

Mental maps of foreign children in the multicultural city of Beppu, Japan

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Abstract:

This study examines the mental maps of foreign children in Japan. In particular, the city of Beppu in the Kyushu region of Japan is targeted. Beginning with the opening of Ritsumeikan Asia Pacific University (APU) in 2000, Beppu has seen an influx of foreign students, and many families have been called away from their schooling in their home countries during their schooling or while settling down after graduation. The children of immigrants from foreign countries begin their lives in Beppu with little or no Japanese language skills, which causes them difficulty in adjusting to life in Japan. Support systems for such foreign families and children as these are still under construction. Mental maps contribute to clarifying the living and cognitive spaces of children in children's geography and cartography (Silva et al. 2019; Swienton et al. 2023). In this study, we seek to make a contribution to the accumulation of basic data on the living spaces of foreign children in Japan through clarifying the cognitive space of foreign children and the ways that they draw it, using the mental maps that are drawn by foreign children living in Beppu.

The method that we use is as follows. Children who participated in a "summer festival" event hosted by an organization providing support activities for foreign families in Beppu were instructed to create a hand-drawn map of their neighborhood in Beppu (August 2022). Of the 16 hand-drawn maps obtained in this way, we analyzed the mental maps of 10 children between the ages of 9 and 12 years, taking consideration for the differences in their growth stages. These 10 children were from Southeast Asia (3), the Middle East (2), from North America (2), from Africa (1), from Europe (1), and from Japan (1). The number of years of residence in Japan for the nine children with origins outside of Japan were less than 1 year (one), 1 to 2 years (two), 2 to 5 years (four), more than 5 years (two), and unknown (one).

Table 1, The top six recurrent elements in the mental maps included shops (100-yen stores and convenience stores), supermarkets, and fast-food restaurants, showing that these are the most common facilities in children's living spaces. The next most common elements, such as the ocean, rivers, and mountains, reflect the regional structure of Beppu, an area of alluvial fans.

Element	Number*
Shops/supermarkets/fast-food restaurants	14
Schools/childcare center	7
Beach/sea/river/mountain	7
Paths–street–roads	6
Parks/APU plaza	5
Crosswalks	4

* Total number of occurrences of each element

Table 1. The top six most recurrent elements in the mental maps

Most of the maps feature anchor points (as polygons) and routes (as lines), as shown in Figure 1. Most of the maps have little text, and when it is there, it is written in hiragana or alphabetic characters. However, Figure 1 depicts the sea in the lower right corner of the map, the mountains in the upper left corner and the child's living space (supermarket, house, and school) located between the sea and the mountains, providing a rough idea of the urban structure of Beppu. On the other hand, some maps, such as that in Figure 2, which depicts a relatively narrow area, show roads not as lines but as

having a certain width and from a bird's-eye view, as shown in the right-hand side of Figure 2. Some maps, such as that in Figure 3, depict only facilities, with no or few routes. This may partly be because these children depend on their parents' cars for their daily transportation. On the other hand, on the right side of Figures 2 and 3, feelings, likes, and dislikes toward facilities such as department stores and stores are expressed with colours. In this study, we do not find any relationship with the country of origin, gender, or parental occupation.

These findings highlight how foreign children perceive and navigate the urban environments of regional cities in Japan, shaped by both mobility constraints and emotional associations. Mental maps reveal not only spatial cognition but also subtle adaptations to new environments. Future research should expand sample size, include longitudinal data, and further explore how language acquisition and mobility patterns affect children's spatial understanding.



Figure 1. An example drawn with polygons and lines

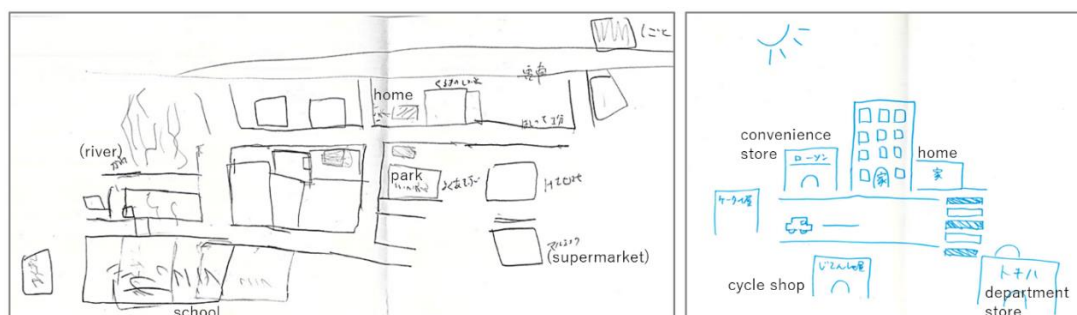


Figure 2. Examples depicting roads and narrow locations and a bird's eye view (right)

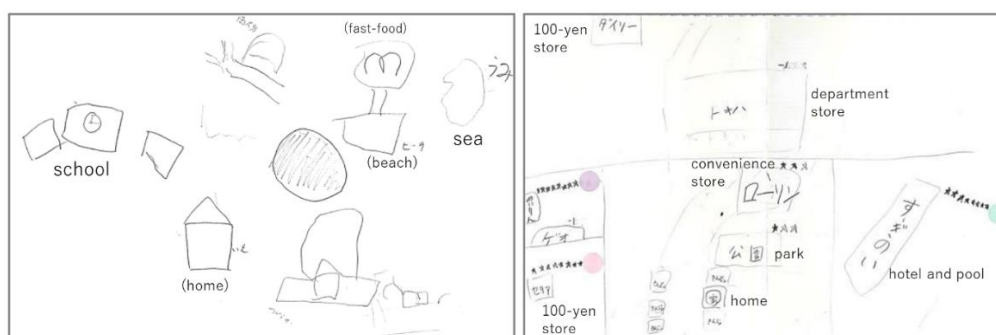


Figure 3. Examples where only facilities are depicted and routes and locations are depicted to a limited extent

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