

Date of Submission (month day, year) : July 6, 2026

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Abstract (Doctor)

Title of Thesis	Empirical Analyses of the Traffic Park Characteristics and Their Impact on Children's Traffic Safety Education
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Approx. 800 words

Traffic accidents involving children remain an important road safety concern due to their limited traffic knowledge, cognitive and perceptual abilities, and independent experience in real-world traffic environments. Although various traffic safety education programs have been developed, many approaches provide limited opportunities for children to gain practical experience in real traffic situations. Traffic parks (TPs), which are miniature road environments equipped with facilities such as traffic signals, pedestrian crossings, stop signs, and road markings, provide children with opportunities to learn and practice traffic rules in a safe and controlled environment. However, despite their long history and widespread presence, empirical evidence regarding their educational effectiveness and the influence of their operational practices remains limited. This study therefore aimed to evaluate the effectiveness of traffic parks as experiential traffic safety education environments for children by examining their facilities and activities, children's experiences, and operational management policies. The study was conducted through three complementary analytical aspects. First, the characteristics of traffic parks, including facilities, activities, and instructional practices, were examined at international and national levels. A database of 337 traffic parks across 18 countries was developed through online information collection, revealing considerable variation in facilities, traffic rule instruction, and educational activities. In Japan, a nationwide survey identified 161 traffic parks, including 63 responding active parks and 43 discontinued parks. Although basic miniature road facilities were commonly retained, substantial variation existed in operational and instructional policies, with staff shortages and limited teaching materials identified as major challenges. Second, a case study was conducted to examine the relationship between children's traffic park use and traffic safety learning outcomes using a questionnaire survey of elementary school students living near the TP. The survey investigated children's frequency of traffic park use before and after entering elementary school, traffic rule awareness, and behavioral intentions concerning traffic rules. A total of 808 valid responses were obtained from four elementary schools. Approximately 90% used a traffic park before entering elementary school, while the frequency of use generally decreased as school g

rade increased. The results indicated that more frequent traffic park use was positively associated with children's awareness of traffic rules and their behavioral intentions. The SEM analyses demonstrated that TP use before entering elementary school had significant effects on traffic rule awareness and behavioral intention. The integrated SEM model further demonstrated that TP use before entering school was significantly associated with traffic rule awareness, which in turn was significantly associated with behavioral intention. Collectively, these models suggest that early TP experience may strengthen children's behavioral intentions through enhanced awareness of traffic rules.

Third, the influence of operational and management policies on children's traffic safety learning was investigated by comparing two traffic parks with different intervention practices in Aichi Prefecture, Japan. A questionnaire survey was conducted with elementary school children living near the two traffic parks. In Traffic Park-A, staff mainly observed children's activities and intervened when safety concerns became serious, whereas in Traffic Park-B, staff provided safety reminders and guidance actively. The comparative analysis showed that both parks provided opportunities for children to develop traffic rule awareness through repeated use. However, Traffic Park-A showed weaker associations between frequency of use and children's traffic rule awareness and behavioral intentions, while Traffic Park-B showed stronger associations and more consistent behavioral responses. Modest positive effects were also observed among accompanying parents in the more actively supervised environment.

By synthesizing these three analytical aspects, the study demonstrates that traffic parks should be understood not merely as physical facilities or recreational spaces, but as experiential traffic safety education environments in which the quality of learning depends on the interaction between physical facilities, repeated user experience, and operational or instructional practices. Repeated practice and play provide children with concrete experiences of traffic situations, while active instruction or safety reminders strengthen the learning process. These findings are consistent with the principles of experiential learning and child development through play, suggesting that practice combined with feedback can provide a more complete experiential learning process.

Overall, this study provides a comprehensive empirical evaluation of traffic parks, particularly in Japan, highlighting the importance of active instructional policies in strengthening children's experiential traffic safety learning. The findings suggest that well-maintained traffic parks with appropriate educational practices can support children's traffic knowledge and behavioral skills and should be considered as part of integrated, child-centered traffic safety education and child-friendly mobility planning.