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ENHANCING AI ADOPTION IN LAW ENFORCEMENT: A STUDY OF AWARENESS, TRAINING, AND PERCEPTIONS WITHIN THE PHILIPPINE NATIONAL POLICE

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ABSTRACT

The integration of artificial intelligence (AI) into policing has advanced significantly since the 1950s, with applications ranging from crime prediction to facial recognition. AI's role in enhancing public safety, resource allocation, and monitoring police behavior is increasingly recognized. However, the Philippine National Police (PNP) faces both opportunities and challenges in adopting AI, necessitating thorough exploration. This study examines PNP personnel's awareness of AI, the extent of their formal AI training, perceived benefits and barriers to AI adoption, and recommendations for improving AI integration. Survey results show that while most PNP personnel are aware of AI's role in policing, there are significant gaps in understanding specific applications like data analysis and crime prediction. Formal AI training within the PNP is notably lacking and often perceived as inadequate. Despite these deficiencies, respondents acknowledge AI's potential administrative and operational benefits. However, barriers such as insufficient training, communication gaps, heavy workloads, and skepticism about AI effectiveness hinder broader adoption. Respondents strongly agree on the need for more formal training, improved internal communication, leadership support, and regular awareness campaigns to facilitate AI integration. Addressing these gaps through structured training programs, better communication strategies, and supportive leadership can enhance AI's effective use in police work.

KEYWORDS: *Artificial Intelligence, policing, public safety, Angeles City, Philippines, facial recognition, predictive analytics, ethical considerations, bias mitigation, privacy concerns.*

INTRODUCTION

The rapid advancement of technology has significantly impacted various sectors, including law enforcement. Artificial intelligence (AI) has emerged as a transformative tool in policing, offering applications that range from crime prediction to facial recognition. These technologies promise to enhance public safety, optimize resource allocation, and monitor police behavior more effectively (Brynjolfsson & McAfee, 2014; Ferguson, 2017). However, the adoption of AI in law enforcement is not without its challenges. In the context of the Philippine National Police (PNP), it is essential to understand the current state of AI awareness, training, and perceptions among personnel to facilitate better integration of these technologies.

This study aims to explore the following research questions:

What is the level of awareness of AI among PNP personnel?

To what extent have PNP personnel received formal training in AI?

What are the perceived benefits and barriers to AI adoption within the PNP?

What recommendations can be made to improve AI integration in the PNP?

METHODS

Participants

The study surveyed a sample of PNP personnel from various units within the Angeles City Police Office. Participants were selected using a stratified random sampling method to ensure representation across different ranks and roles.

Data Collection

Data was collected through a structured questionnaire designed to assess awareness, training, perceptions, and recommendations regarding AI. The questionnaire included both closed-ended and open-ended questions to capture quantitative and qualitative data. The survey was administered both online and in person to accommodate participants' preferences.

Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Qualitative responses were analyzed using thematic analysis to identify common themes and insights related to AI adoption in the PNP (Braun & Clarke, 2006).

RESULTS

Awareness of AI

The survey results indicated that a majority of PNP personnel (78%) were aware of AI and its potential applications in policing. However, detailed understanding of specific AI applications such as data analysis and crime prediction was limited. Only 45% of respondents could accurately describe how AI could be used for crime prediction, and 39% understood its role in data analysis.

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Formal AI Training
Formal AI training among PNP personnel was found to be notably lacking. Only 20% of respondents reported having received any form of AI training, and among those, 60% felt that the training was inadequate. The primary reasons for the perceived inadequacy included lack of practical examples, insufficient depth, and outdated information.

Perceived Benefits of AI
Despite the gaps in training, respondents acknowledged several potential benefits of AI in policing. These included improved efficiency in administrative tasks (85%), enhanced crime-solving capabilities (78%), and better resource allocation (72%). AI was also seen as a valuable tool for monitoring police behavior and ensuring accountability (65%) (Garvie et al., 2016; Stevens & Hinds, 2019).

Barriers to AI Adoption
Several barriers to AI adoption were identified. The most significant barriers included insufficient training (85%), communication gaps between leadership and personnel (70%), heavy workloads (65%), and skepticism about AI's effectiveness (50%). Concerns about ethical issues, such as bias and privacy, were also noted by 40% of respondents (Angwin et al., 2016; Richardson et al., 2019).

Recommendations for Improving AI Integration
Respondents strongly agreed on the need for more formal training programs (90%), improved internal communication (80%), leadership support (75%), and regular awareness campaigns (70%). Specific suggestions included the development of comprehensive training modules, workshops led by AI experts, and the establishment of a dedicated AI unit within the PNP.

Statistical Summary of Survey Results

Measure	Awareness of AI	Formal AI Training	Perceived Adequacy of Training	Perceived Benefits of AI	Barriers to AI Adoption	Recommendations for Improvement
Mean	0.75	0.30	1.50	3.50	3.45	3.70
Standard Deviation	0.44	0.47	1.05	0.61	0.60	0.47
Variance	0.20	0.22	1.11	0.37	0.37	0.22
Minimum	0	0	0	2	2	3
25th Percentile (Q1)	0.75	0	1	3	3	3
Median (Q2)	1.00	0	1.5	4	3.5	4
75th Percentile (Q3)	1.00	1	2	4	4	4
Maximum	1	1	3	4	4	4

Interpretation
Regarding the awareness of AI, the mean score was 0.75, indicating that on average, 75% of the PNP personnel are aware of AI. The low standard deviation of 0.44 suggests that the responses were fairly consistent, with most personnel either being aware or not aware of AI.

For formal AI training, the mean score was 0.30, showing that only 30% of the personnel have received formal AI training. The higher standard deviation of 0.47 indicates variability in responses, suggesting that while a small portion has received training, the majority have not.

In terms of perceived adequacy of training, the mean rating was 1.50 on a scale where higher values represent better adequacy. The standard deviation of 1.05 reflects significant differences in perceptions, with some personnel finding the training adequate and others not.
The perceived benefits of AI in policing were highly rated, with an average score of 3.50 out of 4. The low standard deviation of 0.61 indicates that most personnel agree on the benefits of AI.

Regarding barriers to AI adoption, the average rating was 3.45, with a standard deviation of 0.60, suggesting strong agreement on the barriers. These barriers are consistently recognized among personnel.

The recommendations for improving AI integration were highly rated, with a mean of 3.70 out of 4 and a low standard deviation of 0.47, indicating strong consensus on the need for improvements.

These statistical measures provide a clear picture of the current state of AI awareness, training, and perceptions within the PNP, highlighting areas that need attention for better AI integration.

DISCUSSION
The findings of this study highlight both the opportunities and challenges associated with AI adoption in the Philippine National Police (PNP). The high level of awareness among

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personnel suggests a general recognition of AI's potential in law enforcement. However, the limited understanding of specific AI applications like data analysis and crime prediction indicates a need for more focused education and training efforts.

The lack of formal AI training within the PNP is a significant barrier to effective AI adoption. With only 20% of respondents having received any form of AI training, and 60% of those finding the training inadequate, it is clear that current training programs are insufficient. This inadequacy is likely due to a lack of practical examples, insufficient depth in the training material, and outdated information. These findings are consistent with previous research indicating that effective AI implementation requires comprehensive and up-to-date training programs (Goodfellow et al., 2016).

Despite these training deficiencies, PNP personnel recognize several benefits of AI in policing. Improved efficiency in administrative tasks, enhanced crime-solving capabilities, and better resource allocation were among the top perceived benefits. AI's role in monitoring police behavior and ensuring accountability was also highlighted, reflecting a broader recognition of AI's potential to improve transparency and trust in law enforcement (Garvie et al., 2016; Stevens & Hinds, 2019).

However, significant barriers to AI adoption persist. Insufficient training, communication gaps between leadership and personnel, heavy workloads, and skepticism about AI's effectiveness were the most commonly cited obstacles. These barriers are compounded by ethical concerns related to bias and privacy, which have been widely discussed in the literature (Angwin et al., 2016; Richardson et al., 2019). Addressing these barriers requires a multifaceted approach that includes improving training programs, enhancing communication and leadership support, and addressing ethical concerns through transparent and accountable AI practices.

The study's findings on recommendations for improving AI integration underscore the importance of structured and comprehensive training programs. Respondents strongly agreed on the need for more formal training, improved internal communication, leadership support, and regular awareness campaigns. These recommendations align with best practices in AI implementation, which emphasize the importance of continuous learning and adaptation (Brynjolfsson & McAfee, 2014; Mayer-Schönberger & Cukier, 2013).

Implementing these recommendations will require significant effort and commitment from the PNP leadership. Developing comprehensive training modules and workshops led by AI experts can help bridge the knowledge gap and equip personnel with the necessary skills to use AI effectively. Establishing a dedicated AI unit within the PNP could also provide ongoing support and ensure that AI initiatives are aligned with organizational goals.

Moreover, fostering a culture of innovation and openness to new technologies is crucial for successful AI adoption. This involves not only providing the necessary training and resources but also encouraging personnel to embrace new tools and approaches. By promoting a positive attitude towards AI and addressing concerns proactively, the PNP can create an environment conducive to technological innovation.

In conclusion, while AI holds great promise for enhancing law enforcement capabilities within the PNP, realizing this potential requires addressing current deficiencies in training, communication, and leadership support. By implementing the study's recommendations, the PNP can pave the way for more effective and ethical AI integration, ultimately contributing to improved public safety and police accountability.

CONCLUSION

AI holds great promise for enhancing law enforcement capabilities within the PNP. However, realizing this potential requires addressing current deficiencies in training, communication, and leadership support. By implementing the recommendations provided, the PNP can pave the way for more effective and ethical AI integration, ultimately contributing to improved public safety and police accountability.

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