to play freely and learn responsibility for the safety of others and themselves with minimal parental supervision. Participatory design with children is one of the best ways to design safety signs for playgrounds and ensure that children understand them clearly.

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