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Spatial Use and Children's Social Interaction at RPTRA Rawa Badak Utara, Jakarta: A Behavioural Geography Study

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ABSTRACT

Limited green open space in densely populated urban areas makes public spaces increasingly important. Under land constraints, the use of space shapes children's opportunities for social interaction. This study analyzes patterns of space use at RPTRA Rawa Badak Utara and their role in supporting children's social interaction. This descriptive qualitative study applies a behavioral geography approach and draws on field observations, interviews, and documentation to examine activity types, use characteristics, and intensity of use. The findings show an imbalance in space use: children concentrate in four active areas, the sports field, hall, amphitheater, and playground, where cooperative and associative play predominate. The library and reading room remain passive because access is restricted, illustrating constraining affordances. Parallel play occurs sporadically in response to group exclusion. Children's social interactions are therefore uneven across spatial units, and physical facilities alone do not ensure interaction without adequate access. The study shows how affordance theory and time geography can be integrated to analyze children's spatial behavior. In practice, accessibility policies in passive spaces should be reviewed, while active spaces should be maintained to support children's social interaction.

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1. Introduction

Urban areas lack sufficient open spaces for children to play, which can be attributed to massive physical development and a surge in population density. As an urban area, Jakarta faces the same challenges, where high population density has led to a growing need for inclusive open spaces. Data from 2024 show that the total area of green open spaces in DKI Jakarta is only 3,446 ha, or about 5.36% of the total land area (Bappeda DKI Jakarta, 2025). These figures indicate that the area of green open space in Jakarta still falls short of the minimum standard of 20% for public green open space, as stipulated in Law No. 26 of 2007 on Spatial Planning (Republic of Indonesia, 2007). These land constraints have resulted in fewer opportunities for the public, especially children, to have safe and adequate spaces for social interaction in their neighbourhoods (Amanda et al., 2024), because children are an important part of the city's population who need an environment that supports their development (Angela & Purwaningrum, 2025). In response to these issues, the Integrated Child Friendly Public Space (RPTRA) was established as part of the Jakarta government's efforts to create a child-friendly city (Sya'ban & Tohari, 2024). RPTRA serves not only as a physical facility but also as a social space where children can play and interact with their peers (Kasmita et al., 2024). The existence of these public spaces demonstrates their close connection to the lives of urban communities (Feng & Hou, 2023).

The implementation of RPTRA is regulated by Governor Regulation No. 196 of 2015, which establishes standards for RPTRA facilities (Government of the Special Capital Region of Jakarta, 2015). However, conditions at the RPTRA Rawa Badak Utara in North Jakarta, the study site, reveal an imbalance in the use of space, with children's social interactions occurring primarily in areas such as the sports field, hall, playground, and amphitheatre, while the library and reading room have become completely passive spaces because they offer few opportunities for children to socialise. The fact that this situation has arisen amid a high demand for open spaces indicates that the mere availability of physical facilities does not guarantee their utilisation or the development of equitable social interactions

among children (Jia et al., 2025). This condition is becoming increasingly important to study because Rawa Badak Utara RPTRA is administratively located in a residential area with a high population density (Wijanarko et al., 2021), where these demographic conditions make public spaces, in this case, RPTRA, essential for children to engage in social activities and play due to limited land availability in densely populated neighbourhoods (Wang et al., 2024). Therefore, it is important to examine patterns of land use and identify the forms of social interaction that arise within them to understand the reasons behind the spatial anomalies at the Rawa Badak Utara RPTRA.

Next, within the framework of behavioural geography, all narrative data were transformed into a visual representation in the form of a behavioural map. Behavioural mapping serves as a visual tool to clarify the distribution of activities and identify how the physical characteristics of the public environment support or hinder children's activities within it (Bishop et al., 2024). This behavioural map visualisation was used to illustrate the distribution of children's social interaction activities at the study site. The types of activities were classified using an adaptation of the theory, where children's interactions were categorised into parallel play, associative play, and cooperative play depending on the type of activity they engaged in; thus, the distribution of children's activities can be identified at every facility within the RPTRA, allowing for a systematic analysis of the relationship between interaction types and the resulting physical characteristics. This study adopts Parten's (1932) classification of social play. Next, the characteristics of the space were analysed using an adaptation of affordance theory, which discusses the possibilities of actions taken by living organisms and then applies that understanding to the analytical framework of the research (Stevens et al., 2024) which divides spatial affordances into enabling affordances (supporting factors) and constraining affordances (inhibiting factors). Meanwhile, the intensity of utilisation was analysed using the theory of Time Geography, which explains capability constraints, coupling constraints, and authority constraints. The combination of these three frameworks allows for a more in-depth analysis of how spatial characteristics (affordances) and temporal constraints shape children's social interactions, thereby revealing patterns of children's use of the RPTRA Rawa Badak Utara that support their social interactions.

While there has been extensive previous research on child-friendly public spaces, there are still gaps that have not been fully addressed. Empirically, previous studies have not sufficiently examined how children's social interactions are shaped through the use of micro-scale facilities. Methodologically, these studies have relied on quantitative behaviour mapping or literature reviews, while qualitative field observations that combine spatial and temporal analysis have yet to be widely conducted. For example, a study employed behaviour mapping to map behavioural patterns in a Beijing park using the CARS (Children's Activity Rating Scale) method, which focuses on physical intensity rather than the types of social interactions occurring within the space (Tang & Woolley, 2023). The analysis conducted by (Ziaesaeidi et al., 2025) was carried out on a macro scale based on a literature review of 51 countries and did not include a discussion of existing micro-level facilities. Meanwhile, the study by (Niu et al., 2025) applied behaviour mapping to examine the relationship between behaviour and affordance at a general macro level and did not categorise the types of social interactions formed among children within it. Meanwhile, in a local context, the study conducted by (Indriani et al., 2024) examined spatial-use patterns in Sangkareang Park through behaviour mapping and evaluated urban architectural elements in relation to physical comfort, but did not categorise the types of children's social interactions, namely parallel play, associative play, and cooperative play. This study aims to fill that gap by presenting a discussion that combines an understanding of children's daily spaces and times with a categorisation of their social interactions. This research at the RPTRA Rawa Badak Utara bridges that gap by presenting a qualitative case study that combines an understanding of children's everyday space and time with a categorisation of their social interactions within the framework of behavioural geography.

This study aims to analyse the patterns of use of the RPTRA Rawa Badak Utara in supporting children's social interactions using a behavioural geography approach that integrates behaviour mapping, affordance theory, and time geography, including identifying the types of children's social interactions that emerge. The novelty of this study lies in the integration of space and time within a single analysis, as well as the categorisation of children's social interactions. The main contribution of this study lies in its explanation that children's social interactions at the RPTRA Rawa Badak Utara are not only determined by the availability of physical facilities but are also shaped by other factors, namely the characteristics of the space analysed using affordance theory and time, as well as the reasons for using the space analysed through Time Geography. By integrating these two approaches, this study

offers an analytical framework that links aspects of space and time to understand children's social interactions at the RPTRA Rawa Badak Utara.

2. Method

2.1 Research Design and Setting

This study employs a behavioural geography approach using a qualitative method, specifically a descriptive case study within a behavioural geography framework to analyse patterns of use at the RPTRA Rawa Badak Utara in supporting children's social interactions. The study was conducted at the RPTRA Rawa Badak Utara, Rawa Badak Utara Village, Koja Subdistrict, North Jakarta, as shown in Figure 2.

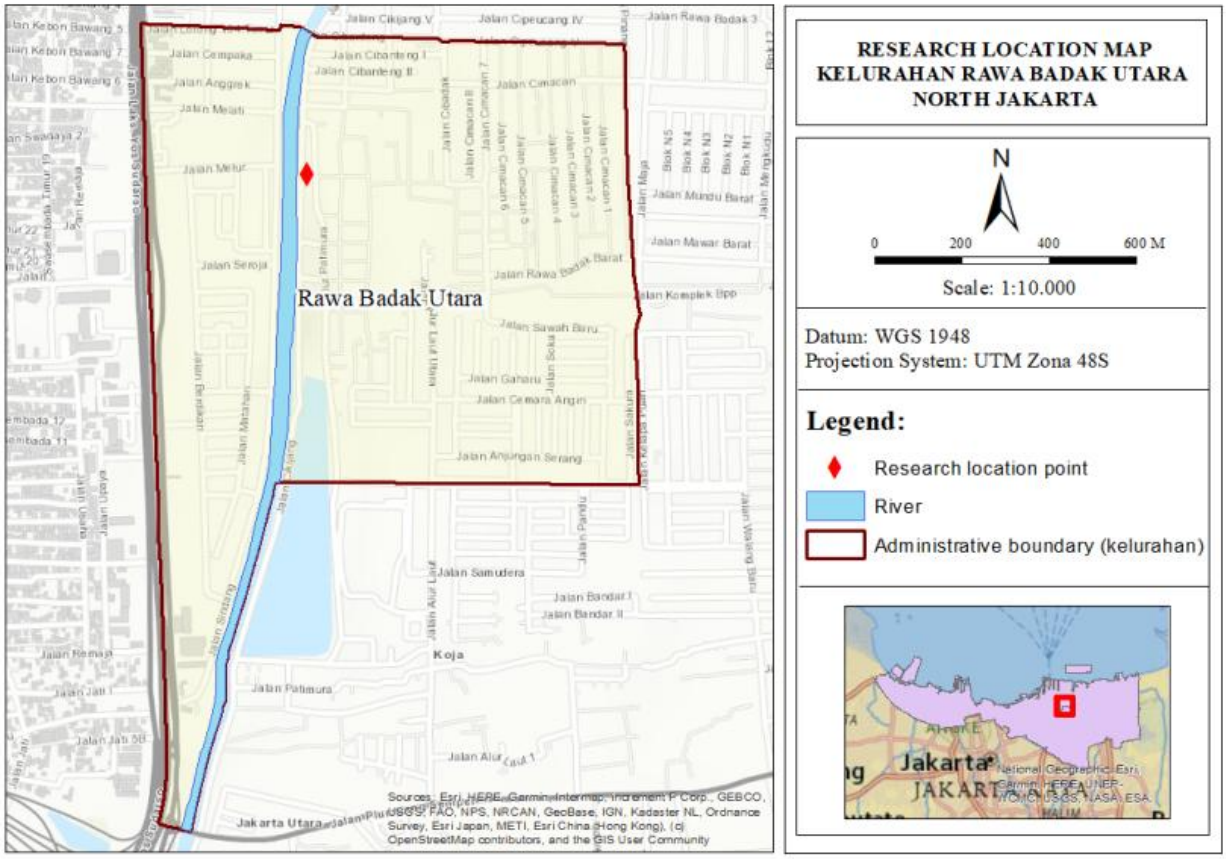

Figure 2. Research Location Map

This location was chosen because Rawa Badak Utara is a densely populated residential area. Data from Badan Pusat Statistik Kota Jakarta Utara indicate that the population density in Rawa Badak Utara is higher than the average population density of DKI Jakarta, which is approximately 16,000 people/km^2 (Badan Pusat Statistik Kota Jakarta Utara, 2025). This makes research on patterns of space utilisation and their relationship to children's social interactions an important topic to study. The data sources used in this study consist of primary and secondary data. Primary data were collected through direct observation in the form of field observations recorded on observation sheets, interviews, and documentation. The observation involved examining the facilities used by the children, the types of activities they engaged in, and the duration of their use of the facilities. Meanwhile, the interviews focused on questions regarding the locations where the children used the facilities, the length of time they spent there, and how they engaged in social interactions while using the RPTRA Rawa Badak Utara. Interviews were conducted with three groups of informants selected through purposive sampling, whose criteria are listed in Table 1.

Table 1. Characteristics of Research Participants

Group of participants	Total	Age (Years)	Gender	Criteria	Relationship to the RPTRA RBU
Children	20 people	6-12	13 males 7 females	Children aged 6–12, local resident, consent	Active users of the RPTRA Rawa Badak Utara
Parent	10 people	Adult	2 males 8 females	Adult, Consented	Accompanying parents/guardians
RPTRA RBU's Staffs	4 people	Adult	2 males 2 females	Adult, Consented	RPTRA operational staff

Table 1 presents the characteristics of the children, parents, and staff interviewed at RPTRA Rawa Badak Utara. The child group comprised 20 users aged 6–12 years, the parent group comprised 10 caregivers supervising children at the RPTRA, and the staff group comprised 4 supporting informants. A total of 34 informants participated in the fieldwork. Before interviewing children, a vulnerable group, the researchers obtained institutional approval from the RPTRA Rawa Badak Utara administrators and consent from each child before participation. To protect participants' identities, the researchers anonymised all documentation containing identifying information. The children were informed that participation as informants was voluntary. Documentation captured children's activities, facility crowding, and the RPTRA layout. Secondary data were obtained through a review of scientific literature and government policies related to RPTRA.

2.2 Data Collection Techniques

Data collection in this qualitative study involved observation, interviews, and documentation. These techniques were used to develop a comprehensive understanding of how use patterns at RPTRA Rawa Badak Utara support children's social interactions. Interviews were conducted in a semi-structured manner using guidelines developed from utilization-pattern indicators. The indicators included activity types, adapted from the state-of-play theory, namely parallel, associative, and cooperative play, for children aged 6–12 years. Spatial characteristics were analysed through affordance theory to determine whether each space provided enabling or constraining affordances. Visit frequency and the factors shaping children's choice of visit times were analysed through time geography, with attention to capability, coupling, and authority constraints. This study was reviewed and approved by Universitas Muhammadiyah Prof. Dr. Hamka (approval no. 01/FKIP/KM/2026, 17 April 2026). Participation was voluntary, and written informed consent was obtained from all participants.

Direct observations were conducted to monitor children's activities across the six zones within the RPTRA, as illustrated in the photo mapping of the RPTRA Rawa Badak Utara area shown in Figure 2. These six zones were the sports court, hall, amphitheatre, playground, container library, and reading room. These six zones were selected because they represent the main areas within the RPTRA Rawa Badak Utara where children aged 6–12 years typically carry out their activities. Spatially, these zones are spread across various parts of the RPTRA and represent a variety of spatial characteristics, ranging from open areas such as the sports court, playground, and amphitheatre to semi-open areas such as the hall, and enclosed areas such as the reading room and container library. This spatial diversity allows researchers to observe how different spatial arrangements influence children's social interactions. This included analysing how children utilised the RPTRA area, the activities they chose to engage in, and the patterns of social interaction that emerged. The observation technique was conducted using a data sheet based on indicators of children's usage patterns and social interactions. Researchers observed and recorded children's activities in the various areas available at the RPTRA, including the sports field, playground, amphitheatre, hall, library, and reading room, at three different times. The results were then visualised using behaviour mapping. Behaviour mapping was used because it effectively represents location-based activities and serves as a tool to help identify behavioural patterns (Onojeghuo et al.,

2019). Meanwhile, documentation was collected to provide evidence of the children's activities and the physical condition of each zone at the RPTRA.

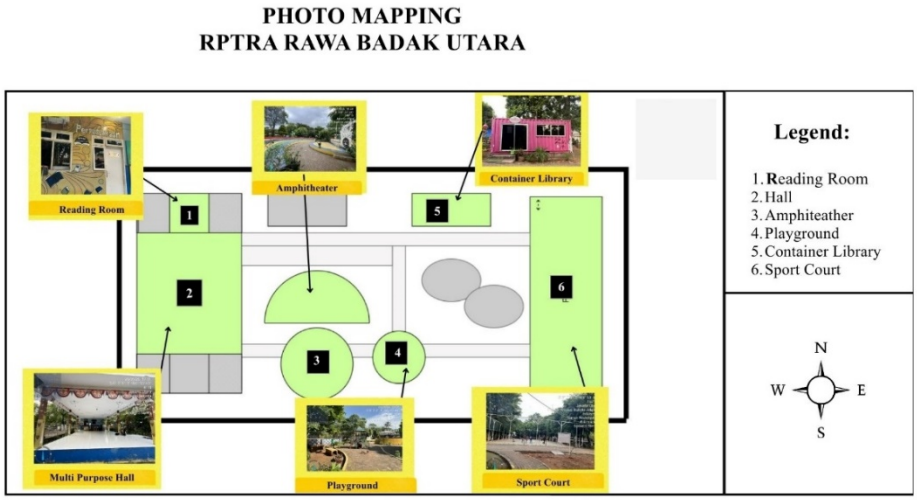

Figure 3. RPTRA Rawa Badak Utara Area Photo Mapping

2.3 Data Analysis Techniques

Qualitative data analysis is conducted through three interrelated stages: data condensation, data presentation, and drawing conclusions (Miles et al., 2014). The approach used in this study is behavioural geography, which examines patterns of use at the RPTRA Rawa Badak Utara by applying affordance theory to analyse the characteristics of use, time geography theory to analyse the intensity of use, and the state of play theory to categorise the types of activities children engage in.

The data condensation phase was carried out through open coding, which involved assigning codes to all interview transcripts, observation notes, and descriptions of documentation. Next, axial coding was performed to group the codes into indicators of children's utilisation patterns and social interactions. The coding process was conducted with reference to the theory mentioned earlier, specifically, the state of play theory, which was used to identify the types of children's interactive activities, such as playing alone, in groups, or simply engaging in casual conversation. Affordance theory served as a framework for identifying how the characteristics of a space, such as accessibility and the facilities available in the zones at the RPTRA Rawa Badak Utara, provide opportunities for children to utilise it. Meanwhile, visit times, play frequency, and children's preferred play times were analysed using time-geography theory to determine the reasons for the peak hours in the afternoon at the RPTRA Rawa Badak Utara. For example, observation notes stating that children were playing soccer on the field in the afternoon were first coded as "playing soccer on the field," "playing soccer," and "afternoon as playtime." Next, axial coding was used to link these codes to the three theoretical frameworks. The code "playing soccer on the field" was interpreted using affordance theory, the code "playing soccer" was interpreted using State of Play theory, and the code "afternoon as playtime" was interpreted using Time Geography theory. The conceptual framework of this study is presented in Figure 1.

The data presentation phase involved two approaches: analysis of observation records and behaviour mapping to illustrate the spatial distribution of children in each RPTRA zone. The data were presented through descriptions of the analysed field findings. Findings on RPTRA Rawa Badak Utara that support children's social interaction were also visualised in a behaviour map showing the distribution of children's activities across the six zones. This visualisation indicates the zones in which parallel, associative, and cooperative play predominantly occur.

Next, conclusions were drawn by determining the convergence status of the data. Convergence occurs when there is consistency among the three data sources; divergence occurs when the data conflict; and partial convergence occurs when only one source supports each finding (Morgan, 2019). Next, conclusions were drawn by synthesising the findings from the three theories to address the research question regarding patterns of use of the RPTRA Rawa Badak Utara in supporting children's social interaction.

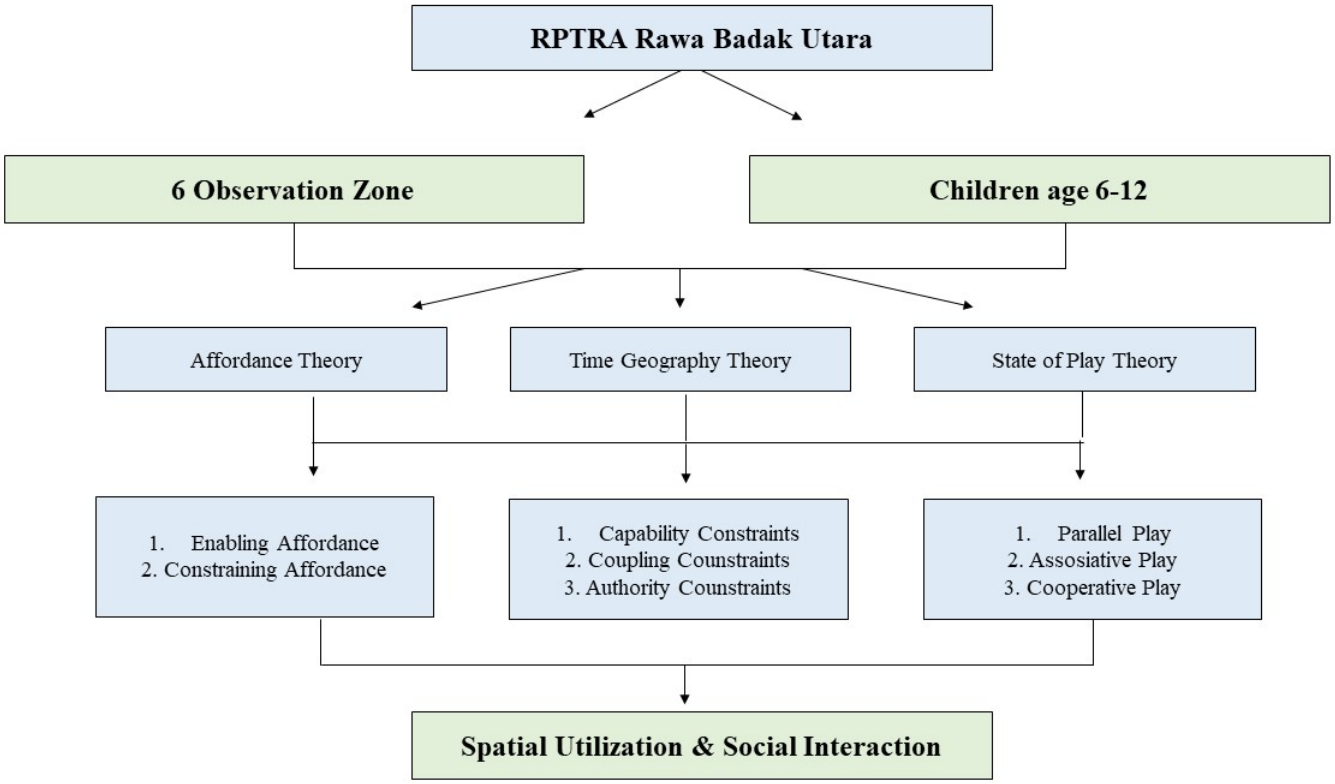

Figure 1. Conceptual Framework

3. Results and Discussion

3.1 Time-Geography Analysis of Children's Activity Patterns

3.1.1 Empirical Findings

Observations at the RPTRA Rawa Badak Utara were conducted to examine how children aged 6–12 utilised the space across six zones at the RPTRA Rawa Badak Utara, namely the sports field, hall, amphitheatre, playground, reading room, and container library at different times of day. Observations were conducted during three time periods: morning, noon, and afternoon on both school days and weekends. These time periods were selected because children aged 6–12 are bound by their school schedules. In total, observations were conducted over 21 sessions spanning 7 days. Across all sessions, the number of children recorded ranged from 0 to 30. Visit intensity was categorised as low, moderate, or high based on the number of children present per observation session. The results of the observations are presented in Table 2.

Table 2. Children's Visit Time Patterns at RPTRA

Observation session	Time	Weekdays	Weekend
Morning	09.00-10.00	Low	Low
Noon	13.00-14.00	Moderate	Moderate
Afternoon	15.00-17.30	High	High

Source: Data analysis 2026

Table 2 shows the categorisation of children's attendance, ranging from low, moderate, to high. The low category describes the presence of 0–5 children, indicating a quiet atmosphere typically observed in the morning; moderate describes the presence of 6–10 children, indicating the onset of children's social activities at noon and "high" refers to more than 10 children, indicating peak attendance observed in the afternoon. This classification indicates that the peak in activity at the RPTRA Rawa Badak Utara occurs in the afternoon. This pattern is consistent on both school days and weekends.

Interviews with children, parents, and staff at the RPTRA Rawa Badak Utara revealed several reasons for this pattern. Children who attended school in the morning stated that their parents did not allow them to play at the RPTRA Rawa Badak Utara immediately after school because they needed to prepare for school. During the noon observation period, only children passing through the RPTRA Rawa Badak Utara area were observed, with no significant activities taking place. Parents explained that they forbade their children from going directly to the RPTRA Rawa Badak Utara after school because the children needed to rest. This finding is consistent with the study by (Simanjuntak et al., 2022), which mentions that children's playtime is generally concentrated in the afternoon after school. One child said, "Since I go to school in the morning, I'm not allowed to play in the morning because I have to get ready for school. At noon, I'm not allowed to play right away either I have to go home first for a nap because my mom tells me to." On weekends, visitor numbers were low in the morning and afternoon because children spent time with their families, such as visiting relatives or staying at home with their families. Interviews with the children revealed that they spent more time with their families on weekends from morning to noon than they did at the RPTRA Rawa Badak Utara. However, the afternoon remained the peak time because the RPTRA Rawa Badak Utara was busier in the afternoon than in the morning or at noon. The following is a comparison of crowd levels at the RPTRA Rawa Badak Utara.

(a (b (c

Figure 4. A comparison of the crowds between (a) Morning, (b) Noon and (c) Afternoon at RPTRA Rawa Badak Utara

Figure 4 shows a comparison of visitor numbers at the RPTRA Rawa Badak Utara at three different times of day, in the morning and at noon, the RPTRA Rawa Badak Utara tends to be quiet with few children visiting, while in the afternoon, activity levels are at their peak. Overall, the interaction of these three constraints produces a consistent temporal pattern in which the afternoon is the dominant time for children's social interaction at RPTRA Rawa Badak Utara.

3.1.2 Theoretical Interpretation

An analysis of usage patterns at the Rawa Badak Utara RPTRA was conducted using time geography, which identifies three constraints that affect individual activities: capability, coupling, and authority constraints. These three constraints interact with one another and produce a consistent temporal pattern. Authority constraints are barriers that arise from social, cultural, or legal rules established by those in positions of power (Dodge & Nelson, 2023), In this context, parental rules regarding when children are allowed to play represent authority constraints that limit children's freedom of movement, particularly in the morning and at noon. Restrictions on the use of the reading room and container library imposed by RPTRA Rawa Badak Utara staff also fall under the category of authority constraints, as children's movement and activities in both areas are limited due to regulations set by RPTRA Rawa Badak Utara management staff.

Coupling constraints are limitations on freedom of movement resulting from difficulties in coordinating time and space between individuals (Dijst, 2020). In this context, they refer to a child's need to socialise with others before engaging in activities. On weekends, visitor numbers are low in the morning and noon because children are spending time with their families. However, weekend afternoons are still peak hours because more children visit at that time than in the morning or at noon. Capability constraints refer to biological limitations, such as fatigue that requires rest, as well as time constraints. This description is consistent with the account of (Dijst, 2020). In the context of the children at the RPTRA Rawa Badak Utara, this situation occurs on school days: visits increase in the afternoon because children who attend school in the morning have returned home, while those attending school at noon have just finished. This occurs because children have free time to play after school, indicating that their range of motion is limited by their physical capacity and remaining energy following formal activities. Meanwhile, on weekends, although mornings and afternoons are quieter, visits increase again in the afternoon because children who have been at home all day become bored.

3.2 Spatial Utilization of Active Zones

3.2.1 Empirical Findings

The sports field, hall, and playground are the areas most frequently used by children at RPTRA Rawa Badak Utara. Observations showed that the sports field was crowded in the afternoon. Most child informants reported that they often played soccer there. The hall is used for group study and traditional games, such as ABC Lima Dasar, that do not require strenuous physical activity. The playground, with its swings and slides, serves as a space for relaxed activities and conversation. The following image shows group physical activities at RPTRA Rawa Badak Utara.

Figure 5. Physical activities that children engage in in open zones at RPTRA Rawa Badak Utara
(a) children playing soccer on the sports field,
(b) children playing tag in the amphitheater area

Meanwhile, children used the amphitheatre as an improvised affordance. This use resulted from their improvisation in response to limited access to the sports field, which another group was using. The amphitheatre's characteristics, including its sufficient size to serve as a substitute for the sports field, were recognised by the children as enabling continued social activity. This situation also occurred during dance practice when the hall schedule conflicted with other activities. Observations showed that this pattern of adaptation occurred consistently.

Several children who were excluded from playgroups were seen playing alone near the group. This phenomenon occurred sporadically as a result of exclusion or rejection by peers. Children who were not accepted into group play on the playground or in the amphitheatre tended to play alone in the area surrounding the group, engaging in similar activities but without direct interaction. This was observed in the slide and swing areas. These findings may also indicate how a child's social circumstances influence the affordances provided by the environment. The amphitheatre area, with its spacious layout, allows children to use it as a group play area; however, for socially isolated children, the amphitheatre is instead used to observe other children who are playing there. The finding that excluded children use

environmental affordances differently from other children is consistent with the research by Mohammadi et al. (2026). Figure 7 shows how children make use of the available space, adapt spatially when the play area becomes crowded, and how some children end up playing alone as a result of social exclusion in certain areas.

(a) (b)

Figure 6. The children's improvised use of the amphitheater:
(a) children who use the amphitheater as an alternative place to play soccer,
(b) the amphitheater area used as the site for the improvised performance

(a) (b)

Figure 7. Parallel play resulting from group exclusion:
(a) children playing without interacting in the slide area
(b) children playing without interacting in the swing area.

In contrast, the container library and reading room were identified as part of the constraining-affordance category. The enclosed nature of the spaces and the consistently restricted access have caused these two zones to shift in function to become passive zones. This is supported by observations which consistently showed that the container library and reading room were always locked during the operating hours of the RPTRA Rawa Badak Utara. This situation was confirmed by one of the staff of the RPTRA Rawa Badak Utara, who explained that access to the container library and reading room is restricted to prevent the loss of books from these two areas happening again. These physical restrictions, taken as a whole, prevent children from engaging in any activities or social interactions within these spaces. These findings are also supported by research (Desjardins et al., 2022) which states that children's use of public spaces and their independent mobility are severely limited due to managerial factors that restrict their freedom of movement.

(a) (b)

Figure 8. (a) locked container library, (b) locked reading room

3.2.2 Theoretical Findings

Within the affordance framework, space is understood not only as a setting for activity but also as a provider of possibilities for action. Sports fields, halls, and playgrounds function as enabling affordances, that is, spaces that offer children opportunities to interact. Interactions that take place in these areas can be classified using the State of Play framework. Cooperative play is defined as activities involving many participants that are structured and have a shared goal, while associative play is characterised by activities in which children engage in similar activities and interact with one another, but without binding rules. Soccer on a field is classified as cooperative play because it aligns with (Parten, 1932), which states that one characteristic of cooperative play is the involvement of a group of people in organised activities with another group. Dance practice in the auditorium also qualifies as cooperative play because it is guided by an adult with structured instructions. Traditional games such as "ABC Lima Dasar" are considered cooperative play because they have rules and a shared goal and involve many people or groups. Unstructured activities, such as children chatting while watching others practice dancing, are classified as associative play. Playgrounds encourage associative play, as children engage in casual conversations while using the swings. These findings are consistent with Ziaesaeidi et al. (2025), who found that human-made features such as playgrounds are the most dominant stimulus in motivating children to engage in social activities. Similarly, the findings of Raney et al. (2023) indicate that zones with structured play facilities can significantly enhance cooperative play interactions among urban children.

The amphitheatre represented an improvised affordance. This use emerged from the children's improvisation in response to limited access to the field, which was being used by another group. This aligns with the findings of (Alfiani & Adhitama, 2026), which shows how children who lack play areas creatively use public cemeteries as spaces for play and social interaction. This finding reinforces the work of (Niu et al., 2025) in which children actively used spaces beyond their original intended purposes by reinterpreting the functions of physical elements to meet their play needs. The dominant form of children's social interaction in this area was cooperative play, where children used the amphitheatre's spacious stage to play soccer as an improvisation when the field was unavailable for use.

Parallel play, as defined by (Hayati & Putro, 2021), refers to children's activities in which they play alongside other children but do not interact with them. At the RPTRA Rawa Badak Utara, parallel play emerged as a direct result of social exclusion from the cooperative play group.

Container libraries and reading rooms fall into the category of "constraining affordance." The enclosed nature of these spaces and their consistently restricted access cause both of these zones to shift in function toward passive zones. This can be analysed using (Stevens et al., 2024), who argue that restrictions on spatial mobility due to physical barriers can reduce children's activity. Similarly, (Sholikhah et al., 2024) note that when certain spaces are inaccessible, the result is a lack of physical or social interaction. The following are the coding results presented in the form of a figure.

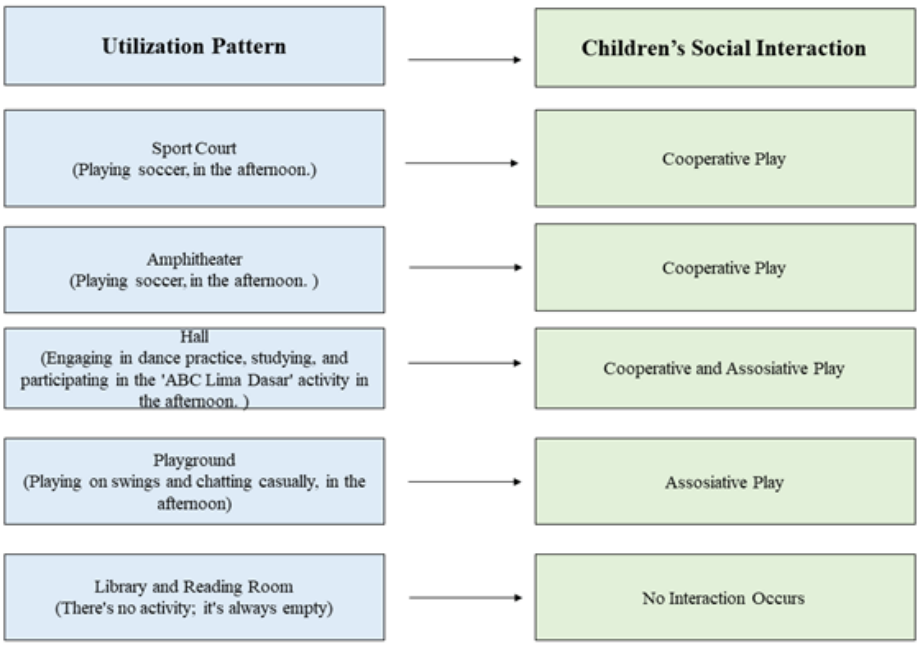

Figure 9. Coding results for utilization patterns at RPTRA Rawa Badak Utara

Figure 9 shows that facility utilisation patterns at RPTRA Rawa Badak Utara significantly affect the variety of children's social interactions. In open areas designed for group physical activities, such as the sports court and amphitheatre, afternoon soccer matches effectively promote cooperative play. Meanwhile, the hall supports cooperative and associative play through structured activities guided by adults, in which children follow instructions, such as during dance practice. Traditional games such as ABC Lima Dasar are classified as cooperative play because they have shared rules and goals and involve multiple participants. By contrast, unstructured activities, such as children chatting while watching others practise dancing, are classified as associative play. Areas intended for more relaxed use, such as the playground, stimulate associative play. Children engage in casual conversations while using the swings. By contrast, areas with restricted access, such as the library and reading room, show a noticeable lack of social interaction among children.

From the perspective of behavioural geography, the closure of these facilities functions as a constraining affordance, a spatial boundary that limits children's access to books or indoor activities. This physical barrier is reinforced by authority constraints within Time Geography, namely operational policies implemented by facility managers that indirectly restrict children's daily mobility. These findings confirm that the availability of public infrastructure does not automatically guarantee the formation of social spaces. These findings are also consistent with the study by (Helleman et al., 2026) who state that children's use of public spaces is determined not only by the availability of facilities but also by how children define the affordances and social dynamics within those spaces.

Overall, the physical conditions of the space at RPTRA Rawa Badak Utara determine the nature of the social interactions that take place within it. The spacious, open areas function as enabling affordances that support cooperative play and associative play, while the enclosed areas fall under constraining affordances that hinder the formation of social interactions. On the other hand, parallel play emerges when children excluded from a playgroup choose to play alone near the group because of exclusion or rejection by their peers. The spatial distribution of these various forms of social interaction is visualised in Figure 10. This map illustrates the spatial imbalance in the use of space at the RPTRA Rawa Badak Utara, with children's activities concentrated in four main areas: the sports field, the multipurpose hall, the amphitheatre, and the playground. In these four active areas, the most dominant types of social interaction are cooperative play and associative play. The visualisation also reveals the presence of passive zones completely untouched by children's social activities, namely the container library and the reading room. Symbols representing parallel play or independent activities are almost nonexistent in both of these rooms and appear only sporadically around the playground area.

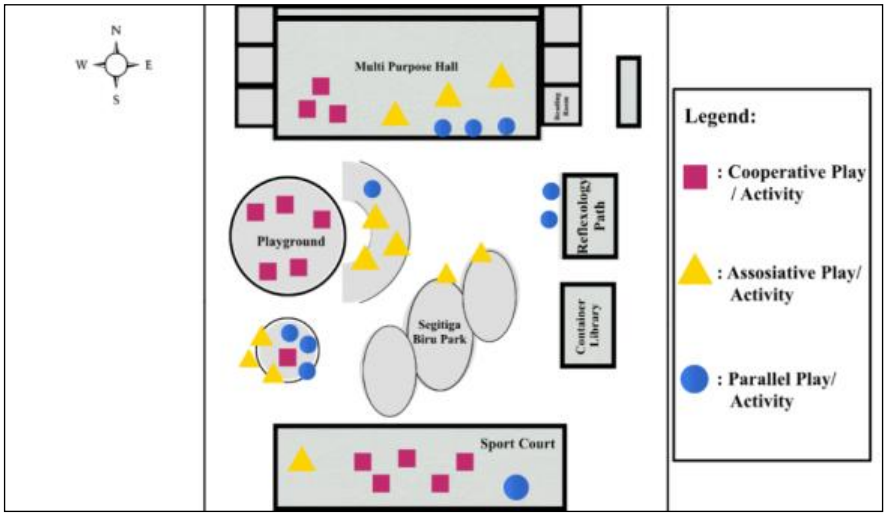

Figure 10. Children's Activities at the Rawa Badak Utara RPTRA

4. Conclusion

This study concludes that the use patterns at RPTRA Rawa Badak Utara support children's social interactions through the interplay of spatial characteristics, visit times, and interaction types. Open spaces, including the sports field, hall, and playground, function as enabling affordances that support cooperative and associative play, particularly during the afternoon peak period shaped by capability, coupling, and authority constraints. When the sports field is unavailable, children adapt by using the amphitheatre as an improvised affordance for cooperative activities. By contrast, the locked container library and reading room function as constraining affordances and remain passive zones. Parallel play occurred sporadically among children experiencing social exclusion. The findings show that physical facilities alone do not ensure equitable use. Accessibility is the main condition for supporting children's social interactions. RPTRA staff should consider scheduled access to locked facilities while maintaining safety. Flexible alternative spaces should also be available when the sports field is occupied.

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Data Availability: Raw data containing participants' identifying information have not been published because the participants are children, a vulnerable group. Instead, anonymised data including observation sheets, coding matrices, and interview excerpts are available upon request from the corresponding author.

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