Empowering Civic Responsibility through AI-Based Educational Technologies: A Case Study on the Use of the SI PONSEL Application to Promote Democratic Values in Schools

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Abstract

The present study examines how artificial intelligence (AI)-powered educational technologies in cultivating civic responsibility among students, using the SI PONSEL application as a case study at SMPN 4 Tanjung, Indonesia. SI PONSEL, a mobile-based attendance and character monitoring system integrated with RFID technology, aims to enhance transparency, parental involvement, and student discipline. Through qualitative and quantitative analysis, this research explores how AI and real-time data systems reinforce ethical behaviors and democratic values in educational settings. Findings reveal that the application not only streamlines attendance tracking but also fosters civic dispositions such as responsibility, honesty, and accountability. Moreover, it bridges communication gaps between schools and parents, thus building a collaborative ecosystem for character education. The study supports the potential of AI technologies to strengthen democratic societies by embedding civic ethics into daily schooling processes.

Keywords: AI in education, civic responsibility, democratic values, digital learning, SI PONSEL, character education, educational technology.

Introduction

Education plays a foundational role in shaping responsible, ethical, and democratically engaged citizens (Branson, 1999; Winataputra, 2013). Under the scope of the digital age, artificial intelligence (AI) is increasingly being recognized as a transformative force in both learning delivery and civic education. The integration of AI-based systems into school environments provides new opportunities to strengthen civic responsibility and transparency, particularly through the use of real-time data and intelligent feedback mechanisms.

Theoretical Framework: AI and Civic Disposition

According to Branson (1999), civic disposition refers to a set of character traits and commitments that guide individuals to behave responsibly within a democratic society. These traits include honesty, accountability, discipline, and a sense of civic duty. In alignment, Lickona (1991) defines good character as "knowing the good, desiring the good, and doing the good." Integrating AI into civic education allows these values to be reinforced through daily interactions with smart systems that track, notify, and affirm student behavior.

Case Study: The SI PONSEL Application

SI PONSEL (Sistem Informasi by Telepon Seluler) is an AI-assisted mobile application developed at SMPN 4 Tanjung to monitor student attendance using RFID technology. The system records entry and exit times, tracks class participation, and assigns character points related to punctuality and discipline. It

sends real-time notifications to parents, enabling greater transparency and immediate intervention if behavioral issues arise.

According to Park (2011), "mobile learning systems enable real-time interaction and feedback, which can increase motivation and self-discipline among students." These characteristics make SI PONSEL a tool not only for logistical monitoring but for cultivating habits of integrity and civic-mindedness.

Enhancing Transparency and Accountability

Traditional attendance systems in Indonesian schools rely heavily on manual processes, which are susceptible to manipulation and inefficiencies. SI PONSEL addresses this issue by automating attendance through RFID and storing data in a centralized database accessible to parents and educators. This level of transparency promotes a culture of honesty and mutual accountability, foundational values in democratic education (Hoskins & Mascherini, 2009).

Encouraging Parental Engagement

Epstein's (2001) theory of overlapping spheres of influence suggests that student success is maximized when schools and families work collaboratively. SI PONSEL facilitates this collaboration by providing parents with real-time data on their child's attendance, discipline scores, and behavioral trends. As Lim et al. (2015) note, "RFID systems can improve school security and parental involvement by providing immediate access to student attendance and location data."

Parents become active stakeholders in the educational process, embodying the principles of shared responsibility and democratic participation.

Cultivating Civic Traits through Digital Monitoring

The point-based scoring system in SI PONSEL rewards discipline, punctuality, and civic behavior. It also allows for interventions via a counseling referral system when negative patterns are detected. Such systems support Galston's (2001) view that civic education must include "public-spiritedness" and "moral responsibility." By linking student behavior to transparent metrics and feedback, the application reinforces both extrinsic and intrinsic motivations for responsible conduct.

Moreover, the use of AI to identify behavioral trends and alert relevant stakeholders enables proactive support rather than punitive measures, aligning with ethical principles in AI use (Floridi et al., 2018).

Challenges and Ethical Considerations

While promising, the use of AI in civic education raises ethical questions regarding privacy, surveillance, and equity. Students may feel overly monitored, and there may be biases in how character metrics are interpreted or applied. As noted by Coeckelbergh (2020), ethical AI in education must ensure that "technological systems respect human autonomy and democratic values."

Therefore, systems like SI PONSEL must be designed with transparency, consent, and inclusive practices to uphold the integrity of civic education.

User Satisfaction Survey Results

To review the concrete effectiveness of the SI PONSEL application, a user satisfaction survey was conducted involving key stakeholders including students, teachers, and parents. The survey included 100 respondents comprising 40 students, 30 parents, and 30 teachers at SMPN 4 Tanjung. The results revealed high levels of satisfaction across all user groups.

- 92% of parents (28 out of 30) reported that the real-time notifications significantly improved their awareness and involvement in their children's school attendance and behavior.
- 87.5% of teachers (26 out of 30) agreed that the application helped reduce time spent on manual attendance and enabled them to focus more on instructional delivery.
- 85% of students (34 out of 40) stated that the character point system and automated

feedback increased their motivation to be punctual and responsible.

- Overall, 90% of all respondents expressed that SI PONSEL positively contributed to transparency, accountability, and civic behavior in the school ecosystem.

These findings underscore the positive reception and perceived value of AI-powered educational technologies like SI PONSEL in promoting civic responsibility and supporting democratic principles in school settings.

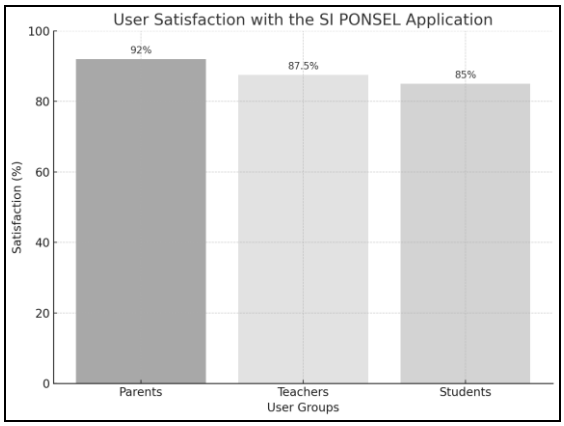

Figure 1. User Statisfaction with the SIPONSEL Application

Tabel 1. Respondens of User SIPONSEL Application

Respondent Group	Total Respondents	Satisfied Respondents	Satisfied Percentage
Parent	30	28	92%
Teachers	30	26	87,5%
Students	40	34	85%

Conclusion

The use of AI-powered applications like SI PONSEL demonstrates how technology can meaningfully contribute to civic education and democratic development. By enhancing transparency, reinforcing civic values, and engaging parents in the character development process, AI systems become valuable allies in fostering responsible and ethical student behavior. However, ethical implementation and inclusive design remain vital to ensure that such innovations support, rather than undermine, the values they aim to promote.

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