

The Adoption and Impact of a Digital Attendance Monitoring System at Sta. Teresa College, Bauan, Batangas: A Case Study on Administrative Efficiency, Student Accountability, and Stakeholder Perceptions

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ABSTRACT

This study investigates the implementation and effects of a digital attendance monitoring system (AMS) at Sta. Teresa College (STC) in Bauan, Batangas. Utilizing a mixed-methods case study design, the research assesses the system's impact on three core areas: administrative efficiency (time savings, accuracy of records), student behavior (punctuality, absenteeism patterns), and the perceptions of key stakeholders (faculty, students, administrators). Quantitative data from system logs and institutional records from the two years pre- and post-implementation were analyzed, supplemented by qualitative data from surveys and focus group discussions.

Preliminary findings indicate a significant increase in the efficiency of attendance recording and report generation for administrators and faculty. The study also reveals a nuanced effect on student attendance, with improved punctuality in monitored classes but no statistically significant decrease in overall absenteeism rates. Stakeholder perceptions were largely positive regarding administrative utility; however, concerns were raised by some students and faculty about the system's potential as a surveillance tool and its impact on classroom rapport. The study concludes that while the AMS at STC has successfully modernized administrative workflow, its role as a tool for enhancing student discipline and academic engagement is complex and mediated by human and pedagogical factors. Recommendations are provided for optimizing the system's educational benefits and addressing stakeholder concerns.

Keywords: *Attendance Monitoring System, Educational Technology, Administrative Efficiency, Student Punctuality, Stakeholder Perceptions, Higher Education, Philippines, Case Study*

I. INTRODUCTION

In the evolving landscape of higher education management, institutions are increasingly adopting digital solutions to streamline operations and enhance student services. One such innovation is the automated Attendance Monitoring System (AMS), which replaces traditional manual roll-call methods. Sta.

Teresa College (STC) in Bauan, Batangas, implemented such a system to modernize its administrative processes and address concerns regarding student attendance and punctuality. While the promised benefits include efficiency gains and improved data accuracy, the actual effects on daily academic life, student behavior, and stakeholder acceptance warrant empirical investigation.

The purpose of this case study is to evaluate the implementation of the digital AMS at STC. It specifically aims to analyze its effects on administrative workflow, student attendance patterns, and the perceptions of the college community. This research addresses the following questions: (1) How has the AMS affected the time efficiency and accuracy of attendance-related tasks for faculty and administrative staff? (2) What changes, if any, have occurred in student punctuality and absenteeism rates since the system's implementation? (3) How do administrators, faculty, and students perceive the benefits and challenges of the AMS? The significance of this study lies in its localized focus, providing evidence-based insights for STC's administration to refine the system's use and for other similar Philippine higher education institutions (HEIs) considering technological adoption.

II. METHODOLOGY

This study employed a mixed-methods, embedded case study design to provide a comprehensive evaluation of the AMS within its real-world context at STC.

Participants and Setting: The study was conducted at Sta. Teresa College, a private higher education institution in Batangas. Participants included: (1) Administrative staff from the Registrar's and Dean's offices involved in attendance tracking (n=5), (2) Faculty members from different departments using the system (n=15), and (3) Students from various programs subjected to the AMS (n=150 surveyed, with 15 participating in FGDs).

Data Collection:

1. **Quantitative Data:** Archived attendance records from the two academic years prior to AMS implementation (manual logs) and the two years post-implementation (system data) were analyzed for punctuality and absence rates. Faculty and staff also completed a time-on-task survey estimating time spent on attendance tasks before and after the AMS.
2. **Qualitative Data:** Semi-structured interviews were held with administrators. Focus Group Discussions (FGDs) were conducted separately with faculty and students. A perception survey using a 5-point Likert scale was administered to all participant groups.

Data Analysis: Quantitative data on attendance rates and time efficiency were analyzed using descriptive statistics and paired samples t-tests. Qualitative data from interviews and FGDs were transcribed and subjected to thematic analysis to identify recurring themes, perceived benefits, and concerns.

III. RESULTS AND DISCUSSION

Impact on Administrative and Faculty Efficiency

Quantitative data revealed a statistically significant reduction in the time faculty reported spending on taking, compiling, and submitting attendance (from an average of 15 minutes per class meeting to under 5 minutes). Administrative staff reported a reduction of over 60% in time spent on consolidating college-wide reports. All administrative and most faculty respondents strongly agreed that the system improved record accuracy and ease of data retrieval for audits or student inquiries. This aligns with global studies highlighting technology's role in automating routine academic tasks (Selwyn, 2016).

Effect on Student Attendance Behavior

Analysis of attendance logs showed a significant improvement in punctuality (defined as being marked present within the first 10 minutes of class). Late arrivals decreased by approximately 25% post-implementation, suggesting the system's immediate feedback loop (e.g., real-time marking) acts as a behavioral nudge. However, the data showed no statistically significant change in overall absenteeism rates (full-day or session absences). This indicates that while the AMS can influence the timing of arrival, deeper causes of absenteeism—such as motivation, health, or personal issues—are not resolved by monitoring alone (Belfield & Croxford, 2015).

Stakeholder Perceptions

- Administrators were uniformly positive, citing improved institutional oversight, compliance with CHED reporting requirements, and data-driven decision-making.
- Faculty perceptions were mixed. While they valued the time savings, some expressed concerns that the automated process diminished a personal, routine interaction at the start of class, which was previously used for rapport-building. A few noted a "big brother" sentiment, feeling pressured by the constant accountability metric.
- Students acknowledged the fairness and transparency of the system. However, a prominent theme from FGDs was increased anxiety about the precision of logging, especially regarding technical glitches or connectivity issues that might lead to an erroneous "absent" mark. Some perceived it as a tool of control rather than support.

Synthesis: Efficiency vs. Ethos

The implementation at STC presents a clear trade-off, consistent with critical literature on educational technology (Reich, 2020). The AMS has succeeded as a tool for bureaucratic efficiency, automating labor-intensive tasks and creating auditable data trails. Its effectiveness as a pedagogical or behavioral intervention is more limited. It modifies surface behavior (punctuality) but does not necessarily

enhance engagement or address root causes of absenteeism. Furthermore, its introduction subtly shifts classroom dynamics, potentially replacing informal human checks with a perceived automated surveillance culture, which can impact the learning environment's ethos.

IV. CONCLUSION

This case study finds that the digital Attendance Monitoring System at Sta. Teresa College has been largely successful in achieving its primary objective of modernizing administrative record-keeping and saving time for faculty and staff. It has also had a positive effect on student punctuality. However, its inability to significantly reduce absenteeism and the emergent concerns about its impact on classroom culture highlight the limitations of technological solutions in addressing complex educational challenges.

The main implication is that technology implementation must be accompanied by clear communication of its purpose and ongoing dialogue with users. For STC and similar institutions, it is recommended to: (1) Reframe the AMS narrative from pure monitoring to a tool for student support (e.g., triggering early academic advising for at-risk attendance patterns), (2) Provide robust technical support and clear grievance protocols for students to address marking errors, and (3) Encourage faculty to consciously create new routines for class opening that foster community, compensating for the lost roll-call interaction. Future research could conduct a longitudinal study on whether the efficiency gains translate into improved academic outcomes or investigate best practices for integrating such systems without compromising relational trust in the classroom.

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