

Perspective Analysis of Traffic Safety Education Curriculum Needs in Kindergartens in Central Java

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ABSTRACT

Early childhood traffic safety education has become increasingly important, especially as young children are frequently exposed to road surroundings and transportation hazards. This study examines opinions regarding the curricular needs for teaching road safety in kindergartens located in Central Java. This study analyzes the needs for curriculum components and teaching methods to instill traffic awareness and safe behavior in kindergarten-aged children from the perspectives of teachers. Using a qualitative descriptive approach, data were collected via surveys distributed to kindergarten teachers, focusing on their perspectives on the necessity of traffic safety education and the appropriate curriculum components. The results revealed a strong consensus on the importance of introducing traffic safety education at an early age. Respondents emphasized the need for interactive teaching methods, such as games and visual media, to convey traffic rules and safe behaviors effectively. Over 94% of respondents agreed that basic traffic symbols, pedestrian safety, and road risk awareness should be integrated into early education to foster disciplined and safety-conscious habits among children. The study concludes that a comprehensive traffic safety curriculum in kindergartens is vital for reducing traffic-related risks in the future. It recommends the development of interactive, age-appropriate materials, and emphasizes collaboration between schools, families, and communities to reinforce safety practices beyond the classroom. This integrated approach is essential to shaping a culture of safety among the younger generation.

Keywords: Curriculum, Education, Road Safety Education, Traffic Safety, Kindergartens

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INTRODUCTION

One of the intricate issues with Indonesia's transportation system is the road traffic accident (RTA). Over the past five years, Indonesia's RTA incidence has grown by roughly 4.87% annually. It happens frequently in cities. Traffic accidents in Indonesia rose from 109,215 occurrences in 2018 to 116,411 incidents in 2019, according to data from Korlantas Polri. However, the number dropped to 100,028 instances between 2019 and 2020. This pattern was also seen in Central Java, where 26,179 individuals were killed in traffic accidents in 2018, 52,689 in 2019, and 28,051 in 2020 (Rahmawati et al., 2023).

Human factors, such as breaking traffic laws and making mistakes as a driver, are the main causes of RTA (Bucsuházy et al., 2020). Among other variables, some research has found that human factors have a major role in road accidents (Bucsuházy et al., 2020). From an early age, ongoing education initiatives and promotion are necessary to establish a culture and understanding of road safety. Furthermore, previous study showed that traffic safety education was expected to be taught to children from an early age (Erviana et al., 2024). (Alonso et al., 2020) highlighted how safety education improves children's conduct in Spain. It was discovered that safe behavior positively correlated with risk assessment, positive attitudes, and familiarity with driving laws.

Kindergarten education as stated in Indonesian Law number 20 of 2003 article 28 paragraph 3 is early childhood education on the formal education path aimed at helping children develop various potentials both psychological and physical, which include moral and religious values, social, emotional, independence, cognitive, language, physical/motor skills, and art to be ready to enter elementary school. Kindergarten is one form of early childhood education on the formal education path that provides educational services for children aged 4-6 years, to help the growth and development of children, so they can continue their education further (Putri, 2018).

Children's safety education necessitates creative teaching strategies. According to (Khan et al., 2021), virtual reality (VR)-based game-based adaptive learning techniques improved crossing behavior. Furthermore, two intervention strategies—parental coaching and Feynman learning intervention for kids—based on distinct principal responsibilities within the family were put out by (Feng et al., 2022). Consequently, education has a critical role in reducing the number of accidents.

This study analyzes the need for curriculum components and teaching methods to instill traffic awareness and safe behavior in kindergarten-aged children from the perspectives of teachers. Our research targets teachers because they are the main actors in providing education to children.

METHOD

Research methods are the steps on how the research is conducted so that the problem can be solved. Research methods are defined as scientific ways to obtain data with specific purposes and uses. In this study, the author uses qualitative descriptive research, which involves describing or depicting a social phenomenon. In other words, this research aims to depict something that is currently happening at the time of the study.

Using qualitative research methods in this study, it is expected to obtain detailed information related to the research conducted by the researcher, namely the analysis of the perspective on the curriculum needs for traffic safety education in kindergartens in Central Java. This research uses data collection techniques, namely questionnaires or surveys through Google Forms, which will be distributed to kindergarten teachers in Central Java.

The research instrument in studies using a qualitative approach is the researchers themselves, as the success in data collection is largely determined by the researcher's

ability to immerse themselves in the social situation that is the focus of the study. The research instrument used by the author is a questionnaire.

FINDING AND DISCUSSION

Respondent Demographics

This research is based on data obtained from respondents who completed the online questionnaire in Table 1.

Table 1: Respondent Demographics

| Ages | Respondents | |
|-------------------|-------------|------------|
| | Total | Percentage |
| < 17 years old | 0 | 0.000% |
| 17 - 25 years old | 1 | 1.042% |
| 25 - 35 years old | 12 | 12.5000% |
| 35 - 45 years old | 32 | 33.333% |
| > 45 years old | 51 | 53.125% |

Table 1 shows that there are 96 respondents, including the teachers. The highest percentage is among respondents aged over 45 years, which is 53.125% with a total of 51 respondents. Then, the age group of 35 to 45 years accounts for 33.333% with 32 respondents. The age group of 25 to 35 years comprises 12.500% with 12 respondents, and the age group of 17 to 25 years has 1.042% with only one respondent.

Table 2: Respondent Educational Background

| Academic Background | Respondents | |
|---------------------|-------------|------------|
| | Total | Percentage |
| Highschool | 9 | 9.375% |
| Associate Degree | 4 | 4.167% |
| Bachelor's Degree | 80 | 83.333% |
| Magister's Degree | 3 | 3.125% |
| Doctoral Degree | 0 | 0.000% |

Table 2 shows the respondents' backgrounds divided into 5 categories. Based on the results obtained. As many as 9.375% of respondents have a high school education background, 4.167% have an associate degree background, followed by the largest percentage of 83.333% with a bachelor's degree background, and then 3.125% with a master's degree background.

Research Result

There are 5 main indicators that the researchers use to determine the importance of implementing a traffic safety curriculum in kindergartens, where each indicator is elaborated in 3 questions in the questionnaire.

Table 3: List of Indicators and Questionnaire Questions

| Indicator | Questions | Percentage | |
|--|--|------------|--------|
| | | Yes | No |
| Awareness of the Importance of Traffic Safety Education | Do you think that early traffic safety education is essential to prevent accidents among young students? | 94.792% | 5.208% |
| | Do you find it necessary to introduce road markings to help young students understand the traffic environment? | 96.875% | 3.125% |
| | Do you believe teaching safe behavior on the road is essential for the overall development and safety of students? | 95.833% | 4.167% |
| Introduction to Basic Traffic Signs and Signals | Do you feel it's valuable to introduce basic traffic symbols, such as stop signs and traffic lights, to kindergarten students? | 94.792% | 5.208% |
| | Do you find interactive games helpful in teaching the meaning of traffic symbols to young children? | 93.750% | 6.250% |
| | Do you think it's important to ensure that students recognize and understand essential traffic symbols commonly encountered on the road? | 96.875% | 3.125% |
| Student Discipline in Traffic | Do you think young students should be taught to ask for adult assistance when crossing the street? | 95.833% | 4.167% |
| | Do you believe that instilling the habit of using sidewalks is essential for young children? | 96.875% | 3.125% |
| | Do you encourage discipline in students by teaching them to follow basic traffic rules? | 95.833% | 4.167% |
| Safe Behavior in Traffic Environments | Do you believe it's important to teach young children not to play in dangerous areas like the edge of the road? | 95.833% | 4.167% |
| | Do you regularly encourage students to follow traffic light symbols to stay safe on the road? | 95.833% | 4.167% |
| | Do you think it's necessary to teach children to choose safe locations away from areas close to roads? | 94.792% | 5.208% |

| | | | |
|--|--|---------|--------|
| Student Understanding of Road Risks | Do you ensure that students understand the importance of being cautious around roads? | 96.875% | 3.125% |
| | Do you use stories or examples to explain to young children why roads can be dangerous? | 95.833% | 4.167% |
| | Do you explain the importance of road safety practices, like waiting before crossing, to young children? | 96.875% | 3.125% |

Awareness of the Importance of Traffic Safety Education

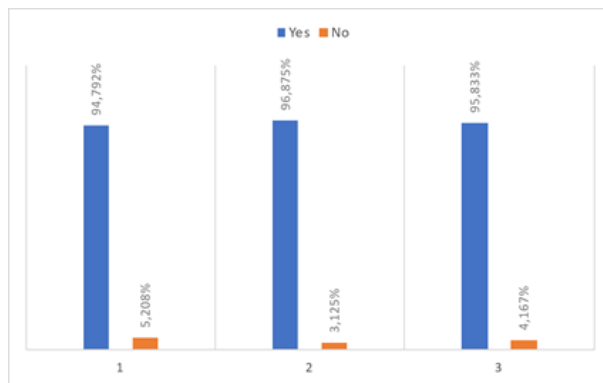


Figure 1: .Awareness of the Importance of Traffic Safety Education Indicator

Figure 1 shows the teachers' perspective on the awareness of the importance of traffic safety education for kindergarten students. For question 1, the percentage of "yes" responses was 94.792% and the percentage of "no" responses was 5.208%. Next, for question 2, the percentage of "yes" responses was 96.875% and the percentage of "no" responses was 3.125%. Then, for question 3, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. This indicates that kindergarten teachers are very aware of the importance of traffic safety education for kindergarten students.

This is in line with other research that shows that promoting the value of road safety and offering education are two ways to raise awareness and the culture surrounding it. It is believed that teaching kids the value of road safety at a young age can help mold their attitudes and personalities and cultivate traffic discipline (Mina Yumei Santi, 2016). Children's attitudes and character can be shaped by teaching them the value of road safety from a young age. Age-appropriate materials for traffic discipline campaigns help kids better grasp their environment, particularly when it comes to traffic (GRSP, 2013).

The five categories of safety education topics—traffic introduction, pedestrian safety, travel safety, bicycle safety, and play safety—were created based on primary subject groups (DKTD, 2011). Roads and their components as defined by Law No. 38 of 2004 on roads, vehicle types as defined by Law No. 22 of 2009 on Traffic and Road

Transportation, traffic signs and road markings, and traffic regulations (only for the 9–11 age group) are all included in the topic of traffic introduction.

Introduction to Basic Traffic Signs and Signals

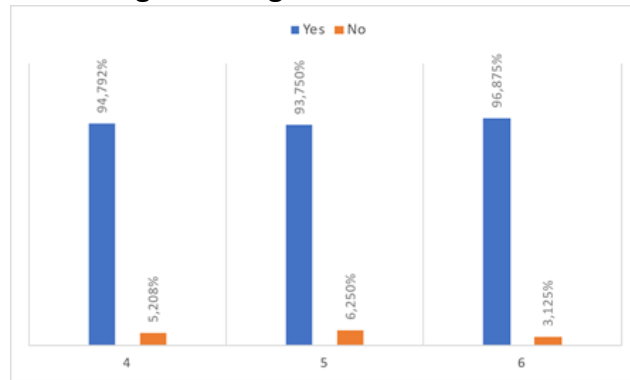


Figure 2: .Introduction to Basic Traffic Signs and Signals Indicator

Figure 2 shows the teachers' perspective on the introduction to basic traffic signs and signals for kindergarten students. For question 1, the percentage of "yes" responses was 94.792% and the percentage of "no" responses was 5.208%. Next, for question 2, the percentage of "yes" responses was 93,750% and the percentage of "no" responses was 6.250%. Then, for question 3, the percentage of "yes" responses was 96.875% and the percentage of "no" responses was 3.152%. This indicates that kindergarten teachers feel that the introduction of basic traffic signs and signals is important for their students.

This result is consistent with other research that explains the children are still in the concrete thinking stage of development, the function of media in education, particularly in early childhood education, is growing in significance. Since infants are supposed to learn things in a concrete way, one of the tenets of early childhood education must be grounded in reality. Therefore, in early childhood education, a tool that enables children to learn in a tangible way must be used (Purwanto, 2017).

According to that theory, early childhood educators must use the media as a medium for spreading educational information. In order for the material to be properly accepted or assimilated by the young learners, a teacher must use media when presenting it to them. Eventually, it is anticipated that behavioral changes will take place in terms of knowledge, attitudes, and abilities.

Student Discipline in Traffic

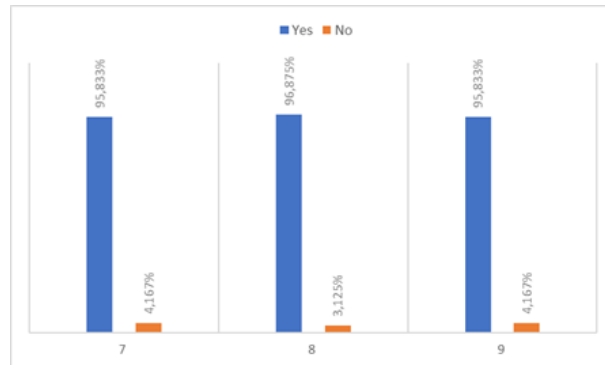


Figure 3: .Student Discipline in Traffic Indicator

Figure 3 shows the teachers' perspective on the awareness of the importance of kindergarten students' discipline in traffic. For question 7, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. Next, for question 8, the percentage of "yes" responses was 96.875% and the percentage of "no" responses was 3.125%. Then, for question 9, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. This indicates that kindergarten teachers are very aware of the importance of kindergarten students' discipline in traffic.

This result is consistent with other research that explains young children are particularly prone to copying the behavior of adults. Children will mimic adults who ride vehicles or motorcycles in zigzag patterns or chase one another without thinking about other people. For this reason, it is crucial to start discipline early in order to teach them discipline later in life.

According to that theory, early childhood educators need to instill in their kids a sense of discipline, particularly traffic discipline, which includes teaching them to utilize sidewalks and follow fundamental traffic laws (Mardikawati et al., 2023).

Student Understanding of Road Risks

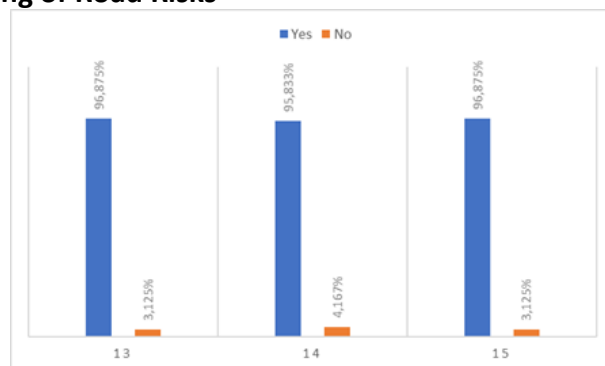


Figure 4: .Student Understanding of Road Risks Indicator

Figure 4 shows teachers' perspectives on the importance of Students' Understanding of Road Risks. For question 13, the percentage of "yes" responses was 96.875% and the percentage of "no" responses was 3.125%. Next, for question 14, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. Then, for question 15, the percentage of "yes" responses was 96.875% and the percentage of "no" responses was 3.125%. This indicates that kindergarten teachers are very aware of the importance of Students' Understanding of Road Risks

This result is consistent with other research that explains responsibility in kindergarten students to behave safely in traffic environments, such as waiting before crossing the road and understanding why there are many risks on the road.

According to that theory, early childhood educators are also expected to be able to transmit aspects of understanding to other children and become pioneers of traffic safety (Amir et al., 2023).

Safe Behavior in Traffic Environments

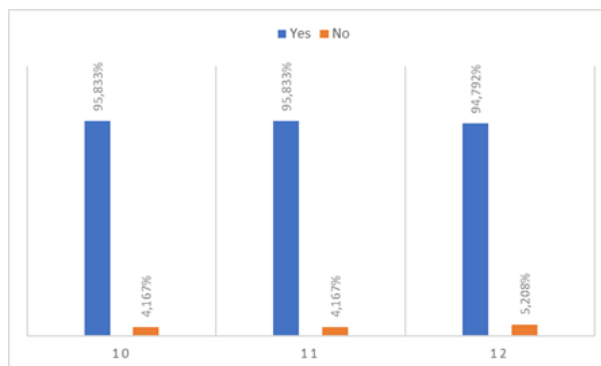


Figure 5: .Safe Behavior in Traffic Environments Indicator

Figure 5 shows the teachers' perspective on the awareness of the importance of kindergarten students' safe behavior in traffic environments. For question 10, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. Next, for question 11, the percentage of "yes" responses was 95.833% and the percentage of "no" responses was 4.167%. Then, for question 12, the percentage of "yes" responses was 94.729% and the percentage of "no" responses was 5.208%. This indicates that kindergarten teachers are very aware of the importance of kindergarten students' safe behavior in traffic environments.

This result is consistent with other research that explains traffic infractions by children continue to be a prevalent issue in Indonesia. This is caused by a number of elements, including knowledge, travel distance, school education, family, and environmental factors.

According to that theory, early childhood educators need to instilling a sense of responsibility in kindergarten students to behave safely in traffic environments (Suryandari et al., 2022).

DISCUSSION

The research results demonstrate significant awareness among kindergarten teachers and parents regarding the importance of implementing traffic safety education for young children. The findings align with established theories on early childhood education and highlight the role of structured traffic safety programs in shaping children's attitudes, behaviors, and understanding of traffic environments.

Demographic and Educational Background

The demographic analysis (Table 1) reveals that respondents are predominantly aged over 45 (53.125%), which suggests a mature population likely to be more experienced in handling children's education and traffic safety. Additionally, Table 2 indicates that most respondents have a bachelor's degree (83.333%), implying a well-educated cohort capable of comprehending and implementing traffic safety concepts. This demographic profile provides a strong foundation for the reliability and applicability of the research findings.

Awareness of the Importance of Traffic Safety Education

The high percentage of "yes" responses across the awareness indicator (over 94% for all questions) underscores a strong consensus on the necessity of traffic safety education at an early age. The results support existing research emphasizing the role of early education in fostering traffic discipline and safety awareness (Mina Yumei Santi, 2016; GRSP, 2013). Early intervention in traffic education is critical, as it shapes lifelong habits and attitudes, contributing to a culture of safety.

Introduction to Basic Traffic Signs and Signals

The introduction of traffic signs and signals (Table 3) received consistent support, with over 93% "yes" responses. This finding is supported by (Purwanto, 2017), who stresses the importance of concrete learning tools for young children. Using interactive and tangible methods to teach traffic symbols ensures that children comprehend and retain the information effectively, promoting behavioral changes.

Student Discipline in Traffic

The data on student discipline in traffic (over 95% "yes" responses) highlights the necessity of instilling disciplined behavior, such as using sidewalks and seeking adult assistance. This finding aligns with (Mardikawati et al., 2023), emphasizing that early childhood education should focus on teaching children to follow basic traffic rules and model responsible behavior. Instilling discipline early is essential, as children are prone to imitate adult behaviors, both positive and negative.

Safe Behavior in Traffic Environments

The findings on safe behavior (over 94% "yes" responses) reflect a high level of awareness among teachers about the need to educate children on avoiding dangerous areas, such as roadsides. Consistent with (Suryandari et al., 2022), the results suggest that family, school, and environmental factors play a crucial role in children's traffic behavior. Educators must emphasize the importance of safe practices to reduce the prevalence of traffic-related infractions among children.

Student Understanding of Road Risks

The high percentage of "yes" responses (over 95%) regarding road risk awareness indicates that educators recognize the importance of teaching children about road hazards and safe crossing practices. These findings align with (Amir et al., 2023), who highlight the importance of educating children to become traffic safety pioneers. By understanding and communicating road risks, children can influence their peers, fostering a culture of safety within their communities.

Implications for Traffic Safety Education

The study's findings provide strong evidence for the urgency of implementing a comprehensive traffic safety curriculum in kindergartens. Early education programs should integrate age-appropriate materials and interactive learning tools to engage children effectively. Moreover, collaboration between schools, families, and communities is essential to ensure consistent reinforcement of safety practices.

CONCLUSION

This study highlights the importance of traffic safety education at the kindergarten level in Central Java as a preventive effort to reduce future traffic accident risks. In Indonesia, where traffic accidents have shown a steady increase annually, fostering road safety awareness from an early age is crucial. This research captures the perspectives of teachers and parents on the need for a traffic safety education curriculum tailored specifically for young children. Survey results reveal that the majority of respondents exhibit a high level of awareness regarding the significance of this education and support the implementation of interactive and child-centered teaching methods.

Respondents agreed that introducing basic traffic signs, such as traffic lights and stop signs, is essential for building children's understanding of traffic environments. These introductions, when delivered through interactive games and tangible learning aids, enable children to grasp safety concepts more effectively. Additionally, teaching safe behaviors, such as seeking adult assistance when crossing streets, using sidewalks, and avoiding playing near roads, is considered vital to fostering disciplined habits that can help prevent dangerous situations.

The study also emphasizes the importance of educating children about the risks associated with roads. Through narrative approaches, such as storytelling and real-life examples, children can be taught to recognize potential dangers and understand the necessity of being cautious in traffic environments. Children are also encouraged to select safe play locations and to comprehend how following traffic rules ensures their safety and that of others.

Findings from this research demonstrate that traffic safety education not only enhances children's understanding of traffic environments but also holds the potential to shape their character and habits in the long term. Children who receive early safety education are more likely to grow into disciplined individuals who prioritize safety in various aspects of their lives. Therefore, an integrated and comprehensive curriculum

must be implemented in kindergartens, incorporating diverse teaching methods such as visual media, interactive games, and experiential learning.

Moreover, this study underscores the importance of collaboration between schools, families, and communities to ensure consistent traffic safety education. Schools can serve as the primary learning hubs, while families and communities play crucial roles in reinforcing safety messages taught in classrooms. This creates a supportive environment for children to practice safety habits in their daily lives. Such a curriculum aims not only to impart knowledge but also to establish a culture of safety that can significantly reduce traffic accidents in Indonesia in the future.

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