People's Democratic Republic of Algeria
Ministry Of Higher Education and Scientific Research
University Of Amar Telidji - Laghouat
Faculty of Letters and Foreign Languages
Department of Letters and English Language

Assessing the Acceptance of a Proposed Attendance Tracking App by the Administration staff, Teachers, and Students at the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria

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Academic Year 2023/2024

Declaration of Authenticity

The work reported in this dissertation was conducted by me, **Rania Behitila** , under the supervision of **Ms. Amira Hiba Nouioua**, Department of Letters and English Language, Faculty of Letters and Languages, at Amar Telidji University, Laghouat, Algeria.

I hereby declare that the title of my dissertation, *"Assessing the Acceptance of a Proposed Attendance Tracking App by the Administration Staff, Teachers, and Students at the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria,"* and the contents of this dissertation is the product of my own research. No part has been copied from any published source (except for adequately cited references, standard models, or protocols).

I further declare that this work has not been submitted for any other degree or diploma award. The University may take action if the information provided is found inaccurate at any stage.

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Dedication

This dissertation is dedicated to:

My father, *Ali Behitila*, your strength and wisdom have buoyed my spirit through this journey. In my lowest moments, your unwavering faith in me and your relentless encouragement gave me the momentum to rise beyond every instance that came our way. Thank you for instilling in me the values of hard work and perseverance that come through sacrifice in service to our family; all these qualities will always be a foundation for my life.

My mother, *Mamma Kacheba*, has always supported my success through unconditional love, prayers, and caregiving. Even through the most demanding challenges, your unwavering belief in me motivates and inspires me! Whatever sacrifices of love or selflessness your parents exercised will always come to the surface and encourage you to mold yourself on the strength of their aura. Nombre

My brothers and sisters, *Rafik Behitila, Asma Behitla, and Ritadj Behitila*, and their companionship and support are essential in my life. Through your humor and love, you have been my heart, encouragement, and grounding influence. Thank you so much for believing in me and reminding me that family always comes first.

To my fiancé, *Abderrazak Ahmed Kaddouri*, thank you for your everlasting love, patience, and support through this process. Your faith has always supported my dreams and aspirations; you were always there in a time of doubt. I will be eternally thankful for your understanding and for having my back through it all.

To my best friend, *Reguia Kaouka*, for always being a constant in my life. Your faith in my abilities, to say the least, and your positivity have always been a powering force and inspiration for me. Thank you for being there to hear me out, be my cheerleader, and lift me when I needed it the most!

Acknowledgments

I sincerely thank my supervisor, **Ms. Amira Hiba Nouioua**, for her invaluable guidance and constructive feedback throughout this research. Her expertise has been a cornerstone of this dissertation.

I am also profoundly grateful to the teachers at the Department of Letters and English Language at the University Amar Telidji Laghouat for their insightful feedback and academic contributions. Their dedication has dramatically enriched this work.

I extend my heartfelt gratitude to the team of the startup incubator of University Amar Telidji Laghouat, especially Dr. Rahmani and Dr. Labregue, for their support and encouragement, which significantly contributed to the success of this project.

Finally, I thank the administrative staff and participants in this study for their cooperation, which provided invaluable insights. This dissertation reflects the collective support I have received. Thank you.

Abstract

The aim of this study is to examine the perspectives of administration staff, teachers, and students at the Department of Letters and English Language, University Amar Telidji Laghouat (Algeria) regarding the use of a proposed application for attendance tracking. This study employs a mixed-methods approach to evaluate the perceptions of its ease of use, usefulness, and potential for improving attendance management processes. Based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), this ... Result shows that the application will significantly improve attendance records accuracy, efficiency and accessibility while reducing administrative burden. However, factors including user training, technical infrastructure and privacy concerns were raised as implementation barriers that needed to be overcome. These findings highlight how we can design the app better and how adoption strategies can be practiced, but mainly they prove that each solution should be localized based on the universities interests in Algeria. This study also adds to the wider body of educational technology research by providing an overlooked perspective on technology acceptance in a non-Western context, with implications for practices aimed at incorporating digital tools into academic settings.

Keywords:

Attendance tracking app, Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), educational technology, digital transformation in education.

List of Abbreviations

PU: Perceived Usefulness

PEOU: Perceived Ease of Use

TAM: Technology Acceptance Model

UTAUT: Unified Theory of Acceptance and Use of Technology

BIU: Behavioral Intention to Use

ATU: Attitude Toward Use

SI: Social Influence

FC: Facilitating Conditions

RFID: Radio-Frequency Identification

EdTech: Educational Technology

List of Figures

Table Of Contents

Chapter Two : Research Methodology and Data Interpretation and Analysis

General Introduction

1. Background of the Study

Attendance tracking is one of the most crucial components of the educational environment as it works significantly to check whether the students are attending or plan on being compliant with their studies regularly. Typically, attendance systems are manual or paper-based, meaning time and administrative overhead. That said, the emergence of digital tools, particularly the enhanced reach of technology in schools and institutes, has led to a paradigm shift towards automated attendance systems. Such systems not only make life easier from an administrative perspective but also eliminate manual errors, enable easy record takings retrieval as well as analysis, and thus help stabilize attendance records.

Worldwide, scholarly organizations continually embrace innovation to modernize their managerial exercises and improve checking of scholarly ceramics execution. To overcome physical variability, especially with regard to data accuracy, the daily operation of any institution, and the time consumed in taking attendance each day, automated attendance tracking systems have been deployed in contexts ranging from primary schools to higher education institutions. Given the large class sizes and diverse schedules in universities, digital attendance systems are likely to be a sustainable answer for instantly and accurately capturing attendance data.

1.2 Significance of Attendance Tracking for Administration, Teachers, and Students

To administrative staff, teachers, and students, attendance tracking has a unique meaning. Attendance must be monitored for reasons from the administration's perspective. By tracking attendance accurately, institutions can watch the student presence, which helps them identify absenteeism and retention issues more accurately. To teachers, attendance is a means of understanding how engaged students are in their classes and identifying – and helping – at-risk students who might not be right on target. It helps teachers understand the composition of class dynamics and allows accountability to expand.

Attendance tracking for students is a way to ensure engagement and accountability. Consistent attendance is believed to aid in academic success, with students who attend classes more regularly being more likely to stay engaged and earn higher marks as a

result. An accurate and effective attendance tracking system can help students monitor their attendance records, thus giving them a clear view of their academic activities and triggering early interventions in case something goes wrong.

1.3 Rationale for Using Technology (Attendance Tracking App) in the Educational Context

Using technology in attendance tracking has several benefits, such as accuracy, convenience, access, and efficiency. Considering that time is a limited resource in higher education, and administrative efficiency plays an integral role, perhaps introducing an app-based attendance tracking system can simplify processes considerably. With electronic solutions for attendance tracking, data collection becomes real-time, which reduces administrative burden and human error. Furthermore, digital systems can easily integrate with other academic management systems, making data flow easier for different departments.

Using an attendance system through an app makes it easier for students, teachers, and administrative staff to track the status of attendance in a simple way. In addition, implementing a technology-based strategy corresponding with the broader digital transformation efforts within education helps create a more relevant learning experience. A university approach like the Department of Letters and English Language at University Amar Telidji Laghouat can be seen as forward-thinking and moving towards optimizing operation flow for better educational results with an application-based attendance tracking solution.

2. Statement of the Problem

2.1 Specific Issues or Challenges with the Current Attendance System at the Department of Letters and English Language

The previous attendance tracking system in the Department of Letters and English Language was predominantly manual, a relatively slow process that is very prone to errors. There are more drawbacks to the traditional attendance system where physical registers or paper forms are in place, making it cumbersome to manage and inefficient in dealing with larger classes or complex schedules. Delays in processing of attendance records Timely intervention for students who are frequently absent administrative burden

on faculty and support staff So you see, there are a lot of disadvantages related to the traditional way of taking attendance.

Also, the department cannot access real-time data, so attendance issues are never proactively addressed. As a result, this gap impacts the efficiency of monitoring and bridges student performance to institutional-level efforts regarding student engagement.

2.2 Relevance of an App-Based Solution

A potential app-based solution could alleviate these challenges by offering a centralized platform to access real-time attendance data- tracking, analyzing, and managing records. An app-based system would mean instant data recording and storage, thereby minimizing human errors along with greater accessibility of accurate data while drastically reducing administrative labor time. This type of solution could also offer analytics capabilities, helping the department identify patterns in attendance and intervene—when warranted—to support student achievement.

3. Objectives of the Study

3.1 General Objective

This study's general objective is to evaluate and measure the overall acceptance of the proposed app for attendance tracking among all administration staff, teachers, and students at that academic department (the Department of Letters and English Language, University Amar Telidji Laghouat).

3.2 Specific Objectives

- To investigate the acceptance of administrative staff, teachers, and students to use the mentioned attendance tracking application.
- Analyze factors impacting the app's acceptance, such as ease of use, usefulness, and compatibility with existing systems.
- Based on findings of acceptance and obstacles perceived by users, to give recommendations on the valuable implementation of the attendance tracking app

4. Research Questions

4.1 Main Research Question

How well is a proposed attendance tracking app received by administration staff, teachers, and students at the Department of Letters and English Language, University Amar Telidji Laghouat?

4.2 Sub-Questions

- What perceptions of the app's ease of use and usefulness regarding classroom attendance management do teachers have?
- What influences how readily administration staff will adopt the proposed app?
- To what extent are students going to accept an app-based attendance tracking system?
- How can the app be appropriately implemented in a department?

5. Significance of the Study

5.1 Importance of the Study for Stakeholders within the University

These findings are anticipated to benefit various stakeholders at the university level. Decision-makers will be presented with specific insights on how an app-based attendance system can save time and resources, making the study highly relevant for management. For teachers, this study can provide insight into how the app might ease their attendance management and allow them to attend to instructional matters. Students might discover the app's potential to track their attendance records and, ultimately, engagement.

5.2 Broader Implications for Educational Technology and Attendance Tracking

This study is not limited to its immediate setting. Still, it adds to the literature on educational technology by exploring some elements that affect the adoption of digital technologies in an academic context. Lessons learned might help shape the implementation of similar systems in different institutions and best practices for technology-enhanced environments.

6. Delimitations and Limitations

6.1 Definition of the Study Boundaries

The present study will evaluate the acceptability of a self-proposed attendance register application among administration staff, teachers, and students in the Department of Letters and English Language at the University Amar Telidji Laghouat. It will investigate certain elements (perceived ease of use, usefulness, and acceptance) in regard to the development phases to explore its potential usability.

6.2 Limitations :

However, a limitation may be the sample size, which may not represent all relevant stakeholders at the university. Moreover, there time limitations for the study, which reduces the investigation depth and bias involving participants' perceptions of technology according to their past experience.

7. Definition of Key Terms

- **Acceptance:** In this study, acceptance is defined as the appropriateness of stakeholders to use the proposed attendance tracking app.
- **Attendance Tracking App:** Digital attendance tracking software is a mobile or web-based application that records, processes, and manages attendance digitally.
- **Stakeholders:** This term refers to administration staff, teachers, and students involved in or impacted by the attendance tracking process.
- **Perceived Usefulness:** The extent to which stakeholders are convinced that using the application will improve their performance in tasks related to attendance.
- **Ease of Use:** How easily stakeholders feel they can understand, use, and make part of their daily lives.

8. Structure of the Study :

This dissertation reflects the research by providing two main chapters to understand the same and its findings better. The Theoretical Framework (Chapter One) provides an extensive literature review on technology application in education, particularly overseas available-bred attendance systems. This section, for example, discusses theoretical models, e.g., the Technology Acceptance Model (TAM), which is extensively used to measure users' acceptance of new technologies. It also looks at the more overarching context of educational technology, exploring some factors that affect user perceptions and attitudes towards technology use. In accepting digital tools, the chapter considers unique perspectives as stakeholders (administrator, teacher, and student).

Chapter Two, Methodology, defines the research design and how this study conducted its methodology. It depicts the study population, sampling methods, and instruments used to collect data, including surveys and interviews. In this section, the data analysis techniques will also describe and demonstrate users' responses about assistance and ease of use through the app. The chapter ends by explaining the ethics and limitations of the present study, guaranteeing both validity and reliability.

Data analysis will follow after the methodology is presented, which is one of the two parts of this chapter. The other part consists of discussing the results according to what was theoretically defined in Chapter One. The general conclusion will conclude with recommendations for future research based on the study results.

Overall, this study sheds light on adopting a suggested application for tracking attendance in an Algerian university context. The findings will complement existing literature on technology acceptance in education and provide practical implications for its effective implementation in universities.

Chapter One

Exploring Technology Acceptance Models and Contextual Factors in Attendance Tracking Systems"

Chapter One : Theoretical Framework

1.1 Introduction

As technology seems to grow exponentially, it has changed the face of classrooms and buildings, breeding innovation in teaching style and management, student engagement, and retention. A hallmark of this transformation is incorporating digital tools meant to improve learning results while helping educational institutions run more efficiently. The changing landscape of higher education (for example, using EdTech tools like attendance management systems in colleges) shows that digitalisation penetrates deep into educational institutions to fulfil managerial and administrative requirements with accountability, operational effectiveness, and transparency.

Whereas traditional attendance tracking techniques are more manual, time-consuming, and error-prone, mobile application-based attendance systems are a clear step ahead. These promise real-time data collection and facilitate accuracy and accessibility, proving to be practical tools with institutional demands for efficiency on the rise. All of that said, the success of such systems relies heavily on the widespread acceptance from administrators, teachers, and students.

This study focuses on accepting mobile attendance tracking systems in Algerian universities, where digital transformation in education is new. Algeria also has specific challenges, including uneven degrees of digital readiness and technological infrastructure, in addition to cultural attitudes toward privacy and change. Through this unique Algerian perspective, this research aims to identify stakeholders' determinants acceptance elements through region-specific and cultural barriers.

The chapter unfolds as an exploration of theoretical underpinnings such as the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) in establishing a framework for technology acceptance. This chapter contains a literature review of empirical studies on attendance management - systems, indications of global trends, and their significance to Algeria. The chapter ends by identifying what has been established as antecedents to acceptance, perspectives of different stakeholder groups, and ambivalence in existing literature to make way for future research.

1.2 Theoretical Framework

1.2.1 Overview of Technology Acceptance Models (TAM, UTAUT, and Others)

The theoretical models that explain the antecedents of user attitudes, behavioural intention to use, and actual technology usage can enrich the existing literature on technology acceptance. Among these, the technology acceptance model (TAM) and its most updated version, the unified theory of acceptance and use of technology (UTAUT), have received more validations than any other framework.

1.2.1.1 Technology Acceptance Model (TAM):

Three constructs are discussed explicitly in this context, and they are the perceived Usefulness of technology (PU) and perceived Ease of use of technology (PEOU), which will ultimately lead to the Technology Acceptance Model (TAM) introduced by Davis (1989). PU is the degree to which a person believes technology would enhance their job performance, and PEOU reflects the system's ease of use. Therefore, PU and PEOU are the top constructs in TAM that come before users' attitudes, followed by behavioural intention, which finally leads to actual behaviour.

These limitations are attractive points of critique for extending TAM since newly developed theories have different characteristics regarding external influences (social and institutional) that significantly affect use behaviour." TAM is a simple yet powerful model, but many researchers feel it does not consider enough factors, such as social and institutional, which they think can be critical to model inclusion in information systems. This limitation is evident, for example, in higher education in Algeria, where cultural and institutional support are vital elements. To overcome these gaps, some researchers have considered the adaptation of TAM in specific cultural settings (Davis, 1989), as in the case of Algerian universities.

1.2.1.2 Unified Theory of Acceptance and Use of Technology (UTAUT):

Venkatesh et al. (2003) proposed that UTAUT achieve this goal and included insights from several theories. That model adds new constructs like Social Influence (SI)—the degree to which users believe that others whose opinions matter to them prefer the technology—and Facilitating Conditions (FC)—the physical and organisational infrastructure available for using the technology. The comprehensive nature of UTAUT has rendered it exceptionally well suited for investigating technology adoption in contexts where institutional forces and social dynamics matter (Venkatesh et al., 2003).

A study by Trimmer et al. (2009) reminds us that UTAUT constructions must be contextualised according to culture and in an organisational setting that allows for adjustments between environments. Even though this research concerns electronic medical records, it can be related to an educational setting by considering the cultural elements that are part of Algerian universities (Trimmer et al., 2009).

1.2.2 Application of Technology Acceptance Models in Education

TAM and UTAUT have a long history of educational applications that examine the acceptance and usage of academic tools like learning management systems, mobile applications, and attendance tracking systems. Several research models have reiterated the importance of PU and PEOU in users′' behavioural intentions as central role players. On the other hand, education research has shown the validating factors of the present study, including—but not limited to—users' culture matching, privacy issues, and user needs, most specifically for non-Western contexts.

For instance, studies on mobile attendance systems in an educational context identify that facilitating conditions, including infrastructure support and resource availability, represent crucial antecedents for continued use. SI plays an important role through peers and leaders of the institution, among others who are prominent influencers (Venkatesh et al., 2003).

However, these models must be adapted to the specific regional challenges that exist in Algeria. In order to represent the complexities of technology acceptance, consideration needs to be given to elements like digital literacy, infrastructure readiness, and inherent attitudes toward technologies. An awareness of these factors is outlined in the work done by Trimmer et al (2009). The theory that is particularly useful and practically applicable for implementation is the designs from Trimmer et al. (2009).

1.3 Studies on Attendance Tracking Systems in Education

1.3.1 Overview of Attendance Tracking Systems

A good attendance tracking system is necessary for smooth and effective student engagement, improved semester accountability practice, and efficient school administrative management. Historically, attendance tracking methods have varied widely, from manual roll-call approaches to more advanced digital and automated solutions. Standard procedures are straightforward, but they are slow and prone to mistakes. Consequently, colleges and universities across the globe have started using technology-based attendance systems, which can facilitate easy attendance management with minimum administrative effort and better data accuracy. As a result of technological advancement, mobile applications and automated systems now provide opportunities to reduce manual attendance solutions (Liu & Liu, 2020).

The recent tech-based attendance systems use mobile apps, biometrics, and Radio-Frequency Identification(RFID) for easy attendance management. Such systems include real-time data tracking, automated attendance logs, and accessibility, which enhance administrative efficiency and accuracy (Prakash & Chitkara, 2019). In particular, mobile apps capture most of their value due to their easy access and incorporation into traditional education platforms. Also, an app-based attendance system allows the students and the faculty to get involved with attendance records through Dynamics in real-time, which is beneficial in higher education environments where student autonomy and transparency are essential.

1.3.2 Empirical Studies on Technology-Based Attendance Tracking

Technology-based attendance tracking has been the subject of research in user acceptance, efficiency, and implementation outcomes. Research implemented around the adoption of mobile and digital attendance methods has noted that these systems increase reliability, decrease the level of attendance fraud, and ultimately improve administrative efficiency. For instance, Ramesh et al. Study (2020) of University Context on Mobile-Based Attendance Tracking that Perceived by Students and Faculty as Convenient, Efficient, and Beneficial for maintaining accurate attendance records. Perceived ease of use and perceived usefulness were the main elements for user acceptance ({Ramesh et al., 2020}).

Further research by Al-Momani & Gharaibeh (2019) investigated the impact of RFID-based attendance systems in higher education environments. They realised that RFID played a significant role in improving attendance accuracy and helped students get on time regularly to attend classes. It was positively influenced by the ease of access and time-saving towards user acceptance. However, despite the advancement in computer-assisted analysis revealed by this study (Al-Momani & Gharaibeh, 2019), it also highlighted challenges, including expensive outlays for implementation and ongoing technical maintenance that will limit uptake in resource-poor environments.

The impact of this attendance system is reflected even in user experience and satisfaction studies—for example, Chen et al. In the same vein, (2021) explored an attendance system based on facial recognition that they designed and discovered that while providing reasonably accurate records of attendance, privacy concerns pertaining to face heat map reading as well as technical non-full-attendance phenomenon have affected the acceptance rates of their high-tech solution. By using mass media, this study highlighted privacy and security as recent drawbacks of automated attendance solutions, emphasising their necessary improvement to user acceptance (Chen et al., 2021). THR team identified further means of overcoming user resistance or dissatisfaction towards other technology-based paper attendance tracking systems such as training and technical support —different researchers also conducted similar work by THR.

1.3.3 Regional/Contextual Focus

In addition, few studies have examined the influence of region and context on the acceptance and effectiveness of attendance systems in educational institutions. These systems face various issues in their implementation in Algeria and other similar countries with a more classical approach to teaching. Cultural values, technological infrastructure, and institutional support may shape the degree to which users become engaged with the new technology. Research within North African and Middle Eastern educational systems has often focused on context-specific technology modifications regarding organisational climate, resource accessibility, and regional technological preparedness (Elmezoued et al., 2018).

Amrane et al. Acceptance of digital attendance systems in educational institutions: the play on institutional support, peers influence and accessibility–a conclusion from the literature (Mojar, 2019) determined that the use of the digital system was most likely to happen if students and faculties perceived these systems as applicable, had a sense of how their benefits would outweigh the effort of using them and learned well when they required help with the system. In contrast, the study indicated adoption can be difficult in some institutions because of staff opposition and a reasonably simple IT environment (Amrane et al., 2019).

Research findings within the Algerian context highlighted that institutions may be impeded from using technology due to low levels of available digital readiness and culture-based resistance to new higher education practices. In incomparable research, Bouzidi and Benjelloun (2020) identified techno-pedagogical challenges that inhibit the integration of various technologies in Algerian universities, which included infrastructure deficiencies provided by numerous institutions, data privacy considerations, and inconsistency in teachers' degrees of digital competency as some core barriers to adoption. One of the points brought up in their research includes the cultural context and sufficient allocation of resources that can result in the proper execution of tech-based class attendance tools (Bouzidi & Benjelloun, 2020).

In conclusion, based empirical research on attendance tracking systems provides promising benefits by potentially ensuring improved accuracy of recordings before excessive hours are spent executing paper tasks and checking students within a learning environment. Nevertheless, the usage and acceptance of these systems are significantly influenced by factors like perceived utility, accessibility ease, and context-based compatibility. For example, in Algeria and similar regions where efforts at digital transformation in education would face resistance or perhaps infrastructural challenges, appreciation of these localised inputs will be crucial for making the proposed attendance tracking solutions design stand.

1.4 Factors Influencing Technology Acceptance

The technology acceptance model (TAM) is a widely recognised model proposed by Davis (1989). It states that PU and PEOU are determinants of technology adoption. However, other elements must be considered, including socio-cultural characteristics, supporting institutions, and privacy issues in places like Algeria.

UTAUT builds on TAM by adding two additional constructs: Social Influence (SI) and Facilitating Conditions (FC). Thus, it offers a robust set of constructs for analysing the process through which educational system dynamics become adopted (Venkatesh et al., 2003).

1.4.1 Perceived Usefulness (PU)

Perceived Usefulness (PU), which is a pivotal part of the Technology Acceptance Model (TAM), can be defined as "the extent to which a person believes that using a particular system would enhance his or her job performance." Perceived Usefulness (PU) has proven to be an essential predictor of technology acceptance and adoption across different contexts. Still, it also played a significant role in education because educators demand more efficiency, effectiveness, and value-add than any other type of user. For attendance tracking systems, PU includes the perceived advantages related to saving time, accuracy, and timely access to data. Research shows that the acceptance and usage of mobile attendance tracking systems are likely when stakeholders—be it students, teachers, or administrators- consider such a helpful system (Venkatesh & Bala, 2008).

For example, research by Al-Rahmi et al. Khan et al. (2019) used Digital Tools in higher education and found that PU significantly affected students' intention to use

educational applications. Students appreciated attendance apps that allowed them to easily reference their records, resulting in less time spent on paper-based record keeping and administration. This greater accessibility adds to the users' favourable impression of the system's perceived ease of use, thus leading to improved acceptance (Al-Rahmi et al.2019).

Furthermore, empirical studies also suggest that PU positively affects the perceived effectiveness of attendance systems in ensuring students come on time to class, academic honesty, and institution transparency. Such systems are viewed as a means to promote a more efficient and transparent educational system, add to its legitimacy, and encourage wider adoption (Yuen et al., 2020) among teachers and administrators.

1.4.2 Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) refers to the extent to which a user believes using technology will be free of effort (Davis, 1989). PEOU is one of the core variables in the TAM that determines technology acceptance and significantly impacts users' initial attitudes toward new technologies. In education, simple onboarding, learning, and interaction systems tend to be more readily accepted by students and educators. In the attendance strategy, if users find an app easy to use with no complications or low learning curves, they tend to accept it (Teo 2011).

A study by Park et al. found that smooth-user interface design, accessibility, and system reliability are critical for sustained acceptance and use of PEOU. In a study (2019) on mobile learning platforms, the results suggest that users of apps usable on multiple devices favour simple, intuitive designs. Systems with similar characteristics, including easy navigation, no errors, and mobile response, are more likely to be accepted (Park et al., 2019).

This is particularly important regarding attendance tracking systems, as they need to be easy to use for various stakeholders. Teachers would worry about the extra trouble or complexity an app might create, while students only want fast access to and tracking of presence registers. Thus, tackling PEOU by providing user-oriented apps in accordance with the needs of various stakeholders could play an essential role in the acceptance of a system (Joo et al., 2018).

1.4.3 Attitudes Toward Use and Behavioral Intention to Use

The other two most salient components in TAM are Attitude toward Use and Behavioral Intention to Use, meaning that the perceptions of technology, whether positive or negative, will affect an individual's intention to use it. PU and PEOU positively influence the attitudes toward use because if either is perceived as good, one might develop an underlying attitude toward using it. (Ajzen & Fishbein, 2000).

Previous research highlights that the perceived usefulness and ease of use of attendance tracking technology matters for participants in developing positive attitudes towards the system. For example, the study by Lu et al. (2020) reported that students and teachers who had favourable attitudes regarding mobile attendance systems' ease of use were likely to perform frequent usage behaviour. Productive orientation is generally developed through favourable exposure to a course-based system that demonstrates well-design, usefulness, and expectation performance related to specific educational needs (Lu et al., 2020).

Further, behavioural intention to use is usually an antecedent of usage behaviour. When implementing attendance tracking technology, positive intentions from students, teachers, and administrative staff may translate into actual use. As such, attitude and intention are central to the adoption process; therefore, any system should be planned around users' practical and psychological needs.

1.4.4 Social Influence and Facilitating Conditions (from UTAUT)

This is in contrast to UTAUT, where social influence is defined as the degree to which an individual perceives those significant others—peers, colleagues, and superiors—as believing they should use the system. Social influence is critical in educational contexts because students and faculty often depend on peers' behaviour. At the same time, administrators may follow the lead of institutional leaders with respect to technology adoption. Research confirms that peer recommendation and instructor endorsement in higher education can positively affect students and teachers' behavioural intention toward utilising new didactical tools (Venkatesh et al., 2003).

Likewise, resources, tech support, and infrastructure—the critical components of Facilitating Conditions—play a leading role in technology's continued use. These conditions refer to the environmental factors limiting technology, such as lack of training and resources. Kim and Park (2018) examined how the presence of technical support and training sessions for users about an existing digital attendance system helped users feel confident enough to use the technology or not, as well as their willingness to use it at all by stating that regular practice regarding a technological tool makes one have confidence level higher even if initially there feels low confidence in operating such tools successfully (Kim & Park, 2018).

Access to Technical Assistance in Implementing Attendance Tracking Systems, as well as a Supportive Environment for Learning the New Technology, is Needed for Schools to Continue Using These Innovations over Time. This recommendation to address these facilitating conditions is especially relevant in contexts where users have diverse levels of digital literacy or access to technological resources.

1.4.5 Additional Contextual Factors

Besides PU, PEOU, social influence, and facilitating conditions, contextual factors (cultural, organisational, and resource-related) could also influence technology acceptance in the Algerian context. Past literature addressing technology adoption in North African and Middle Eastern education has emphasised the role of organisational support, resource allocation, and cultural compatibility for successful educational technology implementation. Several studies showed that Algerian educational institutions suffer from a scarcity of material resources at all levels, making acquiring innovative technologies extremely problematic (Bouzidi & Benjelloun, 2020).

Within the architecture of technology acceptance, cultural knowledge of technology - while it certainly varies depending on the groups involved in a given transaction - could also provide insight into acceptance. Mobile apps may appear to students as a form of entertainment, while faculty members are full of apprehension about issues like confidentiality, data integrity, and the costs of support. The logic of stakeholders varies from domain to domain, and the need is to drive contextually relevant strategies to tackle the challenges and expectations (Elmezoued et al., 2018).

Finally, perceived usefulness, ease of use, social influence, and facilitating conditions give us a sense of understanding technology acceptance. The above-suggested factors and multiple contextual factors should be considered to plant such systems and root their adoption success in the Algerian educational background. With this knowledge of determinants, institutions will be better able to determine how to direct the aid provided by supporting colleges and universities in adopting mobile attendance-tracking technologies.

1.5 Stakeholder Perspectives on Educational Technology

1.5.1 Administration Staff Perspective

Administrative staff is pivotal in promoting and using educational technology like an attendance monitoring system. Typically, they are called on to coordinate rollouts of new technologies, broker resources needed for implementation and align innovation with strategic planning processes. The impact of administrative staff factors, such as provisioning and management support for educational technologies (Raza et al., 2020), and the extent to which an innovation is consistent with institutional goals (Rogers, 2003).

Arpaci (2019) explained the benefit/importance structure effect, which stipulates if an administrative staff thinks such use increases the institution's efficiency in terms of whatever category, meaning they would accept it when it is related to an institution's mission and strategy. Policing attendance, to which several institutions have turned in hopes of providing different benefits ranging from increased accuracy of records, a decreased administrative load, and greater compliance with institutional policy. Nevertheless, limited resources, such as lack of funding or technical support, may cause barriers to technology acceptance by admin staff in low-resource settings (Arpaci, 2019).

In addition, administrative buy-in is also instrumental in aligning and creating the right conditions for other stakeholders, such as teachers and students. If administrators champion attendance tracking technology, the acceptance of such systems can proliferate across the institution. Nevertheless, research shows that when these technologies are still emerging in the early days of digital transformation, administrative staff may need training and ongoing support to manage them (Nguyen et al., 2021).

1.5.2 Teachers' Perspective

Teachers are essential in using technology sustainably as the intended day-to-day users of attendance systems to track and handle class attendance. Research on teacher acceptance of educational technology indicates that adopters' likelihood of adopting new tools is affected by perceived burden, compatibility with instructional strategies, and perceived ease of use with current practices. Teachers are inflexible for easily used, time-efficient technologies that flexibly meet their pedagogical intentions (Ertmer et al., 2012).

In the case of attendance tracking systems, teachers might find these tools useful as they reduce much of the work involved with maintaining records while also reducing classroom disturbances typically caused by traditional attendance methods. In their study on digital attendance systems, Salajan and Persichitte (2020) found that teachers like saving time with the use of technology to take attendance easily and refer to it further. On the other hand, teachers had reservations about increased workload if the system took time to set up or was prone to frequent breakdowns (Salajan & Persichitte, 2020).

Furthermore, teachers generally accept attendance tracking systems based on how well they believe technology will align with their pedagogical style. Not surprisingly, when teachers perceive attendance-tracking apps as interruptions in their instructional flow, they may be more reluctant to adopt them. Hence, a vital aspect of promoting teacher acceptance is to ensure that attendance systems integrate seamlessly into classroom contexts and fully support the instructional process. Moreover, the studies have indicated that sufficient training and technical support for teachers is necessary for using new ways of taking attendance, particularly in contexts with varying digital literacy levels (Yilmaz & Bayraktar, 2020).

1.5.3 Students' Perspective

The acceptance of educational technology among students is reflected by the extent to which they benefit from it and whether there is frequent and easy access to these technologies, along with issues related to data privacy. As the primary end-user of attendance systems, students naturally gravitate towards access-friendly, non-intrusive, and meaningful technologies that add value to their learning environment. Research has shown that students will likely embrace educational tools that guarantee convenience, transparency, and tangible academic benefits (Alalwan et al., 2018).

Wang and Lai (2019) conducted a qualitative study on student perceptions of a mobile attendance app that found students liked being able to check their attendance records quickly and felt that the transparency provided by digital attendance tracking improved trust between students and teachers. It allows students to view it considering their attendance, which can motivate them to keep punctuality as they become more accountable. On the other hand, students raised concerns about data privacy and being tracked when they attend places, which might negatively affect their acceptance of that technology. These privacy concerns need to be addressed, as worry about potential questions surrounding data collection practices can limit student buy-in (Wang & Lai, 2019).

Perhaps tied to generations and demographics, students' personalities that develop as they age also influence learning attitudes regarding technology. However, research indicates that younger students, who tend to be more familiar with mobile technologies both in and out of school, generally have a significantly more positive attitude toward app-based attendance tracking systems than older students or those less familiar with digital technologies. Our results also underscore the need for diverse communication and support strategies targeted at the unique dissemination differences across generations (Madigan et al., 2020).

To conclude, different stakeholder groups—the administrative staff, the teachers, and the students—hold varying opinions on an online attendance tracking system. The administrative staff cares mostly about resource allocation and institutional goals alignment; teachers want it to be easy to integrate into their pre-existing practices with as little effort as possible, and students wish to access utility and privacy. The key to

designing and implementing an attendance tracking system is understanding these perspectives, as it allows for the design of a system that meets the needs of all stakeholders — thus ensuring acceptance.

1.6 Gaps in Literature

Although research from the technology acceptance and attendance tracking system literature provides valuable insights, significant gaps still exist, few of which we attempt to address. On the other hand, this section points out these gaps regarding readiness to accept attendance record technology, especially among cultures and resource-poor settings like Algeria. The results highlight the need to tailor our understanding of challenges faced by different stakeholders, including cultural and geographical contextual factors, to promote their uptake in practice.

1.6.1 Limited Research on Attendance Tracking in Algerian Educational Institutions

While research on attendance-tracking systems relates to various contexts, few have directly addressed the context of Algerian universities or other North African educational institutions. Previous studies on technology adoption in Algeria have focused on a comprehensive range of technologies used in academic settings, like e-learning systems or digital technology among Algerian teachers, but not specifically on attendance tracking systems. Despite the potential impact of particular cultural, institutional, and infrastructural elements in those Algerian university contexts, little investigation has been conducted into how these might influence the input or uptake of any mobile-based attendance tracking technologies (Bouzidi & Benjelloun, 2020; Elmezoued et al., 2018).

It is crucial to fill this gap as contextual factors, including institutional policies, the technological environment, and societal attitudes, can affect how stakeholders view and interact with attendance tracking systems. Context is fundamental to designing and implementing systems compatible with cultural norms, institutional demands, and barriers to adoption.

1.6.2 Insufficient Exploration of Stakeholder-Specific Challenges and Perspectives

Although a body of research focuses on generalised acceptance factors, including PU and PEOU, limited research offers specificity among the differences in stakeholder groups related to technology adoption, especially in non-Western educational settings. The acceptance of attendance tracking systems by administrative staff, teachers, and students may depend on different determinants based on their varying needs, expectations, and concerns. Administrative staff may be concerned with institution-wide advantages, teachers will think about effort and pedagogical consistency, and students probably have accessibility and privacy in their minds.

For each group, a specific degree of acceptance exists that may differ for several reasons: the reason for different degrees of acceptance could be their organisational culture difference, resource availability, or digital literacy in the Algerian context. Nonetheless, little is known about the interaction of such stakeholder needs regarding technology adoption. This reflects a gap; a study that disentangles the perceptions of each stakeholder group through their concerns and motivation will help better formulate an all-encompassing picture of technology acceptance dynamics in educational establishments (Nguyen et al., 2021; Arpaci, 2019).

1.6.3 Lack of Cultural Sensitivity in Technology Acceptance Models

Previous technology acceptance models such as the TAM and UTAUT have been validated many times in Western contexts but less so in non-Western or culturally diverse settings. Most studies on technology acceptance assume that their models can be applied universally. Still, they do not consider the cultural differences that influence the perception of technology and, for example, its adoption. Cultural attitudes towards data privacy, trust in digital systems, and reliance on customary practices may shape stakeholders' adoption of attendance-tracking internet-based arrangements (e.g., Algeria). The focus is not necessarily on the construction themselves, like PU, PEOU, and Social Influence, but on how these cultural elements may interact with those constructs that existing models do not yet identify.

Research supports that North African and Middle Eastern settings often need culturally responsive approaches to technology adoption that align with local practices, perceptions, and ethics. Yet, few studies have focused on modifying constructs of TAM and UTAUT that could better serve the actual culture of the Algerian actors. Bridging this

gap will help to provide a precise and context-sensitive comprehension of technology acceptance (Venkatesh et al., 2003; Yilmaz & Bayraktar, 2020).

1.6.4 Inadequate Examination of Privacy and Security Concerns

Privacy & Data Security: For mobile and digital attendance system users in general, especially for the education sector, privacy is a significant concern due to the availability of student data around their attendance, location, and behavioural patterns. Although privacy has not been neglected as a determinant of user acceptance in the literature on technology acceptance, few studies have focused on the impact of privacy concerns on the acceptance of attendance tracking systems. In the context of Algeria, this gap is even more applicable due to the problems of data privacy and trust in digital systems.

Previous research on attendance tracking has concentrated chiefly on the operational efficiency and user comfort around such approaches while mainly ignoring the privacy implications of adoption. Investigate privacy problems in attendance technology — There is a need for more transparency but also an understanding of the competitive and stable nature of attendance technology; future research could investigate how user trust can be improved, data retention needs achieved, or adoption that would instead occur since there are substantial privacy concerns associated with such technology (Wang & Lai, 2019; Chen et al., 2021).

1.6.5 Justification for This Study

The gaps highlighted in this section are intended to justify the necessity of conducting a study investigating the contextual usability and acceptance challenges with attendance tracking technology at an Algerian university. Since there is no such research conducted in this specific geographical region and to fill the gap in the relevant literature, this paper investigates the acceptance of a mobile-based student attendance tracking system among stakeholders from higher education institutions in Algeria to provide valuable insights into technology acceptance models but focus on an educational context outside the Western sphere. Its goal is to shed light on determining acceptance factors by administrative staff, teachers, and students and how cultural and contextual components could influence it.

The results of this study will suggest practical implications for developing attendance management systems that best fit the preferences and culture of Algerian institutes. Furthermore, it will enhance the comprehension of technology acceptance models by investigating their usage in a heterogeneous culture setting dealing with stakeholder-specific and privacy-related issues. Ultimately, this research aims to raise awareness in Algerian higher education policy and practices regarding adopting educational technologies that can positively improve institutional effectiveness and academic accountability.

1.7 Conclusion

This literature review has explored the theoretical background, empirical studies, and stakeholder perceptions relevant to the preliminary acceptance of technology-based attendance tracking systems in educational settings. Based on well-known models like the Technology Acceptance Model (TAM) and the Unified theory of acceptance and use of technology, it presented essential aspects that are among Perceived Usefulness, Perceived Ease of Use, and other factors such as Social Influence or Facilitating Conditions which contribute to the acceptance for educational technology from different stakeholders. These characteristics or components are arguably the leading determinants of user acceptance (i.e., intention to use and sustained adoption) of various attendance detection technologies amongst diverse stakeholder groups: administrative staff, teachers, and students, respectively, as demonstrated by existing literature.

The studies discussed in this chapter provide evidence for the advantages of mobile and digital attendance tracking systems, such as greater efficiency, data integrity, and transparency. Yet, data privacy issues, technical capabilities limitations, and the scarcity of equivalent resources remain challenging, particularly for resource-restrained or culturally diverse environments. Stakeholder views also elucidate different motivations and interests, with the administration focusing on operational alignment, teachers' relative ease of use, and students' access and privacy.

While previous research offers valuable perspectives, significant gaps relate these findings to the context of education in Algeria. Given that, we need a localised understanding of technology acceptance in Algeria, considering its context-specific cultural, institutional, and infrastructural conditions. In addition, the literature has limited

exploration of privacy issues and stakeholders' dynamics regarding attendance tracking adoption, especially in a non-Western educational context.

This chapter lays the groundwork for this research by selecting critical factors and stakeholder perspectives to capture technology acceptance comprehensively. This study aims to contribute to the literature on technology adoption in higher education and provide actionable insights into the practical and sustainable implementation of attendance tracking systems by addressing those identified gaps specifically within the context of the Algerian university. These findings will guide the subsequent chapters that outline the research methodology and a detailed analysis of stakeholder acceptance as well as contextual factors influencing the adoption of a mobile-based attendance tracking system in Algerian universities.

Chapter Two

Research Methodology , Design , And Analysis Systems"

2.1 Introduction

The methodology used to evaluate the acceptance of the proposed attendance tracking app by staff administration, teachers, and students at the Department of Letters and English Language, University Amar Telidji Laghouat in Algeria, is described in this chapter. This chapter will provide a general overview of the research design, data collection methods, and data analysis to answer the research questions and objectives presented in the introduction. Due to both the particularities of the Algerian higher education system and considering the innovative character of this study attendance tracking mobile app, we used a mixed-methods approach in order to collect quantitative and qualitative data that will cover all dimensions of use acceptance modelling.

A mixed method research design has been carefully chosen in order to obtain a richer, more nuanced understanding of administration staff, teachers, and students' perceptions, attitudes, and behaviours towards the app (qualitative data) as well as statistical relationships (quantitative data). For the quantitative phase, we use a survey questionnaire to capture measurable data about user acceptance in terms of perceived ease of use and perceived usefulness of the app. The qualitative phase consists of semi-structured interviews that will help us understand the rationale behind the acceptance or rejection of app use, offering deep insight into participants' perceptions and experiences.

This chapter is organised as follows: it presents the research design and then details the sampling methods used to identify subjects. The following subsections contain detailed descriptions of the data collection instruments and the survey and interview protocols. The following pages describe how the data was analysed, what ethical considerations took place relative to the study, and the limitations of this research. In detailing the empirical methods, this chapter lays the components of the research supporting chapters that follow it as a transparent basis for reliable and valid results.

2.2 Study Design

2.2.1 Research Method

This study uses the mixed-method approach that suits the strength and nature of different data types to provide a thorough understanding regarding the acceptance of the

suggested tracking app (Creswell & Plano Clark, 2017). A mixed-methods approach is chosen to complement the findings with quantitative data from the survey, as well as qualitative descriptions, by capturing free-text answers probing their attitudes and concerns.

As for criteria number two (quantitative survey), a structured survey was disseminated to the three groups of stakeholders: administration staff, teachers, and students. The survey contained items from the Technology Acceptance Model (TAM) that directly capture perceived ease and usefulness, which are common correlates of technology acceptance (Davis, Bagozzi, & Warshaw, 1989; Davis, 1993). Responses made by participants were quantified using Likert scale items in order to support statistical analysis for acceptance trends.

On the qualitative side, we added open-ended questions at the end of the survey to find what respondents wanted to say in their own words. By analysing qualitative comments identified with the app (Patton, 2015), we are able to provide a greater understanding of problems or make suggestions since these more readily convey nuance of feeling than simple quantitative measures.

2.2.2 Research Approach

This study has employed a descriptive-analytical research approach with both deductive and inductive characteristics regarding the concept of acceptance for the proposed attendance tracking app. The deductive aspect is intended to assess the applicability of the Technology Acceptance Model (TAM) concerning attendance tracking at the UniversityUniversity. The TAM model implies that users' acceptance of technology is driven by their perceptions of its usefulness and ease of use (Davis, 1989). The questions in the survey are thus but not limited to these perceptions among administration staff, teachers, and students.

The deductive part helps the research identify whether TAM still exists in this specified educational context and how much the different stakeholder groups are willing to accept the app. The hypotheses derived from the TAM—for example, "Perceived usefulness has a positive influence on the intention to use attendance tracking app"—guided data analysis (Venkatesh & Davis, 2000). Statistical tools will be used to test these

hypotheses and derive inferences about the levels of acceptance and factors affecting them.

Finally, the research contains the inductive component, especially in analysing qualitative random data. The open-ended responses will be thematically analysed for emergent themes, issues, and recommendations that may not directly align with the TAM framework but are essential to understanding broader acceptance dynamics (Braun & Clarke, 2006).

Employing a descriptive-analytical method, the study aims to convey a faithful and balanced account of theoretical models and frameworks used in practice while also being receptive to new insights emerging directly from participants.

2.3 Population and Sample

2.3.1 Population

The population of this study is defined as the entire group of people that are relevant to the research regarding acceptance level towards suggested attendance tracking apps. In particular, the target population consists of administrators, faculty, and students at the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria. That population represents the entire ecosystem of academia, which is directly involved in education administration, pedagogy, and learning activities. This population consists of a group of people who each have their own responsibility within the department—admins are responsible for workflow, teachers handle instructional delivery, and students comprise the learning population.

This population is relevant because they use an attendance tracking app. Administration staff are the essential stakeholders because they use records, and their main priority is to avoid all that human interaction in monitoring attendance; teachers who manually record classroom attendance, and lastly, students themselves who are subject to the attendance being monitored. Therefore, student compliance and user experience will be necessary for the success of this system. So, knowing how these groups embrace the proposed app, as well as their perceptions of its potential efficacy and usage and whether or not it would benefit or hinder functionality for the department overall, will provide further insight (Creswell, 2014).

2.3.2 Sample

The sampling frame is a complete list or subset of the population from which the sample was drawn (Trochim, 2006). The population in this study is students, administration staff, and teachers from the Department of Letters and English Language. The selected participants are all stakeholders with direct field experience with the attendance processes and procedures. Our sampling frame represents all tiers of engagement associated with the proposed app, providing a complete portrait of its acceptance across user groups.

The participants were chosen because they are currently active while writing this dissertation and in their teaching career in the Department of Letters and English Language, University Amar Telidji Laghouat. The admin staff had to be responsible for managing student records and attendance. The selection of teachers was based on their role in the courses, including conducting classes and taking attendance. For accountability reasons, attention is mainly focused on students currently enrolled in (and therefore accounting for) the department. There were no restrictions on age, gender, or education among those placed in these groups.

The sample includes 121: 95 students, 4 administration staff, and 22 teachers. A convenient sampling process was used to identify a sample size that is feasible and operationally realistic. Due to the limited size and accessibility of the population relevant to this study, all administration staff and teachers available in the department were included in the sample. At the same time, an attempt was made to include a representative sample of students within reasonable limits of availability and willingness (Etikan, Musa & Alkassim, 2016). The sample size is appropriate as establishing acceptance and early feedback were the primary goals of this exploratory study. Still, it allows for variation in perspectives whilst being manageable within the research timeframe.

The sample for the present study consists of different department stakeholders. Administration staff = People who do the administrative tasks related to attendance. They range from lecturers to professors with a variety of years in academia and are the ones who take care of classroom attendance. Therefore, it covers a diverse end-user background with students taking different courses and years of study. This would cover

all angles that drive or are driven by the attendance tracking process and ensure data will be collected from these groups.

2.3.3 Sampling Paradigms

This study employed convenience sampling (non-probability sampling) as the sampling method. In this kind of sampling, subjects are chosen because they are easily accessible and have agreed to participate in the study. This method was found feasible, efficient, and cost-effective compared to other sampling methods because, in this UniversityUniversity setting, the researcher could easily access people who might volunteer to participate in the department's workflow (Marshall, 1996). As this is an exploratory study, a conclusion on convenience sampling can provide deep insight regarding initial attitudes and acceptance toward the proposed attendance app.

The decision to use convenience sampling was made for various reasons. First, it facilitates quick data collection and bypasses the logistical hurdles of random sampling because access to a whole department might be impractical. Secondly, as this study is intended to provide preliminary insight into the app's acceptance, it aims to present a wide variety of views from stakeholders affected by the technology rather than reach statistical generalizability. Hence, convenience sampling provides a glimpse into what stakeholders thought about the app without incurring the time- and resource-intensive process of conducting random or systematic sampling (Etikan et al., 2016).

2.4 Description of the Questionnaire

An Online Questionnaire Intended to Evaluate the Reception and the Possible Use of an Attendance Tracking App by Three Major Stakeholders at the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria: Administration, Teachers, and Students. It assesses users' perceptions, attitudes, and overall willingness to use the app as part of their academic and administrative business processes. The Questionnaire comprises closed-ended and open-ended questions to provide scope for quantifiable data collection with qualitative feedback. The survey has a design divided into multiple sections based on the Technology Acceptance Model (TAM), focusing on perceived ease of use, perceived usefulness, attitude towards the app, and intention to use the app.

2.4.1 The objective of the Questionnaire

Some of the primary purposes for distributing this Questionnaire are:

1. Objective: To assess the perceived usefulness (PU) of a proposed attendance tracking app among administration staff, teachers, and students. This includes whether the app is considered a positive contribution to attendance management.

2. To evaluate each group's perceived ease of use (PEOU) of the app. This ensures they feel that the app would be easy to learn and use in their jobs.

3. For that purpose, the degree of acceptance of the user in all three groups must be determined. It involves assessing the probability of both groups taking on and consistently using the app to track attendance.

4. To get feedback on the actual functionalities or features that could help improve its efficacy and ease of use. Respondents can recommend new features, outline pain points, and specify how the app can better accommodate their needs through open-ended questions.

5. Get demographic information and the characteristics/needs of each user group. This will assist you in segmenting the data for further analysis, and groups based on role or other relevant aspects will also be identified.

2.4.2 Sections of the Questionnaire

The questionnaire is divided into six sections, focusing on the proposed app's implementation, user acceptance, and feedback. The sections are designed to collect quantitative and qualitative data that indicate the app's possible use by various user groups at the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria.

2.4.2.1 Section 1: Demographic Information

Gathers necessary background information to assist in adequately categorising and segmenting the data. This part collects information like the respondent's age, sex, role (administration staff, teacher, or student), year of experience, computer/technology ability,

and previous exposure to the attendance system. This demographic ability enables more granular analysis, like whether attitudes toward the app differ between demographics.

2.4.2.2 Section 2: Perceived Usefulness (PU)

centres on getting insights from the respondents in order to know how useful they feel about the app in improving their attendance management tasks. The questions in this section usually ask users if they think the app will help make tracking attendance easier, save administrative work, and provide timely and accurate attendance recording. The perceived usefulness of the app for each group will be evaluated using Likert-scale questions.

2.4.2.3 Section 3: Perceived Ease of Use (PEOU)

Ease of Use—how easy respondents think they will use the app. Ease of Use: This section examines how easily users believe they can learn and use the app. Respondents will rate several statements regarding whether the app's interface is intuitive, how easy they feel it will be to learn how to use it, and their belief that they have little or no difficulty using the app to track attendance. Responses help to establish whether users expect the app to be easy to use because of its Design.

2.4.2.4 Section 4: Attitude Toward Using (ATU)

intends to capture Respondents' Overall feelings about using the app and how they feel about it. Here, users can express whether they have a positive, neutral, or negative attitude toward using the app for tracking attendance, irrespective of its usefulness and ease of use. The survey will ask respondents how comfortable they would be using the app, if they enjoyed utilising technological solutions, and whether or not there is faith in a mobile environment to enhance the quality of education and administration value.

2.4.2.5 Section 5: Behavioral Intention to Use (BIU)

assesses the intention of respondents to continue using the app when it is available. In this section, we make sense of how probable users are to adopt and use the app frequently by checking in attendance. Respondents will be asked if they believe they would use the app, whether or not they would recommend it to a friend, and how

frequently they think they would use it. This section is perhaps the most important for predicting natural usage behaviour regarding app adoption.

2.4.2.6 Section 6: Additional Feedback

allows respondents to express their thoughts, suggestions, or concerns regarding the app in an open-ended fashion. Anything not covered above. This section encourages feedback on features that would be nice to have, the challenges, and other comments that help design and make the app functional. It is a critical step for identifying qualitative insights and even diving deeper if possible shortcomings of user needs or aspects of concern have been missed.

Together, they cover all bases related to factors impacting acceptance and usage of the proposed attendance tracking app. Together with demographic data, quantitative assessments, and qualitative feedback, they will ensure you have even more detailed insight into user perceptions and behaviours to guide your app creation and implementation.

2.5 Data Analysis and Results

2.5.1 Section 1: Demographic Information

Question 1: Department

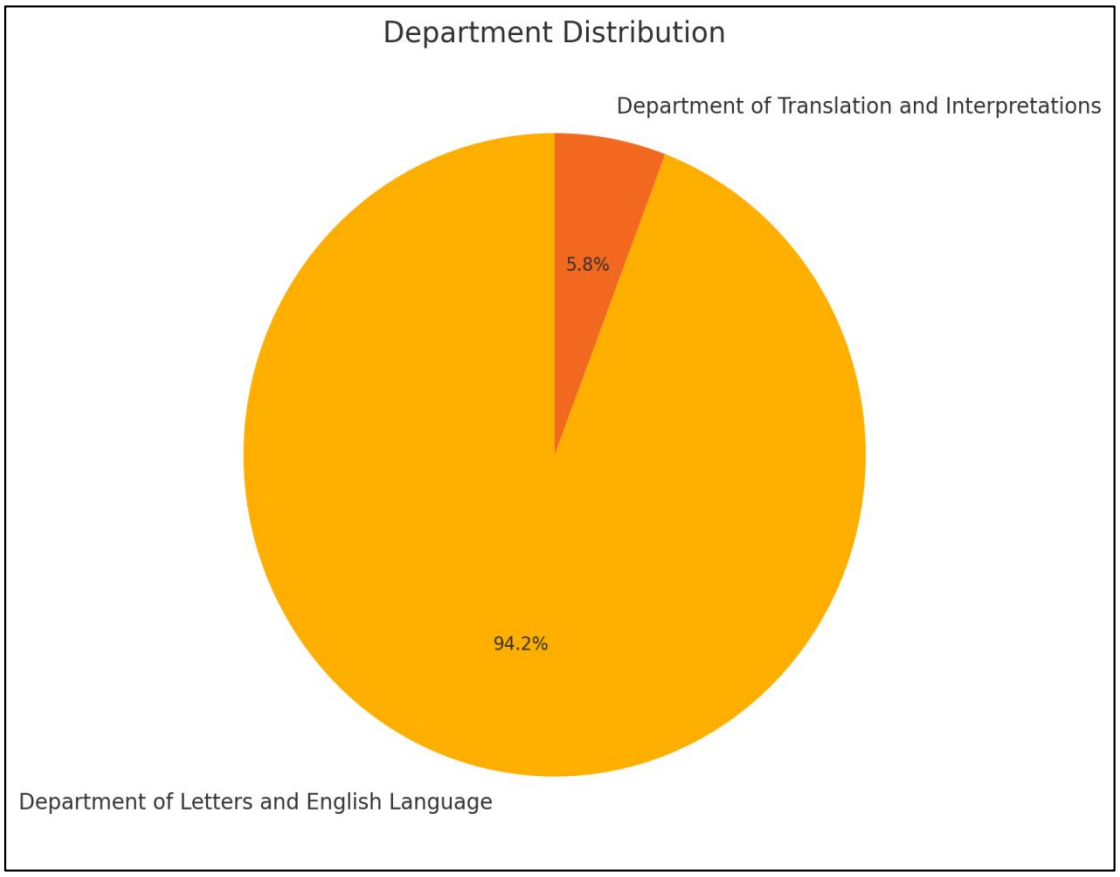

Figure 2.1:Department Distribution

Depicts the proportion of respondents per department. From the survey results, it can be seen that 94.2% (114) of respondents belong to the Department of Letters and English Language, while 5.8% (7) come from the Department of Translation and Interpretation. This distribution shows that most of the people who filled in the survey are from the Department of Letters and English Language, which is a natural response since this study takes place in such a setting. Less than half of respondents from the Department of Translation and Interpretation can impact generalizability, as their needs and views may differ slightly from the majority group. Nevertheless, focusing on the Department of

Letters and English Language makes the survey results directly proportional to this dept using a possible attendance tracking app.

Question 2: Role at the University

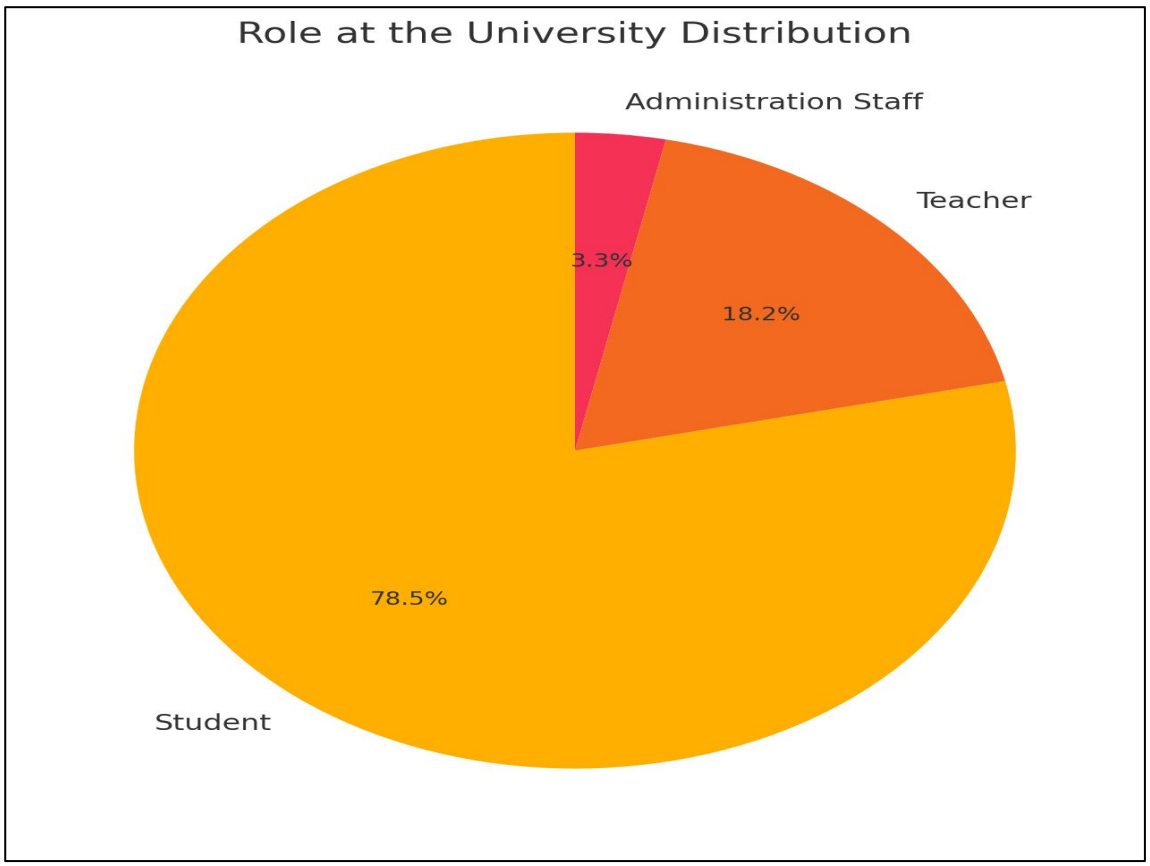

Figure 2.2:Role At The University Distribution

Respondents by Role at the University There were 72 responses, with most of the participants (95%) being students. At the same time, the next biggest group were teachers at 22%, followed by a small number (4%) in administration. As students constitute the maximum number of respondents, their opinions about the usability and features of the app, along with acceptance, would reflect significantly in overall survey results. There will be fewer of them; however, teachers and administration staff will help us understand the operational and administrative side of using such an app. The significant imbalance between students, teachers, and administration staff indicates that the primary target

population for the app should be students. Still, teachers and administration staff cannot be ignored as they will also have app functionality, integration, and training needs.

Question 3: Years of Experience (Administration Staff and Teachers):

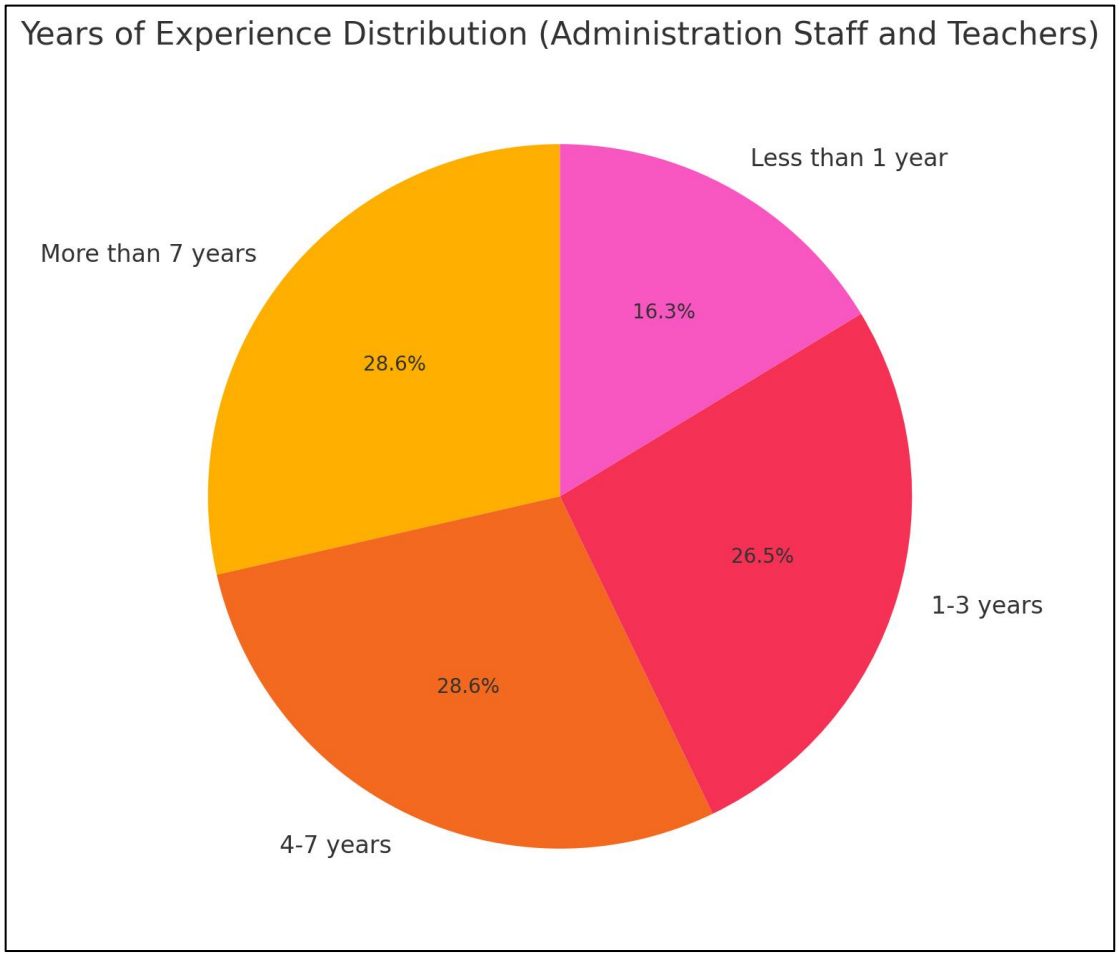

Figure 2.3:Years of Experience Distribution (Administration Staff and Teachers)

The years of experience for the individual teachers and administration are depicted in Figure 3: less than 1 year11 (16.3%), 1–3 years12 (26.5%), 4–7 years13 (28.6%), and >7 years14(28.6%). The results show that the experience level is slightly balanced, with a majority hovering around 4-7 years or more than 7 years of experience, indicating moderate to high levels of familiarity in dealing with university systems. This heterogeneous distribution is very relevant when looking at implementing something new, such as an app-based attendance model where more experienced staff may be against integration due to existing practices. In contrast, their less experienced counterpart will

tend to adopt newer technologies. This approach shifts into consideration that the app will need to cater to both groups in making navigation easy and reducing user adoption issues.

Question 4: Academic Year (for Students)

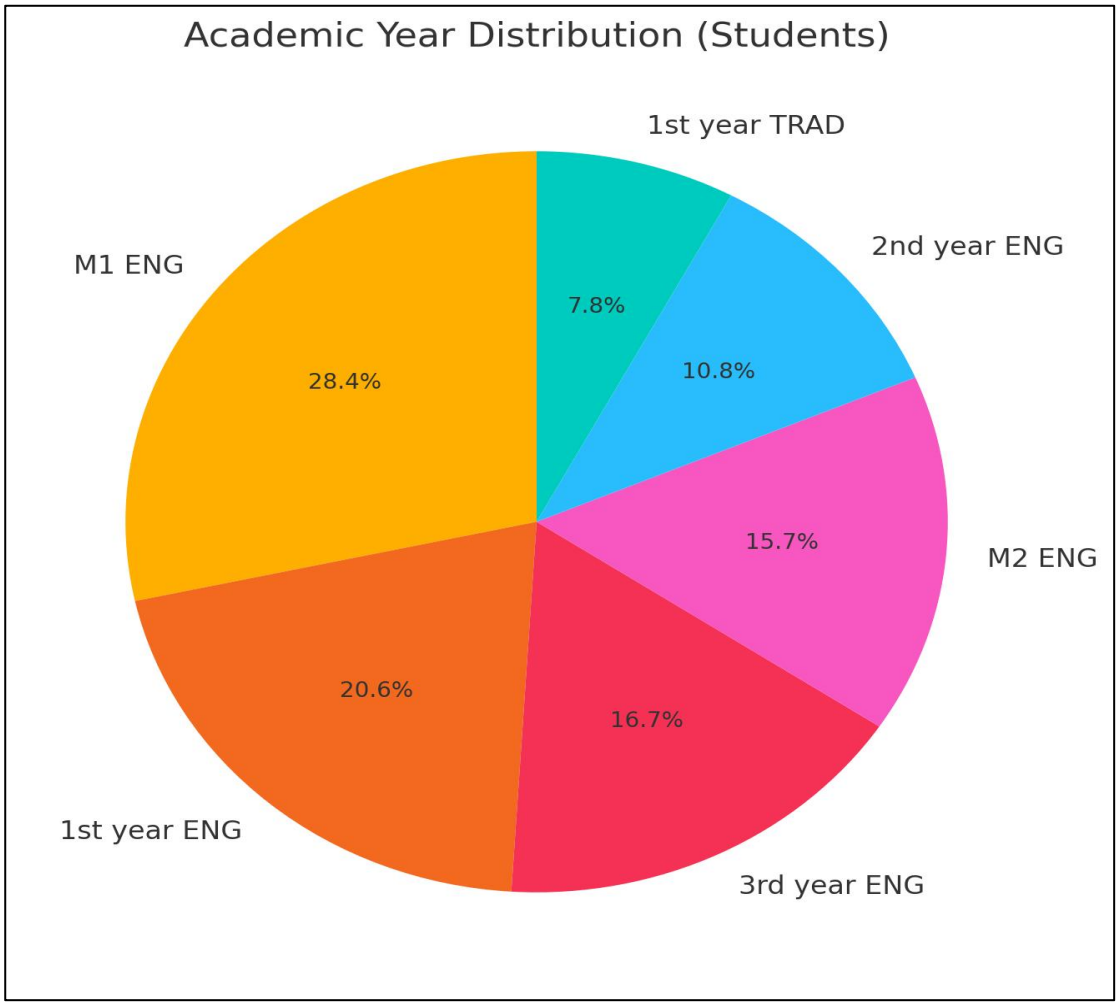

Figure 2.4:Academic Year Distribution (Students)

The distribution of students is as follows by academic year (Figure 4): 1st-year TRAD, 7.8%; 1st-year ENG, 20.6%; 2nd-year ENG;10.8%;3rdyearENG;16.7%; M1ENG;28.4% M2ENG;15.7%. Most students are in the M1 ENG year (28.4%), next M2 ENG (15,7%), and 1st year ENG(20.6%). But, there's a significant drop in representation for 2nd and 3rd-year students. Such a distribution demonstrates that most students are early-career and at an advanced stage level, particularly in Master's level studies. This may suggest more familiarity with tools and processes associated with digital education and more excellent specification in technology preferences. When designing and implementing the app, particular attention should be paid to 1st-year

students who may have less experience with the administrative processes from within the department and could require additional help in using this more effectively.

2.5.2 Section 2: Perceived Usefulness (PU)

Question 1: The app will improve the accuracy of attendance records.

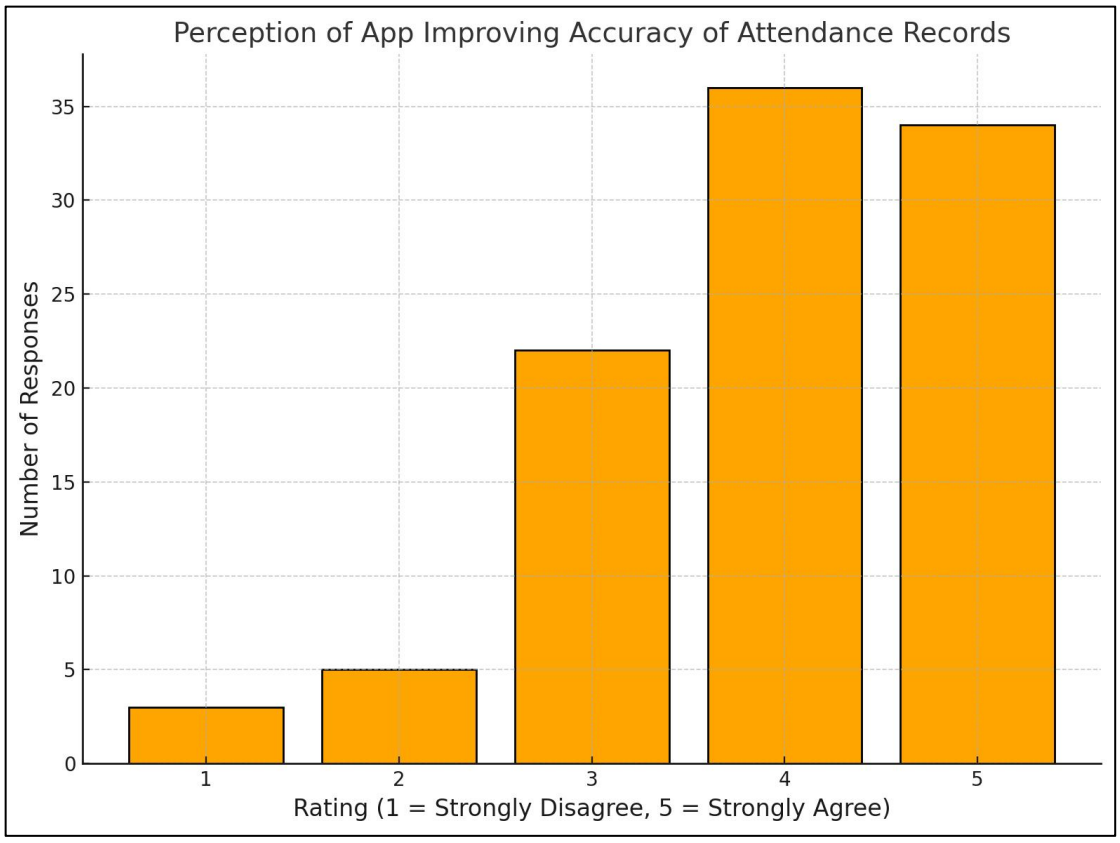

Figure 2.5:Perception of App Improving Accuracy of Attendance Records

The responses show that an overwhelming majority of participants (70.3%) are firmly in favour of the proposed attendance tracking app to maintain an accurate record, with most agreeing (36.4%) or strongly agreeing (33.9%). This suggests that they consider the app's usefulness in administrative efficiency and errors since those errors can commonly occur in manual record-keeping. These favourable views are consistent with the literature that highlights using a digital system for data enhancement and operation efficiency in terms of educational tasks (Alshehri, Rutter & Smith, 2019). Conversely, the 21.5% neutral answers mean that some of them may have reservations or not fully understand how the app works. The uncertainty about the app may arise from not

knowing its functionality or the fear of implementing it, a problem often studied in technology adoption (Venkatesh & Bala, 2008). To mitigate these doubts and build confidence, one can use interactive demos, piloting, or workshops to demonstrate how the app would track attendance in a traceable and accurate way. The app's potential to automate many aspects of administrative workflows and reduce manual errors dovetails with a broader shift towards digital transformation, in which automated systems are receiving greater attention for helping improve reliability and transparency (Holden & Rada, 2011). For the neutral group, it could showcase studies or testimonials from similar contexts to help build their group's trust and emphasise how the app could yield operational benefits for the University.

Question 2: Using the app will save time compared to current attendance methods.

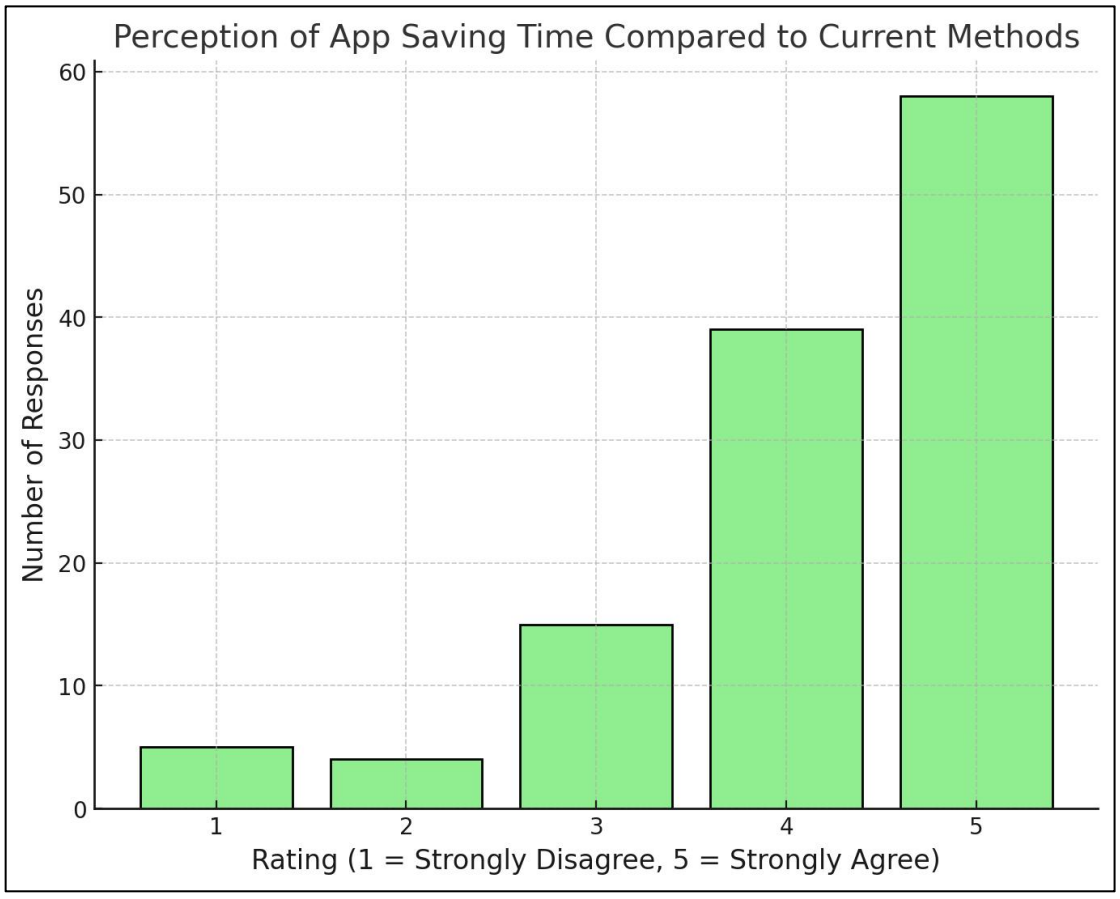

Figure 2.6:Perception of App Saving Time Compared to Current Methods

These results indicate a broad consensus among the respondents (80.1%) that using the attendance tracking app will be more time-efficient compared to traditional methods, with almost half (47.9%) agreeing strongly and 32.2% agreeing The vast majority of positive responses illustrated the potential for an app in streamlining processes to make attendance more efficient; a conclusion supported by literature revealing evidence that automated systems can save time (Alshehri, Rutter, & Smith, 2019) educational and administrative domains. These systems are especially appreciated for eliminating redundancy and minimising time used on tedious manual data input, which are inefficiencies plaguing traditional attendance methods (Davis et al., 1989). Nevertheless, the 19.8% of stakeholders who chose neutral or disagree signal that not all were sold entirely on the app. Such reservations may be related to usability, adaptability, or difficulty of migration from an existing method to a new digital system and are typical of technology transfer (Venkatesh & Bala 2008). However, resistance can be blunted with focused training from the partner organisation, clear communication on transfer ability features of the app, and pilot testing. In addition, relevant real-world proof of the benefits achieved through using the app, such as time details from comparable implementations, can increase credibility and confidence for doubtful users. This response supports the need to highlight not just the operational benefits of the app but also its ease of integration into their lives because this maximises user buy-in and, ultimately, successful adoption.

Question 3: The app will allow easier access to attendance data for students, teachers, and staff.

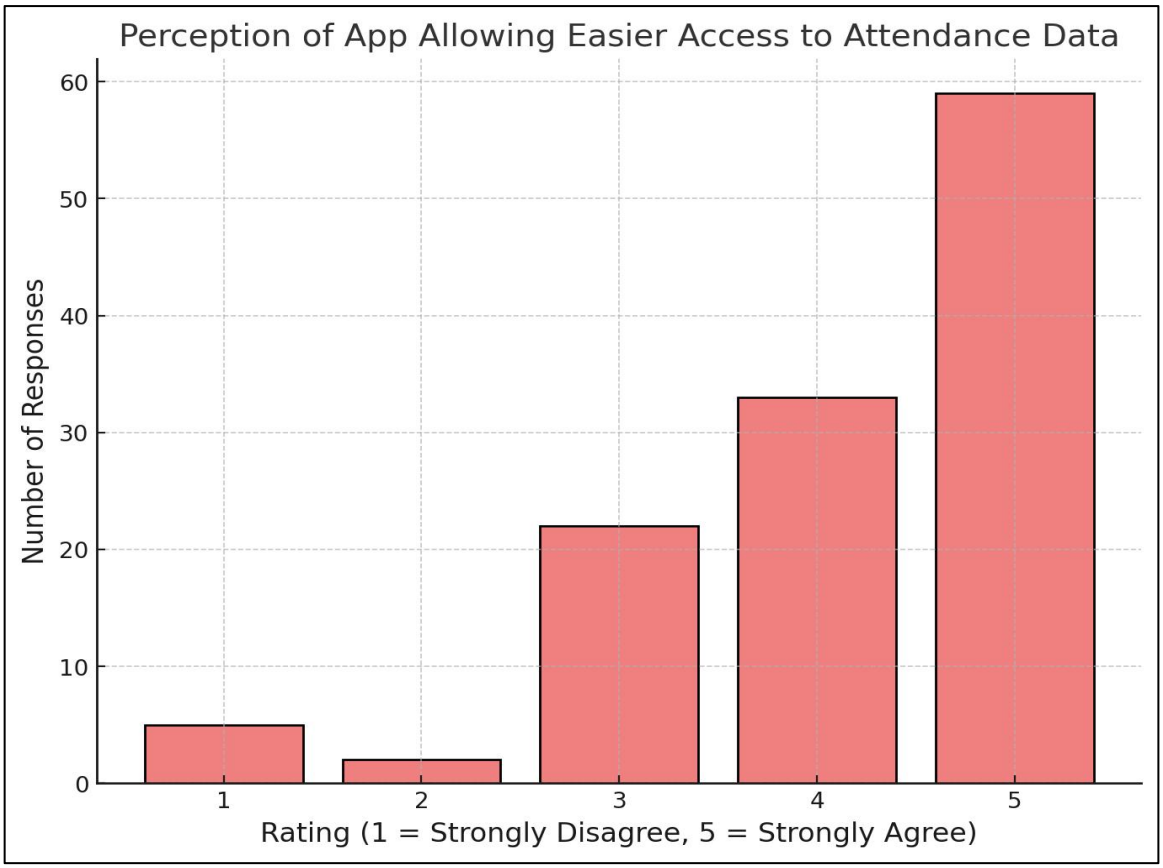

Figure 2.7:Perception Of App Allowing Easier Access To Attendance Data

The results reveal that a large majority (76.1%) of respondents feel that the proposed attendance tracking app would facilitate improved access to attendance information for students, teachers, and staff, with 48.8% strongly agreeing and 27.3% agreeing. A robust confidence in the role of the app to offer transparent, centralised, and user-friendly access to data emerges here, which is consistent with research encouraging digital systems can improve the accessibility and usability of data within an academic context (Alshehri et al., 2019). The availability of attendance records not only enhances administrative processes but also enhances stakeholder accountability and engagement when users are able to access their data (Holden & Rada, 2011).

On the other hand, the Absence of confidence or knowledge about the app's working is reflected in 18.2% of respondents choosing a neutral option. For example, they might

be wary of the app interface's reliability, with the perceived difficulty of knowing and tracking attendance data. To ease these hesitations, it may be helpful to highlight the latter functions and how easy it is to use the app through a demo or training. For example, demonstrating that the app allows immediate access to attendance logs helps users appreciate its use value, minimising scepticism and increasing user interaction (Venkatesh & Bala, 2008). Putting in high data security and privacy measures also helps confidence, as it is probable that stakeholders will be very worried about safeguarding delicate data (Podsakoff et al., 2003). In general, the results emphasise the ability of the app to change attendance management by enhancing access to data while also emphasising that it is necessary to address user concerns to maximise adoption and satisfaction with the app.

Question 4: The app will help reduce administrative burdens related to attendance tracking.

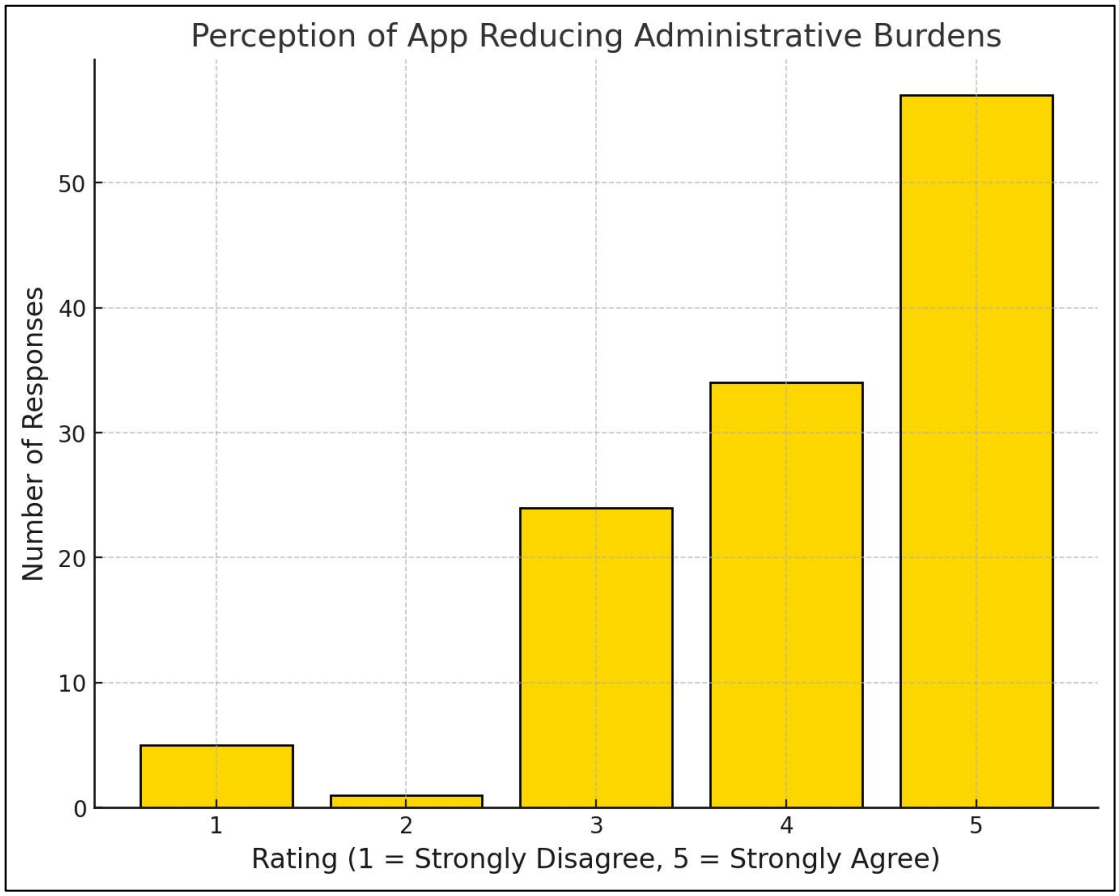

Figure 2.8:Perception Of App Reducing Administrative Burdens

Survey results showed that most respondents (75.2%) agree that our proposed attendance tracking app would significantly help reduce administrative burden (28.1% strongly, 47.1% agree). This favourable viewpoint reinforces the capacity of the app to automate repetitive and laborious processes required for manual attendance that usually are both cumbersome and time-consuming [36], which supports studies reporting ways in which digital systems improve administrative functions through task automation, minimising human errors (Alshehri, Rutter, & Smith 2019). Reducing manual interventions will enable the administrative staff and teachers to spend their valuable time on something more strategic and impactful (at least in line with the digital transformation tenets in education) [i.e., Davis, 1989].

Nonetheless, 20.6% of respondents who were neutral or negative pointed to possible issues in the real world concerning how and if this app could even be used. Such concerns might arise due to fear of change, technical aspects, or issues regarding the app's capabilities for complex attendance scenarios (for example, multiple daily attendance forms). Pervasive hesitations often define the first-of-its-kind use of an emerging technology, cautionary to step forward, and consider operational breakage or low assurance in new tools (Venkatesh & Bala, 2008). A phased implementation approach could reduce these fears and training and technical assistance would bolster user confidence. Moreover, highlighting case studies or pilot outcomes from analogous applications may provide concrete evidence of the app's ability to meet the need for reduced administrative burden (Holden & Rada, 2011).

Overcoming transitional barriers and making the most out of the app would require user-centric modules, dependency on local hardware, and vital supporting ecosystems. Identifying these can help strengthen stakeholder trust in the app and its ability to significantly improve administrative efficiency, which is crucial for operational workflows and the educational ecosystem.

Question 5: How do you think the app could further improve attendance management processes in your department? (Select all that apply)

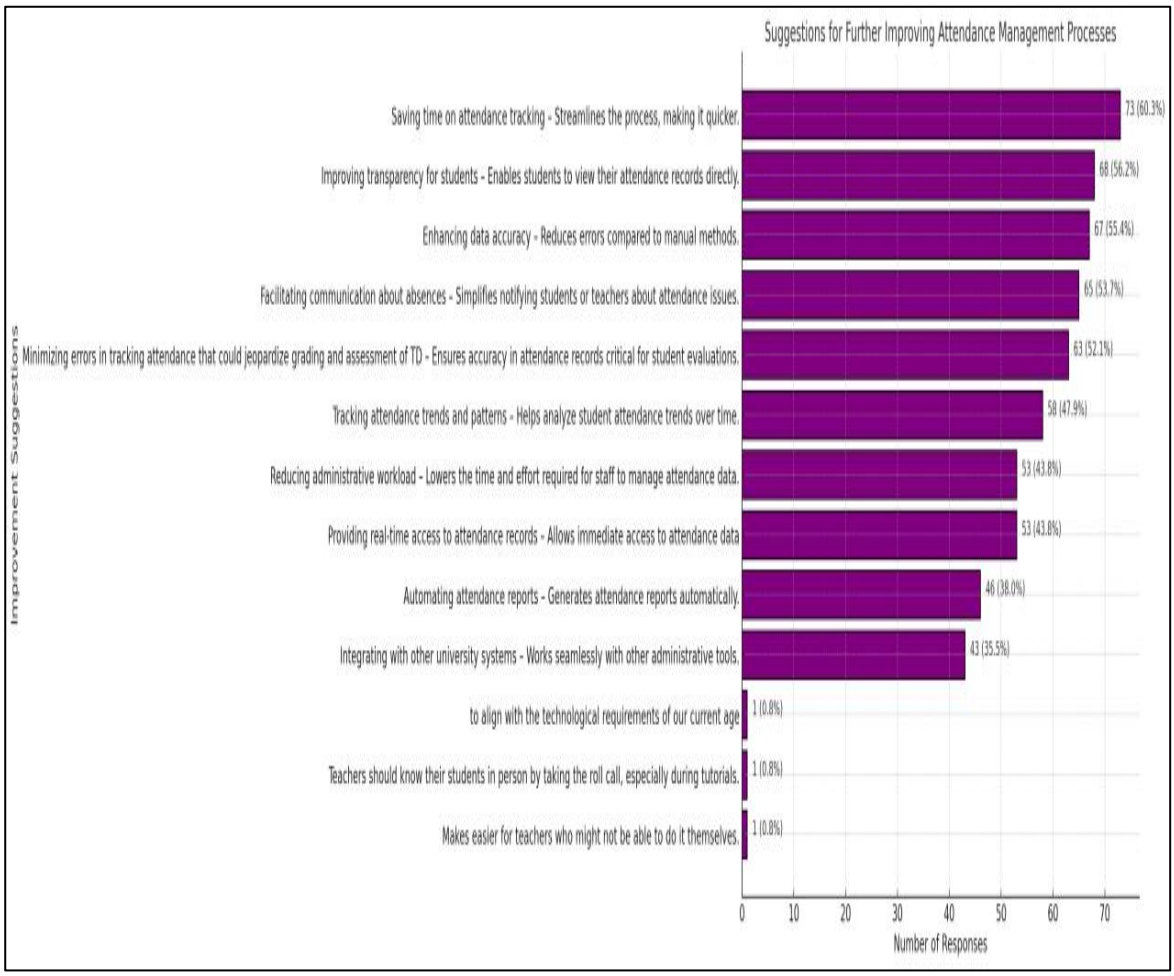

Figure 2.9:Suggestions For Further Improving Attendance Management Processes

Respondents mainly characterise the proposed app as a multipurpose, multi-beneficial tool for attendance management, areas such as time savings (60.3%), transparency (56.2%), data integrity (55.4%), communication and reporting (53.7%) and reduction of errors (52.1%). These preferences indicate a clear awareness of the ability of the app to facilitate attendance processes and powerfully resonate with more widely viewed ideals of digital transformation in education, namely those that focus on efficiency, accountability, and data reliability (Alshehri et al., 2019). As it provides automated solutions, the app can reduce time-consuming manual processes and reaffirm transparency and accessibility of attendance records for relevant stakeholders while

simultaneously reducing errors, which is critical to enhancing educational administration and engagement (Davis et al., 1989).

The key features of facilitating communication and reporting show that the respondents view the app as more than an attendance tracker but a comprehensive tool that can incorporate aggregation of attendance data into more extensive administrative and academic processes. These findings are consistent with literature indicating a growing need for systems that integrate multiple aspects beyond their primary function (Holden & Rada, 2011). Finally, the importance of minimising errors also suggests that the app could solve a debilitating problem associated with traditional attendance systems riddled with discrepancies as a function of human error or antiquated methods (Venkatesh & Bala, 2008).

So, to be ready to hit upon these intentional – and desperate human – flaws, the app must include features that allow users to report issues in the app quickly, run vigorous checks on errors, and set out data sharing protocol as upfront as possible. This might also mean developing modular functions that meet the different requirements of students, teachers, and administrators by responding to a respondent's preference. In addition, adding real-time communication channels, such as notifications and automated reports to serve requests, could enhance the scope of the app's utility. These responses show that the app is considered a key instrument of operation in attendance management to achieve operational efficiency and user satisfaction as long as its development meets a specific target audience's actual needs and expectations.

2.5.3 Section 3: Perceived Ease of Use (PEOU)

Question 1: The app will be easy to use and understand.

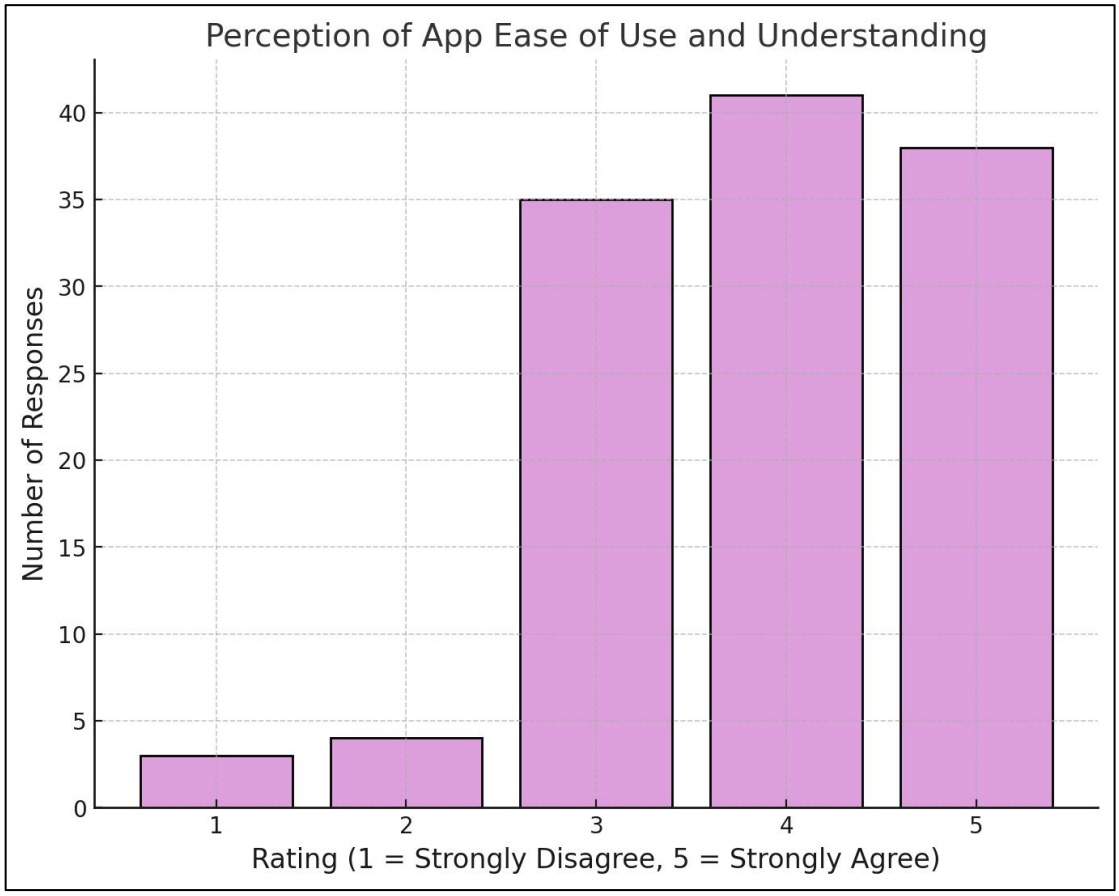

Figure 2.10:Perception Of App Ease Of Use And Understanding

As can be seen from the results, 65.3% of participants estimated the Design of the proposed app to be easy to use and understand, with 31.4% strongly agreeing and 33.9% agreeing. This indicates that the Design and interface of the app are intuitive, and most users find it relatively easy to use, which is paramount for technology acceptance according to the Technology Acceptance Model (TAM) 3. Usability is the most critical driver of perceived ease of use, significantly impacting user attitudes and subsequent behavioural intention toward technology adoption (Venkatesh & Bala, 2008).

On the other hand, 28.9% of respondents who selected neutral responses indicate that there are some uncertainties or hesitations — about how easy it is to use this app. These hesitations may be due to unfamiliarity with the show's features, doubts about their

technical ability, or fear of facing problems when they first use it. Specifically, prior research has indicated that these reservations can be alleviated by providing comprehensive user manuals and delivery of demonstrations and practice-based system training in order to familiarise the users with the technology and increase their confidence (Holden & Rada, 2011).

Because they are widely used to steer society towards scepticism or a neutral attitude about it, developers here can instead aid user onboarding with incremental tutorials, an FAQ section, and help desk options that provide ease of use. Furthermore, usability tests and feedback during the app development phase can help to refine the interface for users further, as well as test for problems or pain points so they are made before actual deployment happens. Not only would these efforts lead to higher levels of user satisfaction, they would make the app's ease of use a reason for its adoption. Handling these factors will allow the app to fulfil its potential as an easy and intuitive tool for attendance.

Question 2: I think learning how to operate the app will be simple.

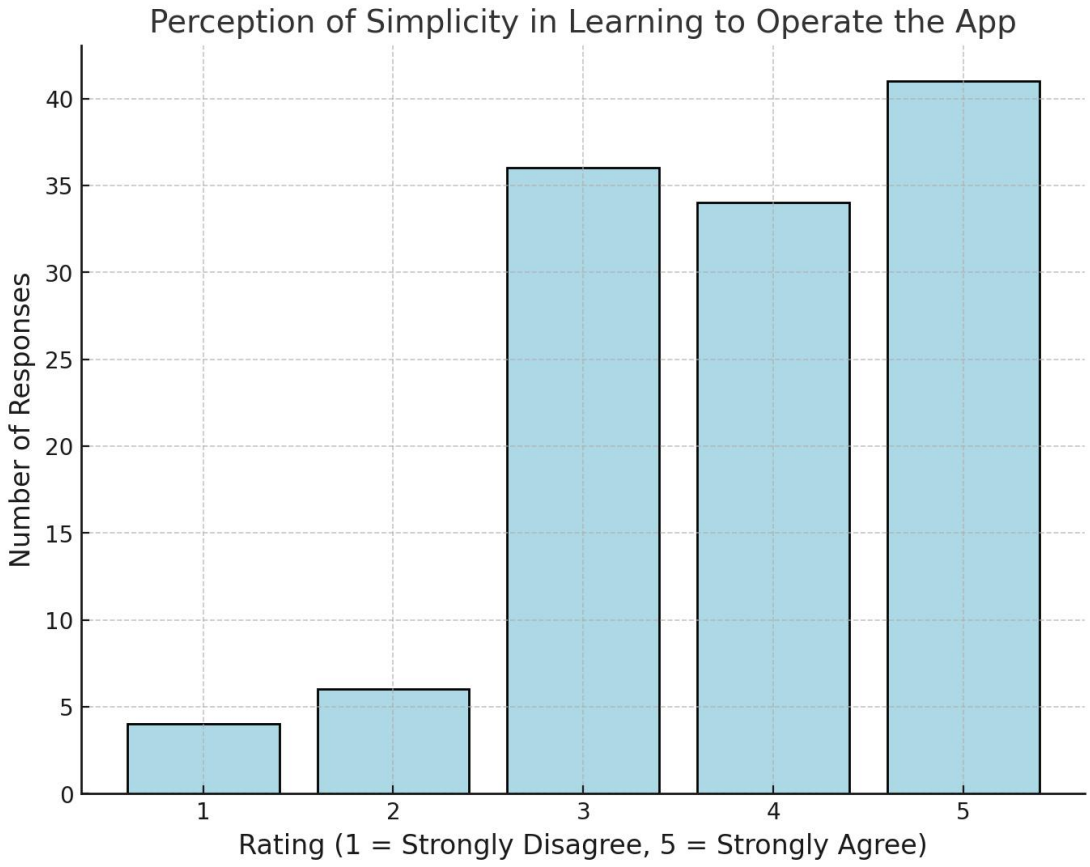

Figure 2.11:Perception Of Simplicity In Learning To Operate The App

According to the survey results, 62% of respondents view the app as easy to learn, and only a tiny percentage (3.0%) disagree with this statement (33.9% strongly agree, 28.1% agree). This warm nexus echoes the app's intuitive Design and points toward potential ease of use, which aligns with research on early technology adoption sustainability that emphasises that ease of learning is an important aspect (Davis et al., 1989). Having an accessible learning curve is essential to ensure widespread adoption since users will be reluctant to use technology without confidence in their operating ability (Venkatesh & Bala, 2008).

However, just under a third (29.8%) of the users remained neutral, indicating they may still feel unsure about learning the app without further help. This shows that while the app is easy to use for many, a sizeable group of potential users might still need explicit training or demonstration to ease them into the experience. Similar research on user uptake has shown that even simple technologies require in-depth onboarding, including support resources such as video tutorials, user manuals, and interactive demos (Holden & Rada, 2011).

In order to assuage these concerns and market the most usable app possible across all user groups, developers must invest in providing accessible and diverse training materials concerning various users. For example, workshops or live demonstrations may work best for teachers and administrative staff, step-by-step guides may be more effective with students, and quick-reference materials may be helpful for all parties. The availability of these resources during the first implementation period reduces learning problems, minimises user stress, and ultimately increases an application's relative ease of use and usability. Its adoption and proper integration into the existing workflows will depend on how seamlessly and well this transition to the app is managed.

Question 3: Using the app will not require significant technical skills.

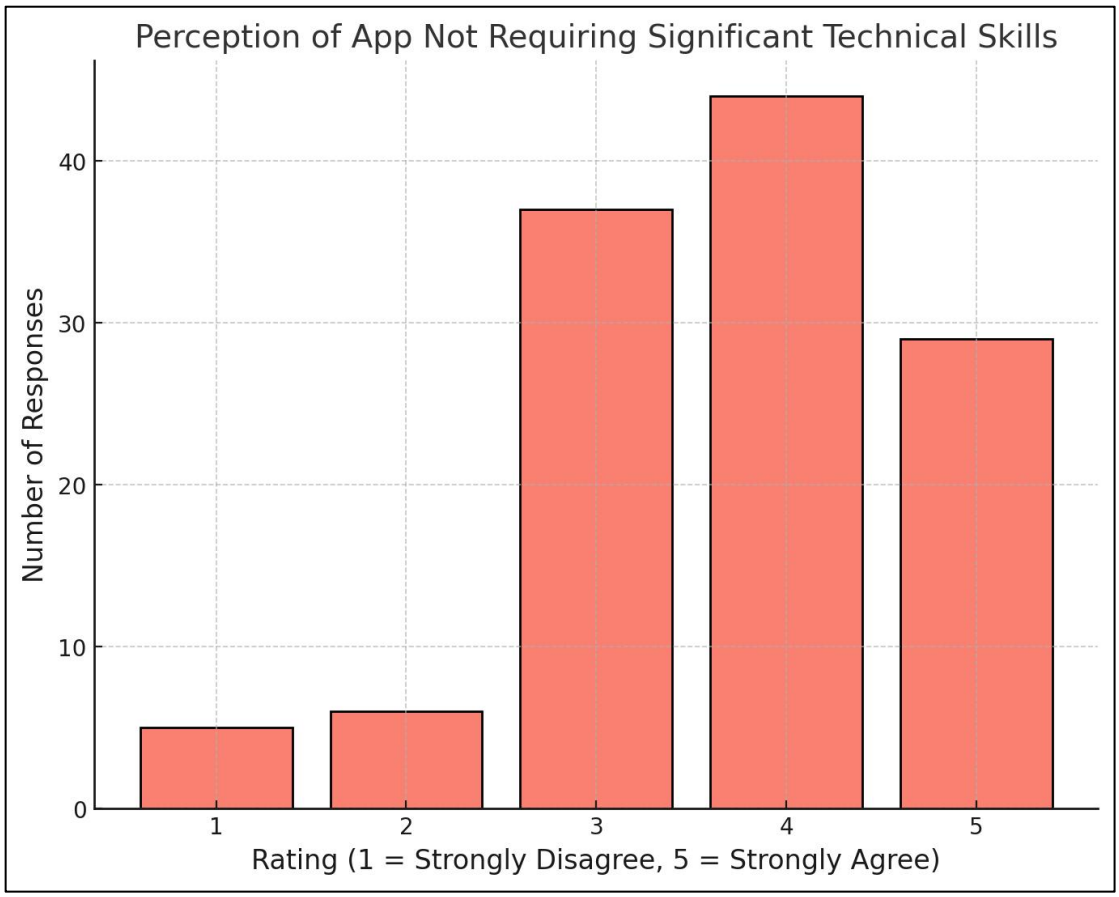

Figure 2.12:Perception of App not Requiring Significant Technical Skills.

Based on the survey results, most respondents (60.4%) agreed or strongly agreed that the use of the application does not require critical technical skills, which shows an optimistic impression of its accessibility and user-friendliness [2]. This indicates that the app has been developed with a broader audience in mind, including users from different backgrounds of technological familiarity, which is essential for effective adoption in heterogeneous settings (Davis et al., 1989). It's a good practice in educational technology development to develop for all users instead of those with advanced technical skills (Venkatesh & Bala, 2008). TechEase seems in line with that by emphasising usability without needing prior experience.

However, this favourable view comes with a larger-than-expected number of neutral responses (30.6%), indicating that many participants are not sure it is technically feasible for an app. People are expected to feel uncertain about new systems due to fear of not being versed in the tool/interface, having to deal with technical issues and the idea that

technology seems complicated due to some unseen mechanisms. Studies reveal that users will accept technology if they know how it works and how to use it (Holden & Rada, 2011).

It would help to have a message — perhaps in the app description, but anywhere else appropriate on their website/blog/social media — that addresses both concerns and emphasises how simple the technology behind this is. Demonstrations, tutorials, and hands-on training are excellent ways to demystify the technology and demonstrate its ability to operate. In addition, including features like a help section or onscreen tips within the app can give users confidence in immediate direction in case they face any challenge. This should help gain its acceptance and reduce the barriers while providing a smooth user interface for everyone involved. Such endeavours will build confidence in the ease of use and be part of daily working practices.

Question 4: The app's layout and interface will simplify attendance tracking.

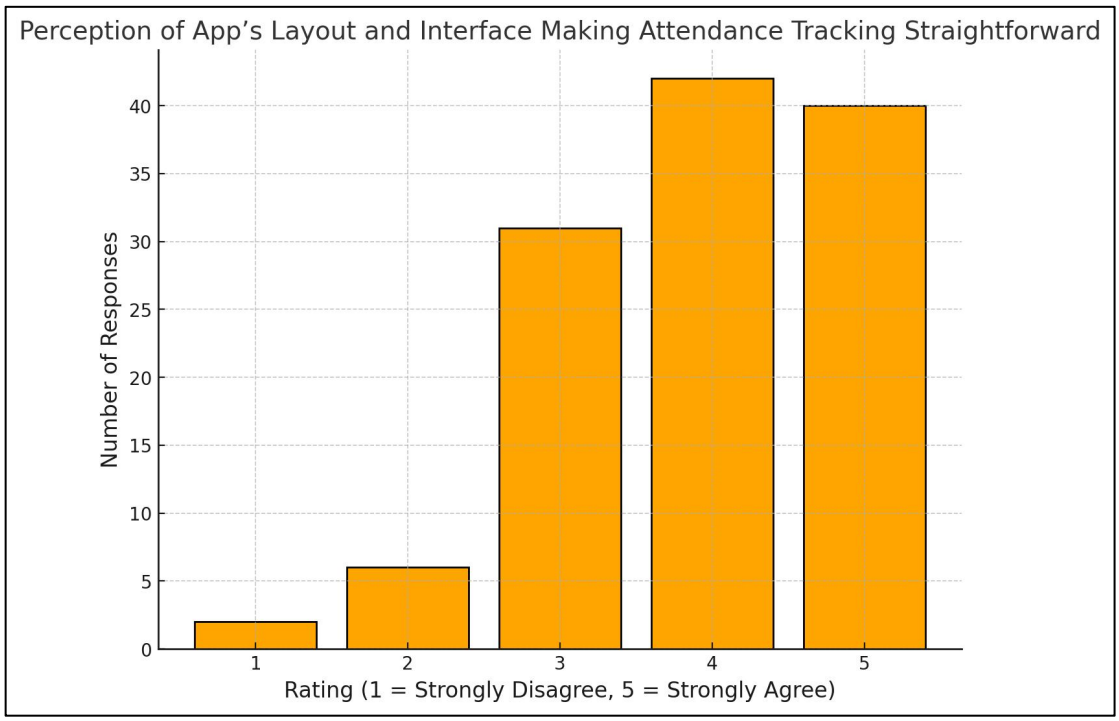

Figure 2.13:Perception of App's Layout and Interface Making Attendance Tracking Straightforward

These results suggest that most respondents (60.4%) agree or strongly agree that a user does not need technical skills to use/apply this app, which gives an impression of good accessibility and readability. This indicates that the app seems tailored for many user groups, including low-tech users, which is essential for a high adoption rate in diverse settings (Davis et al., 1989). The relatively low barrier to entry for the app in using it without sophisticated technical expertise supports best practices aligned with educational technology design models that highlight intuitiveness and ease of use so all users, even those with no previous experience using a similar tool, can discover its potential at a moment's notice (Venkatesh & Bala, 2008).

While this is an encouraging result, nearly a third (30.6%) of respondents chose neutral, indicating many participants are unsure about what the app will require from a tech standpoint. Such uncertainty could stem from fears of unknown interfaces, the potential for troubleshooting, or the notion that a technology stack will always entail some mystery. According to research, users must be educated enough about how what they will be using will work; thus, there is a risk of embracing it (Holden & Rada, 2011).

To remedy these concerns and instil confidence in hesitant users, communication regarding the app's technical simplicity would also be wise by being transparent yet straightforward. Getting into demonstrations, tutorials, and workshops is an excellent way to demystify the technology and show how easy it is to operate. Finally, embedding features like a help section or tips on the screen can reassure users that you offer them quick help (if any challenges arise) without forcing them to devote too much of their time to overcoming obstacles). Focusing on its easy use and downplaying perceived barriers to use will reinforce its user adoption, providing a smooth experience for all parties involved. These initiatives will build trust in the app's simplicity and become part of day-to-day workflows.

Question 5: How do you think the app could further improve attendance management processes in your department? (Select all that apply)

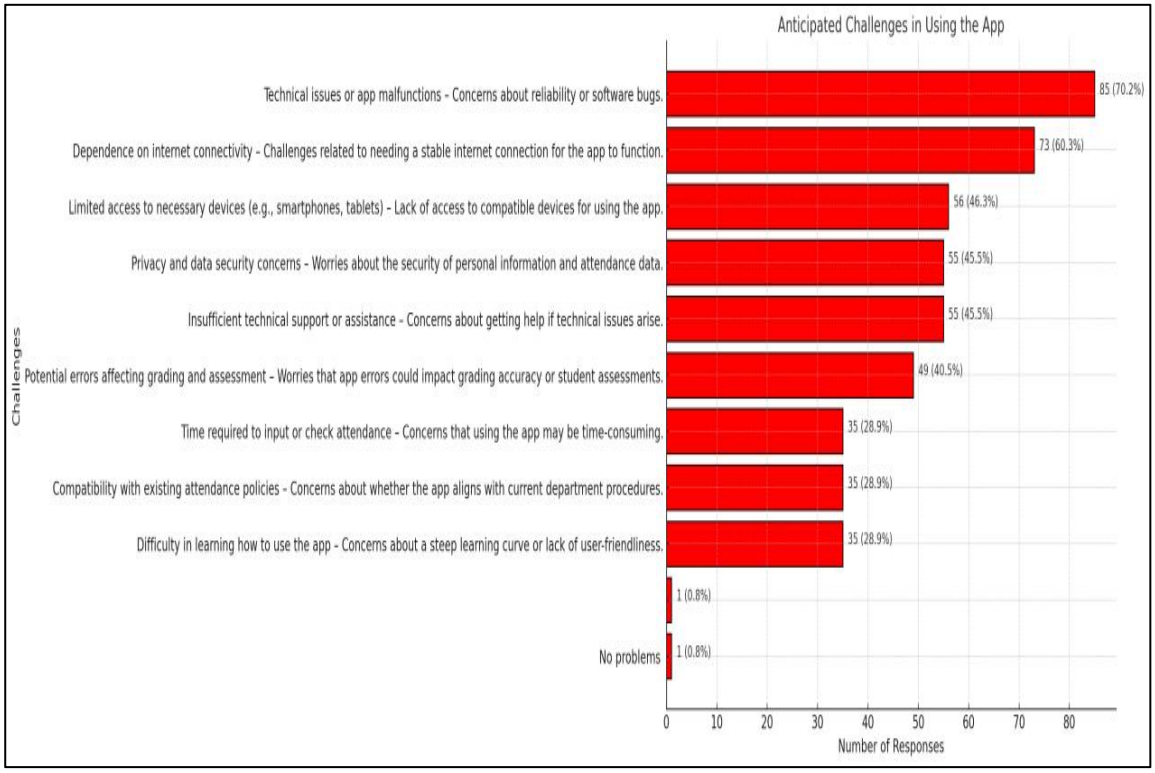

Figure 2.14:Anticipated Challenges In Using The App

According to responses from the survey, there are significant reasons that respondents predict could hinder their adoption of the proposed attendance tracking app; technical issues or malfunctioning of the app is by far the top concern–cited by 70.2% of participants. This indicates a widespread fear associated with adopting new technology — the need for consistency and reliability to foster user confidence (Holden & Rada, 2011). Based on our view by question, the most common issue highlighted was reliance on an internet connection (60.3% of respondents), pointing to one of the infrastructural hurdles that are typically faced in digital systems and more severe in places where internet availability is unstable. This reinforces the requirement for capabilities like offline to circumvent access and stability issues (Venkatesh & Bala, 2008).

Importantly, worries about having limited access to needed devices (46.3%) and a lack of technical assistance or support (45.5) reflect the need for equitable access to resources and onboarding approaches. Such factors are crucial in establishing the need for institutional support by providing hardware [12, 25] and regular training sessions to ensure that all stakeholders who utilise the app have access and coverage, regardless of their background with technology. The concern with privacy and data security, echoed by 45.5% of respondents, suggests a worrisome societal perspective on threats of data breaches and unauthorised access. These critical issues can be addressed using transparent data protection policies, stringent encryption protocols, and another form of clear understanding regarding the handling and safeguarding user data (Podsakoff et al., 2003).

To meet these challenges, the development and deployment of the app should focus on stability, accessibility, and security. It will be important that trust and adoption are built on proactive measures: redundant support mechanisms for technical issues, Design for cross-device, and strong privacy protections. Moreover, ground-up customer support and robust documentation might curtail fears around tech friction, whereas feedback loops can drive the built quality of the app in an iteration cycle. Suppose it takes all of these concerns into consideration. In that case, the app will be competitively positioned to be a reliable, inclusive tool that protects user safety whilst providing a solution to the department for their attendance management needs.

2.5.4 Section 4: Attitude Toward Using the App (ATU)

Question 1: I am positive about using the app for attendance tracking.

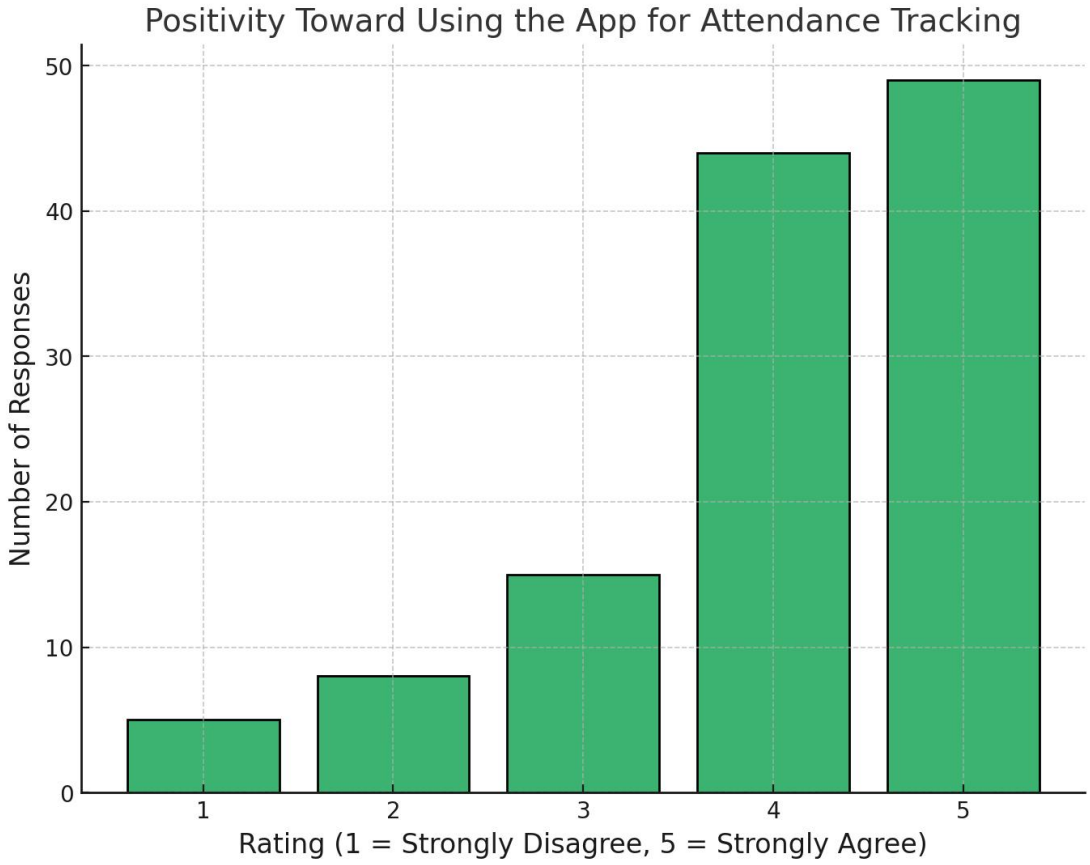

Figure 2.15:Positivity Toward Using The App For Attendance Tracking

The results suggest that the overall opinion of using the app for tracking attendees is positive, with 76.9% agreeing (36.4% agreeing and 40.5% strongly agreeing) on its use based upon positively worded items (Table 1). This indicates that most of the respondents see it as a tool with the potential for successful attendance management and agree with prior research emphasising user attitude in adopting technology such as this one (Venkatesh & Bala, 2008). Usually, positive attitudes toward technology adoption are due to the expectation of having ease, efficiency, or improving performance. In this case, the app is expected to provide all 3 regarding taking attendance (Davis et al., 1989).

Conversely, 19% of respondents showed either negative or neutral responses to the survey call, signifying scepticism about the app's functionality. These reservations could arise from the app being quasi-useless, unable to protect users' data, or possible technical problems that would limit the app's functionality. This is in line with other research

regarding technology adoption; when a new technology is being introduced, there might be uncertainty that leads to reluctance for users not certain about systems capability and reliability or insufficient ability to provide appropriate services (Holden & Rada, 2011).

Precise, targeted messaging explaining the areas where the app excels — ease of implementation and ongoing technical support, for example — will turn neutral or adverse reactions into positives by addressing these concerns. A thorough user training, some pilot programs, or positive testimonials so users could see the app working efficiently firsthand, combined with sound privacy policies, sounds like a way to minimise most of the arguments presented by its more reluctant potential users. Furthermore, these can be communicated with potential users through a dialogue entailing comments that can later be considered for further app updates to eliminate any other(few) issues that lead to the app's acceptance. This proactive approach will help the app earn more trust, enable seamless adoption, and drive successful implementation in every user group it touches.

Question 2: Using the app is a good idea for our department.

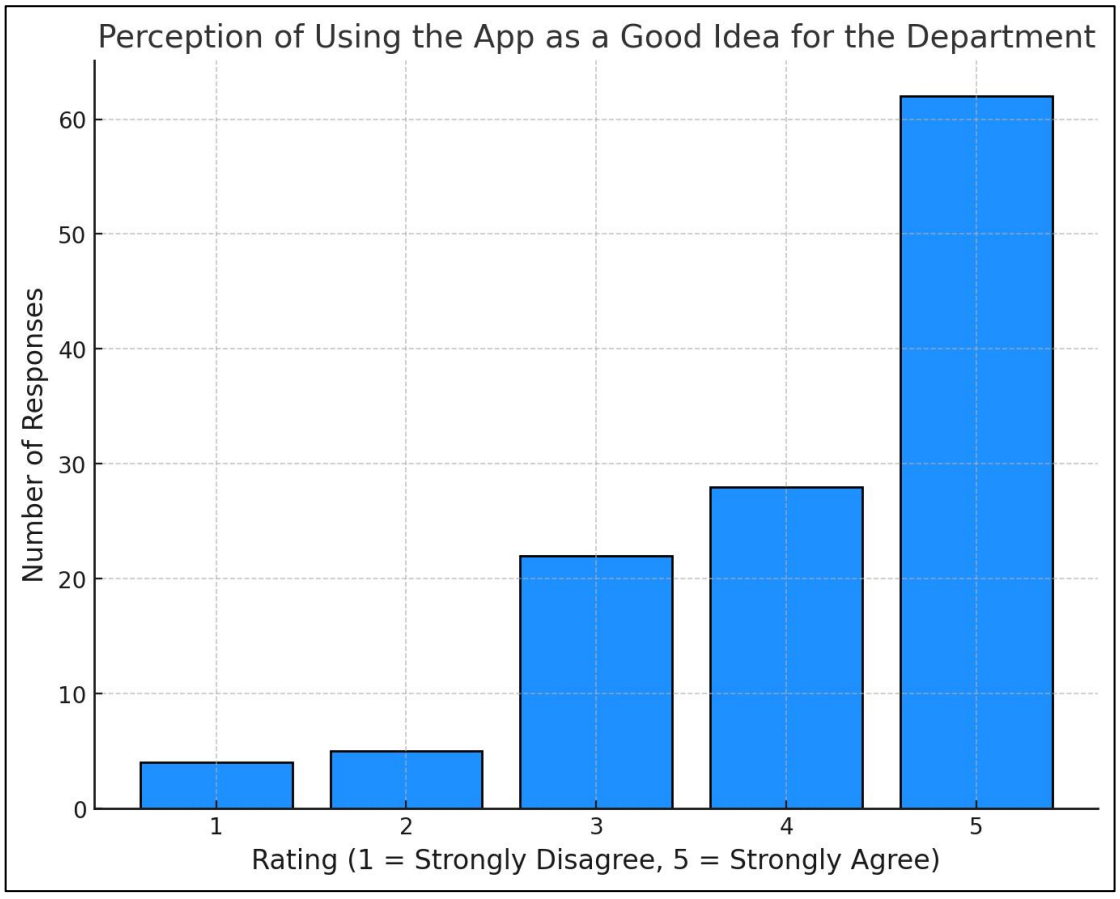

Figure 2.16:Perception Of Using the App as a Good Idea for the Department

The data demonstrate substantial support for implementing the app in the department, with 74.3% indicating that using the app is a good idea (49–6% strongly agree). This reflects the general acknowledgement that the app has great potential to make administrative tasks and attendance monitoring easier (Davis, Bagozzi & Warshaw, 1989). According to the Technology Acceptance Model (TAM), perceived usefulness and ease of use are crucial to acceptance. Such positivity from most of our respondents speaks volumes about how the app enables departments to minimise their manual workload and obtain a digital, more effective solution for attendance management.

But the 7.4% who disagreed with the statement and the 18.2% who were neutral still indicate that some respondents remained uncertain or noncommital." They might worry about how the app would function, whether or not it would be implemented properly, or if it could potentially disrupt a current communication workflow. Or they may not get what the app will do for them in their everyday job. Research has proven that lack of experience (i.e., fear) concerning the new technology is a cause for delay in new technology uptake. Thus, it necessitates targeted communication to address end users' fears with the estimated benefits of the novel approach compared with traditional practice techniques (Venkatesh & Bala, 2008).

They are clearly unsure of the technology and need to see more demonstrations of it (the evidence in this report is from just one real-world (Singapore) data set). If similar apps have been used successfully in other departments/institutions, this could be highlighted with testimonials to assuage any remaining doubts about the effectiveness of a newly adopted app and its contribution to matching the department's goals. Moreover, a gradual rollout with feedback opportunities and a step-wise transition can alleviate concerns about disruption and make it easier to transition into the new system. The department should include rebuttals to these concerns in an FAQ section, which will ultimately preemptively create more robust support for the app and allow mHealth integration to succeed.

Question 3: I am open to replacing the traditional method with the app.

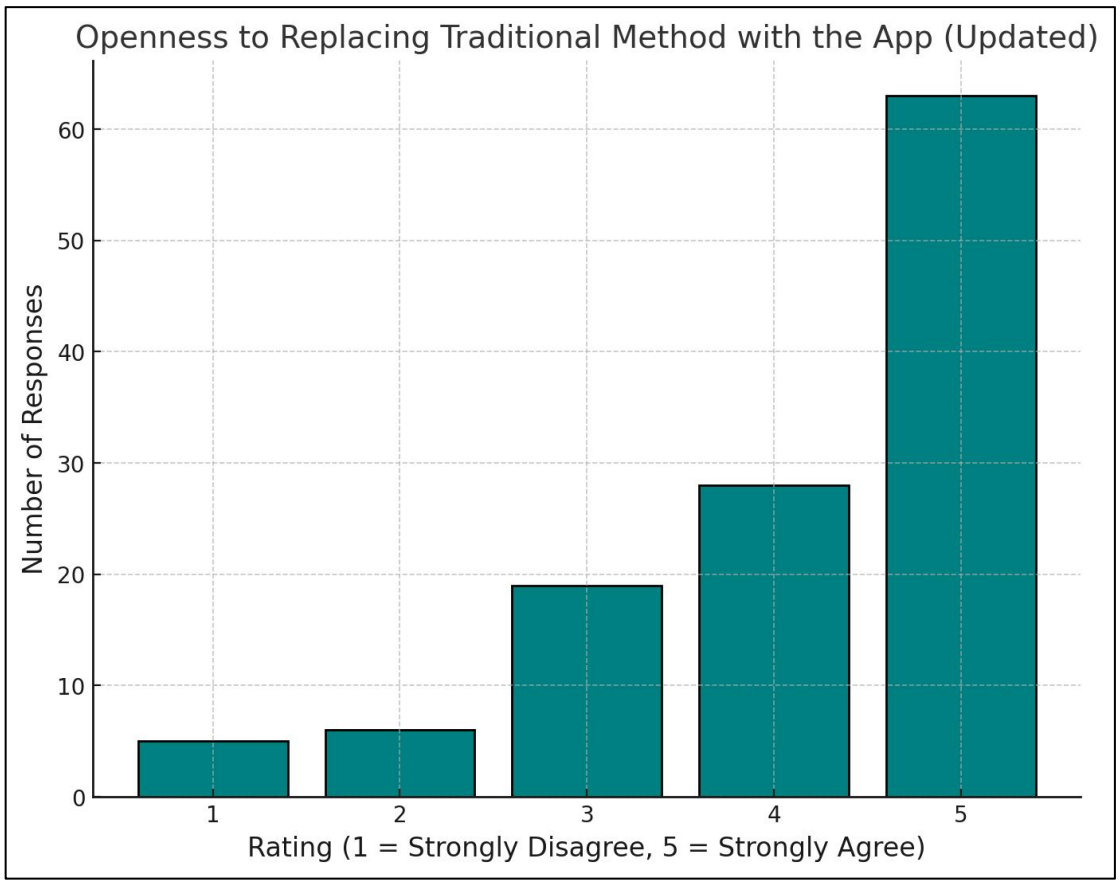

Figure 2.17:Openness to Replacing Traditional Method with the App

When asked if the app could replace traditional attendance tracking methods completely, 75.2% of respondents at least agreed (23.1%) or strongly agreed (52.1%) with this statement, as evident from the survey results above. That means most of the participants are open to modernising the attendance process and understand that digital solutions can bring efficiency in usage and ease-of-use benefits. Agreeing with the literature on technology adoption, users will commit to new systems if they believe the implementation provides added value in optimising existing workflows and overcoming inefficiencies (Venkatesh & Bala, 2008).

This indirectly indicates little resistance to the app (as few respondents disagreed with replacing traditional methods, 9.1%). This suggests that almost all participants see

the app not merely as a substitute but `as an enhancement to existing practices. The digitalisation of attendance records is part of several developments in educational administrative processes which demonstrate that moves towards newer systems that provide better efficiency, at times even automation, are becoming increasingly viewed as an imperative shift to align with the modern educational environment (Davis, Bagozzi, & Warshaw, 1989).

The 15.7% who answered neutral suggests that perhaps there are still some who might be hesitant about using the app, maybe because they feel more comfortable with the existing system and protocol or don't have enough trust in the mobile application to ensure something right happens correctly. These concerns are normal pre-cursors that occur during the adoption of a new technology, where end-users feel hesitant to break away from their standard operating procedure or question if the tech will perform up to par. Responding to these reservations with more proof of the app's accuracy, detailed use-case scenarios or success stories, and testimonials showing its advantages (less administrative time, fewer errors, etc. Furthermore, making it transparent how the application will be implemented in existing workflows and holding training sessions to make the transition seamless may alleviate the concerns of neutral respondents, causing them to accept and use the app more widely.

Question 4: I am enthusiastic about the potential benefits the app could bring.

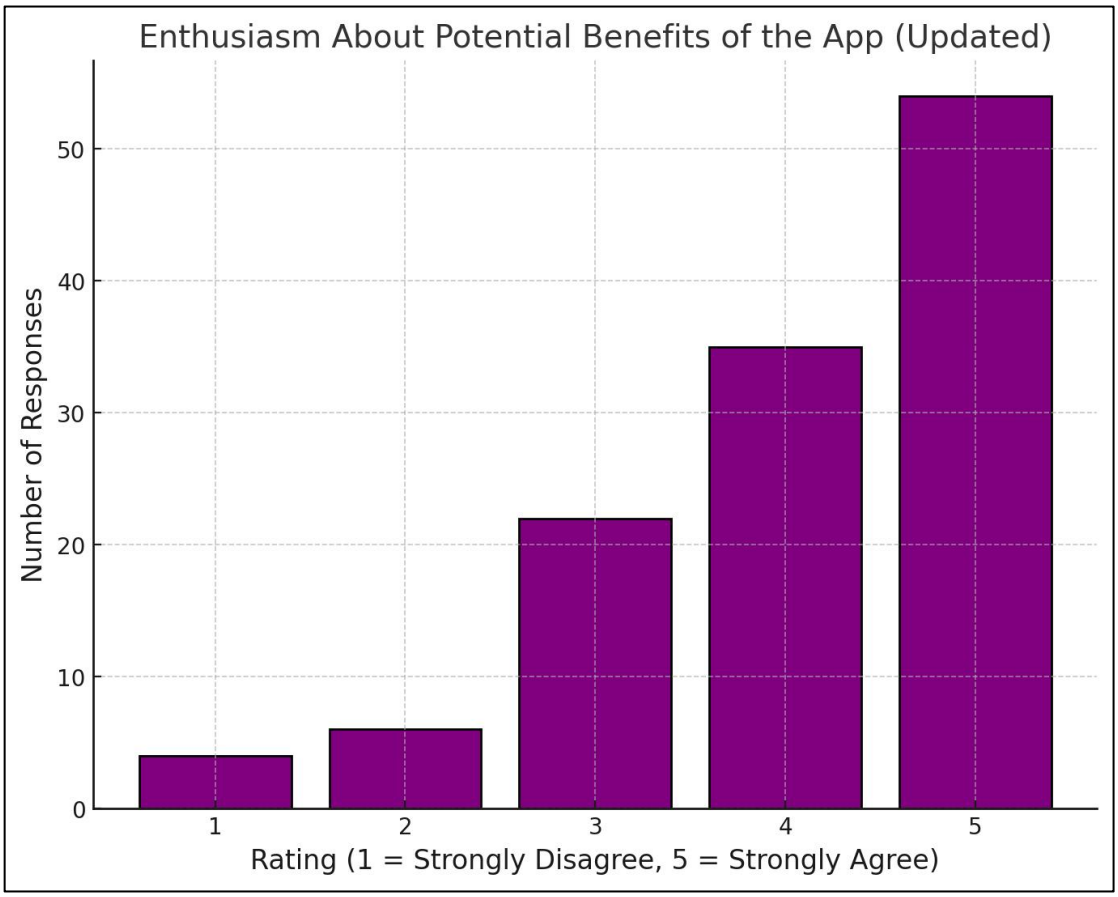

Figure 2.18:Enthusiasm About Potential Benefits of the App

The survey results indicate that 74.5% of respondents answered positively about the potential advantages a tracking app will bring (44.6% strongly agree with this statement, and 28.9% agree). Such enthusiasm indicates that most respondents believe the app could significantly improve attendance tracking. This optimistic perspective about the app implies that the respondents recognise its possibility to simplify administrative work, minimise errors, and optimise efficiency, aligning with broader patterns of educational technology adoption trends in which users' enthusiasm is frequently likely related to their perceptions of productivity gains and ease of use (Venkatesh & Bala, 2008).

Nevertheless, 18.2% of respondents gave their enthusiasm a mid-scale rating, indicating at least some hesitance on the part of some participants regarding how the app

would fare in practical use. The reluctance may be based on unfamiliarity with the specifics of app functionalities, possible implementation barriers, or integration into existing workflows. Neutral responses are common during early technology adoption, as users may lack confidence about the implications of a new system before they have an opportunity to put it into use (Davis, Bagozzi, & Warshaw, 1989).

To turn the merely neutral into enthusiastic advocates, more focused demonstrations, case studies, or examples of actual application within real-world situations will be helpful. Also, allowing users to play with it in the pilot phases or offering early trial programs and getting feedback might help them believe that the app is capable of what they claim or alleviate any lingering doubts. To help establish the app's value for everyone involved, messaging outlining how it would affect day-to-day activities and concrete evidence showing the app was successful in comparable environments could be beneficial– and spark enthusiasm for implementation.

2.5.5 Section 5: Behavioral Intention to Use (BIU)

Question 1: I intend to use the app regularly to manage attendance.

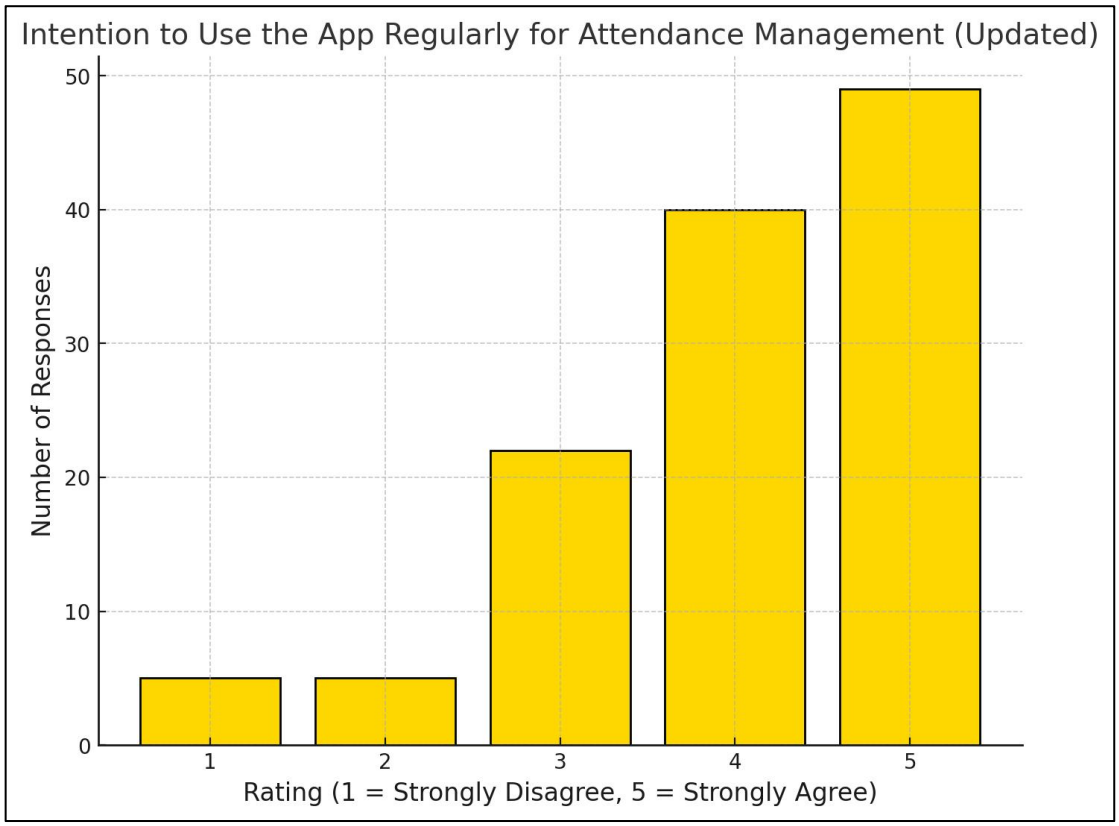

Figure 2.19: Intention to Use the App Regularly for Attendance Management

The survey findings demonstrate that most (73.6%) of respondents plan to use the app regularly for attendance management, with 40.5% and 33.1% strongly agreeing and agreeing to that claim. This reflects one of the most significant vows to integrate the app into day-to-day administration activities and, to an extent, confidence that it will help address the issues with the attendance management system. The regular intention to use the app means that participants are not just looking at it as a handy tool but that they could envision this tool becoming integrated into their workflow, which is consistent with the Technology Acceptance Model (TAM) as perceived usefulness and ease of use are essential contributors to continued use (Davis et al., 1989).

Of course, 18.2% were ambivalent, and the 8.2% who rated their intention to use the app as objectively disagreeing should tell you that some people are still not entirely sold on it yet! These respondents might nevertheless have reservations that the app will be reliable, easy to use, or improve their working lives in the long term. Tech-acceptance-relative research indicates that uncertainty surrounding any of these domains can often be alleviated by providing more information about the app regarding its benefits, reliability, and ease of use. Providing extra training, thorough demonstration, or success stories for other users can help reduce apprehensions and build conviction among hesitant people regarding real-life work (Venkatesh & Bala 2008) [10].

However, the app could also benefit from emphasising its benefits (especially since usage is not yet routine), such as time savings, accuracy, and less administrative work. Directly addressing concerns (e.g., showing that the app works with real-world examples or providing evidence of its success in similar contexts) might increase user confidence and lead to more regular app use. Equally important will be consistent communication about how the app is doing, followed by updates and improvements to keep users motivated and committed to frequent use.

Question 2: I recommend the app to my colleagues and peers.

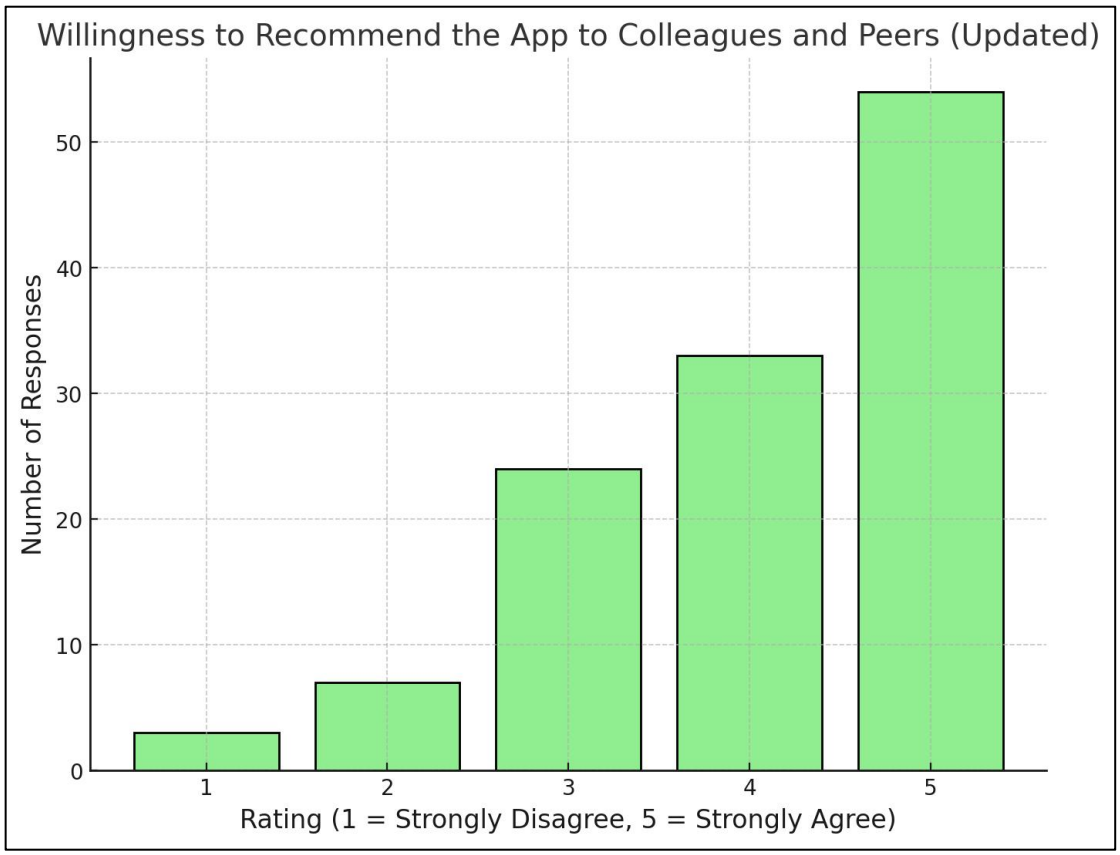

Figure 2.20:Willingness to Recommend the App To Colleagues And Peers

We see an overwhelming 71.9% of the respondents are willing to use the app and suggest it to others, with 44.6% strongly agreeing and 27.3% agreeing. This implies an extreme enthusiasm for the app and what it represents, which translates into solid word-of-mouth. Social influence is one of the primary drivers of new technologies, and recommendations from colleagues or peers could make all the difference in the success of technology (Venkatesh & Bala, 2008); hence, peer endorsement can be an essential trigger for other users in an educational environment where they might be under pressure to adopt a new system.

The 19.8% of respondents who rated the likelihood to recommend the app as neutral shows that some participants are still unsure about its benefit in practice or for more extended periods. These respondents might be looking for reassurance that the app will work well for them or won't get in the way of their workflows before they feel ready to recommend it to others. This hesitance is expected in the early stages of technology

adoption when users are cautious about promoting a tool they have not used thoroughly or seen value in (Davis et al., 1989).

To counter this, demonstrating real-life evidence of the app's merits – for instance, testimonials from early adopters, information showing some efficiency gains, or endorsements from peers who have observed measurable improvements – might transform indifferent responses into solid support. Also, exclusive demos or free trials where users can feel the app's role in their work would be a great way to earn credibility and consumer recommendation. With an emphasis on increasing knowledge and clarity of the app value from this department through positive peer pressure, perhaps wider adoption will be better ensured.

Question 3: I will likely use the app to check and track attendance records.

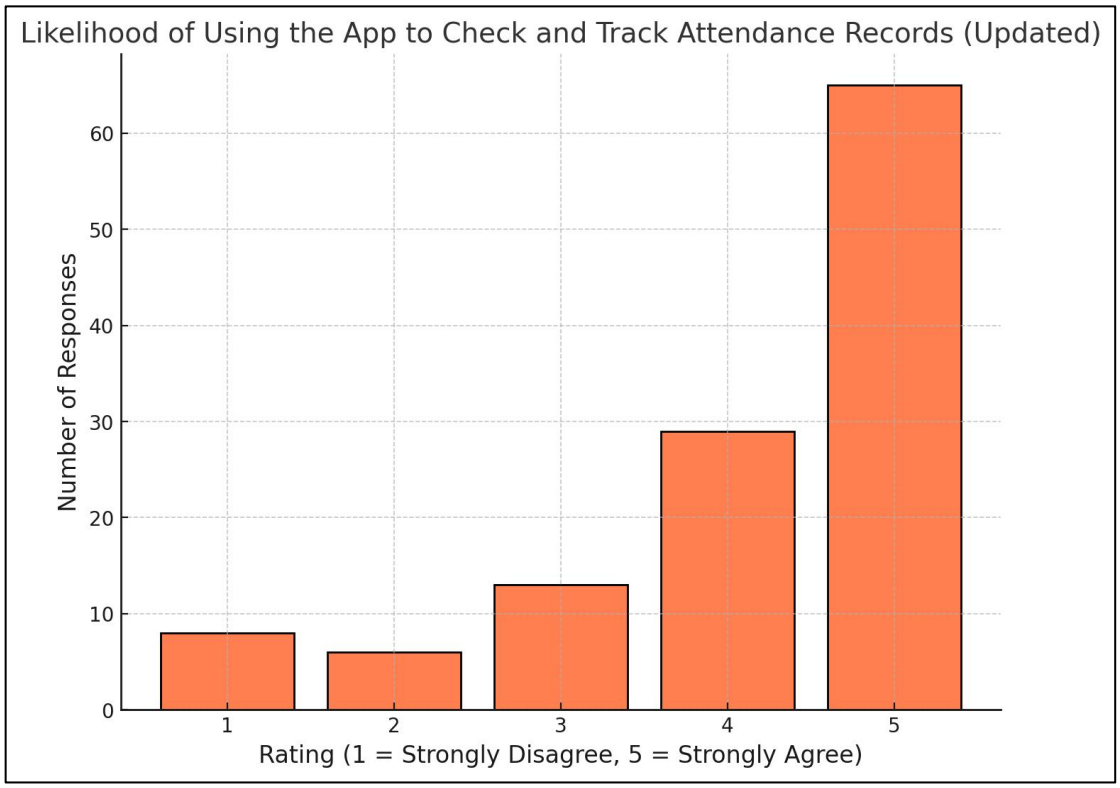

Figure 2.21:Likelihood of Using the App to Check and Track Attendance Records

The survey results for checking and tracking attendance records show that a large majority (77.7%) are very likely to use the app, with more than half (53.7%) strongly agreeing. The consensus on this level likely indicates that respondents see the app as providing a tool or enforcement mechanism, especially regarding easy access to

attendance data. This suggests that the simplicity of use of the application and perceived pros of centralised, digital attendance tracking systems may make it attractive since digital tools are likely more efficient and accessible than analogue/ manual methods (Davis et al., 1989).

That said, 11.7% of combines who answered strongly agreed (6.6%), disagreed (5%), or neutral (10.7%) were a bit uncertain or unwilling to use the app every day. These respondents could also be worried about the app's reliability, stability, or ease of use. Switching from traditional, known, and orthodox methods to new technology often makes users wary of potential malfunction and unable to embrace learning (Venkatesh &Bala, 2008).

Although some respondents hesitated to say they would use the app regularly, efforts should be made to reassure them that it is trustworthy and straightforward. Users can experience the app through demos, hands-on trials, or pilot programs to address scepticism surrounding its functionality. Moreover, policy statements on the reliability of the app and the range of user support and training resources would enhance confidence in its use. Using these concerns directly and providing an opportunity for users to become familiar with the app in advance can improve its uptake and continued use as a tool to track attendance reliably.

Question 4: What factors encourage or discourage you from using the app regularly? (Select all that apply)

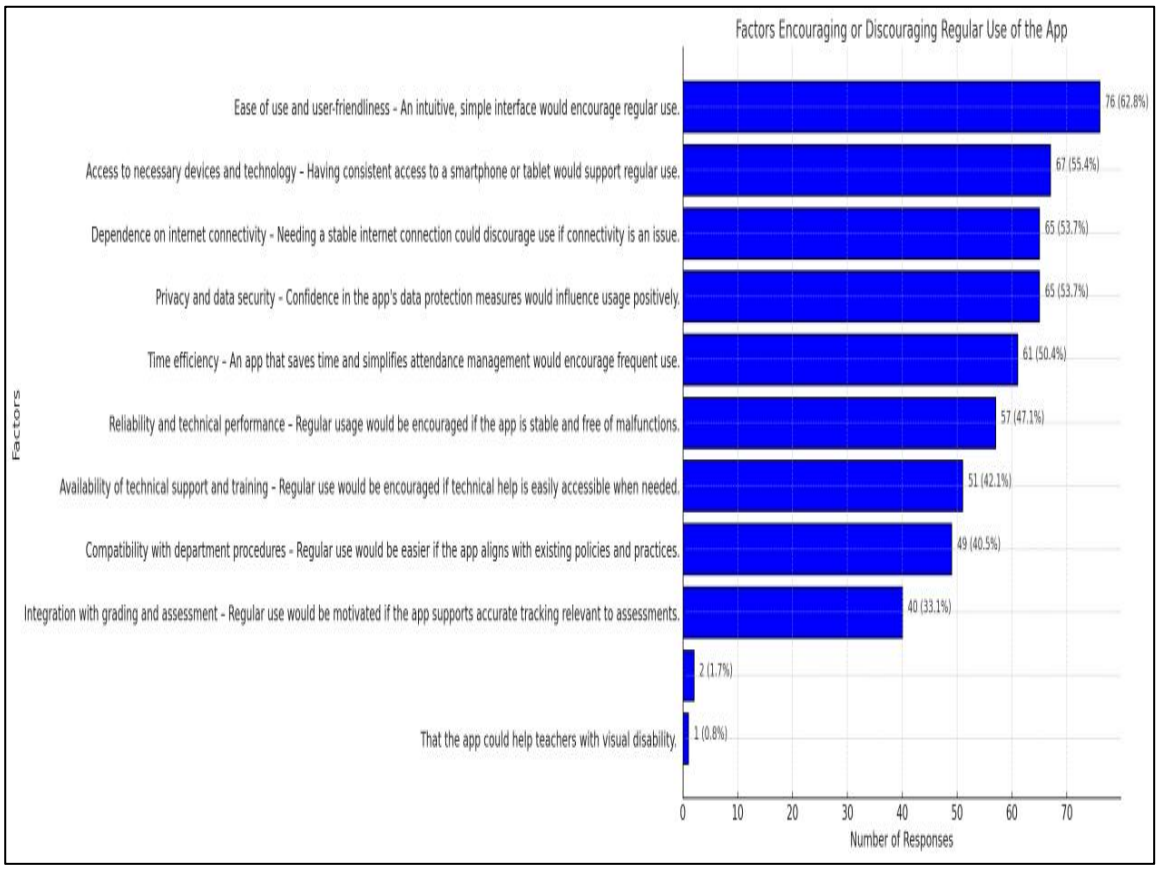

Figure 2.22: Factors Encouraging Or Discouraging Regular Use Of The App

Some prominent factors, as suggested by responses to the survey from the participants that respondents have suggested, would further support their consistent usage of the attendance tracking app. Ease of use and user-friendliness, mentioned by 62.8% of respondents as a general characteristic to consider when choosing software, highlight that the solution should not require too much training or technical knowledge and have a simple interface. This highlights how the app needs to be as easy and straightforward to use as the end users, which range from admin personnel to teachers down to students, need access with varying levels of technical savvy involved. The human-computer interaction literature on technology adoption highlights the importance of ease of use as a driver of continued use and a barrier to new system resistance (Venkatesh & Bala, 2008).

Coming in a close second after ease of use, 55.4% cited access to appropriate devices and resources as being important. This indicates a severe condition for the app's availability and raises the issue of proper infrastructure (cell phones, computers, steady Internet) [28]. Ensuring resources are available to all potential users is paramount to equitable access to the app, especially in settings where these devices may be scarce (Davis et al. 1989).

53.7% of respondents indicated privacy and data security concerns, underlining the concerns surrounding digital privacy at a global scale. With growing worries over data breaches and unauthorised access, the app should feature robust security options. Transparency regarding the protection of user data and secure encryption protocols can alleviate user concerns, subsequently driving trust in the system (Podsakoff et al., 2003).

Furthermore, 50.4% of survey respondents highlighted time-saving and administrative relief offered by the app as its appealing feature. They see the app's ability to ease attendance tracking and automate manual tasks as critical in driving regular engagement and productivity. The app can help to minimise repetitive tasks, freeing up time to find other, more strategic things to do, which is one of the biggest drivers for users (Holden & Rada, 2011).

53.7% of respondents identified a lack of stable Internet, which shows how vital a good connection is to using an app consistently. This is particularly important in areas where internet service is generally spotty, as connectivity problems can significantly disrupt usage. This issue underlines the need for offline capability so people can continue to use the app in places with limited connectivity. If added, the offline capability could significantly improve the app's accessibility and reliability in different user environments.

Among the top three, 47.1% of those surveyed indicated that reliability/technical performance was vital for any app they would use to help with their mental health and coping skills. For longevity (and popularity), the app needs to be free of bugs/crashes and process levels of user engagement. Sustained engagement relies on the app being sufficiently resilient for different user segments and functioning as intended across various circumstances (Venkatesh & Bala, 2008).

Conclusion Regular use of the app can only be encouraged to a certain point unless its development focuses on not just having a user-friendly, simple, and easy interface but at the same time also being reliable in terms of technology, ensuring security on various devices and fluid connectivity conditions. Solving these issues with infrastructure, privacy, and offline capabilities will allow the app to go from a potential candidate for mass adoption and everyday use to an application we all use regularly.

2.5.5 Section 6: Additional Feedback

Question: Do you have other suggestions or comments about the attendance tracking app?

The open-ended responses to suggestions or comments about the attendance tracking app provide enthusiasm and constructive feedback, reflecting high expectations and user concerns. Many participants praised the app as a "great idea" and "step towards real success," indicating broad approval for its potential to modernise attendance tracking and align with advancements in educational technology. Positive sentiments like these underscore the importance of innovation in administrative tools, which research highlights as critical drivers of operational efficiency in education (Alshehri, Rutter, & Smith, 2019).

However, the feedback also pointed to challenges, particularly internet access issues, which were frequently mentioned. Respondents suggested that the app incorporate offline functionality to address unreliable or unavailable connectivity, a solution supported by literature on digital inclusivity in technology adoption (Venkatesh & Bala, 2008). Additionally, concerns about time management emphasised the need for the app to simplify processes without adding complexity, aligning with findings that technology must reduce, not increase, administrative burden (Davis et al., 1989).

Suggestions for enhancing the app’s utility included features such as record modification for late arrivals, integration with grading systems, and notifications for absences. These features could increase the app’s relevance and usability by providing holistic support for educational workflows. Research indicates that such comprehensive functionalities often boost user satisfaction and engagement (Holden & Rada, 2011).

Respondents also proposed engagement tools like reminders or rewards for consistent attendance, aligning with studies highlighting gamification to improve user adherence (Zichermann & Cunningham, 2011).

Concerns about privacy and data security featured prominently, with respondents calling for robust protection measures and transparency in data handling. Features like fingerprint identification and encryption were proposed as trust-building mechanisms, consistent with recommendations for secure digital applications in education (Podsakoff et al., 2003). Issues of misuse or errors were also noted, underscoring the importance of rigorous testing to ensure accuracy and reliability. These challenges mirror common barriers in technology adoption, where users often demand evidence of reliability before fully committing to a new system (Venkatesh et al., 2003).

Additionally, respondents highlighted the need for inclusivity, noting that not all users are proficient with technology. Simplified interfaces and training materials were recommended to accommodate diverse user abilities, consistent with best practices in user-centered design (Norman, 2013). Regular updates and modifications were also seen as necessary to maintain functionality over time.

While a minority expressed scepticism, citing potential errors or overreliance on technology, these views highlight the importance of ongoing dialogue with users, iterative updates, and showcasing the app's impact through pilot programs or testimonials. Demonstrating reliability and practical benefits can address such doubts, as supported by research on trust-building in digital tools (Gefen et al., 2003).

In summary, the feedback reflects an overall positive outlook with thoughtful suggestions for improvement. Addressing concerns about internet connectivity, usability, privacy, and inclusivity while incorporating recommended features will ensure the app meets user expectations and achieves widespread adoption. Iterative design and regular stakeholder engagement will be critical to its success.

2.6 Limitations of the Study

This study is limited in its generalizability due to the fact that it was only conducted in one department of a single university, namely the Department of Letters and English Language, University Amar Telidji Laghouat, Algeria. Indeed, although the sample (121 respondents) is well-balanced regarding students vs teachers vs admin staff, this study only takes place within one institution. Therefore, any findings are unlikely to be generalised beyond that institution or perhaps even locality. Results may not all represent the attitude or issues in other universities, departments or educational environments due to their somewhat different socio-cultural, technological and administrative contexts.

Moreover, using convenience sampling and self-reported data in the study may result in biases like response bias or social desirability bias. You may have been conditioned to answer as they wanted those answering to respond, not how you truly felt. In addition, the sample does not control for technical literacy between participants, which may affect perceptions of ease of use or usefulness. We are unable to determine whether negative responses result from usability challenges or reflect participants' we-could't-use-the-app-inthe first place high-level comfort with gaming.

This reliance on a stable internet connection, often mentioned as a problem in the responses from the survey, implies an essential infrastructural bottleneck. The need for Internet connectivity could be problematic in places where it is not consistently available, and this reliance on the Internet might give users a faulty impression of the utility and dependability of the app. Also, the research was performed before the wide-ranging dissemination of the app so that participants had only hypothetical feedback rather than experiential exposure. Dependence on this predictive feedback may lead to differences between what you think users will experience when delivered and how they feel after launching.

First, other key stakeholders are excluded, with the exception of policymakers, parents, and external administrators. Such groups might provide more perspective on the potential implications of, acceptance of, and practical issues surrounding the app outside the specific academic situation.

2.7 Conclusion

This study is a starting point in investigating stakeholders' perceptions, especially those of students and educators within the Department of Letters and English Language at the University Amar Telidji Laghouat level, towards the feasibility of an app proposed for attendance tracking. Using a mixed-methods approach, the research provides both quantitative measures of perceptions of usefulness, perceived ease of use, and adherence intention supplemented with qualitative data from responses that elucidate more fine-grained challenges to implementation as well as recommendations for improvement.

Results show an overall positive attitude towards the app, highlighting the perceived improvement in attendance management efficiency, reduction of administrative workload, and increased accessibility to records. Nonetheless, notable issues of internet dependency, technical dependability, and privacy arose, indicating further attention to app development and use.

Factors limiting this study, such as the localizability of our findings due to the lack of diversity in research contexts, the self-reported nature of usage intensity, and the absence of feedback on real-world learning experiences, highlight a need for research at broad levels. Future research should broaden to encompass additional higher education institutions, other stakeholder groups, and long-term studies of the app’s effectiveness in practice after implementation.

In conclusion, this study lays an adequate foundation for understanding technology acceptance in an academic context. Not only does it contain information that can be useful for planning the design and implementation of digital solutions that can improve administrative processes and engagement with stakeholders, but This app has great promise to transform educational administration, provided it is able to overcome the limitations and concerns that have been identified.

General Conclusion

Evaluation of Acceptance of a Proposed App Tracking Attendance by Administration Staff, Teachers & Students: A Case Study of Department of Letters and English Language, University Amar Telidji Laghouat, Algeria Our main aim was to examine the factors behind users' acceptance of the app, mediated by Davis's (1989) Technology Acceptance Model (TAM), in which constructs such as perceived ease of use and perceived usefulness are key drivers for achieving technology adoption. The results of this study show a general potential for technology acceptance but also demonstrate heterogeneous results depending on user group and context.

These findings indicate that the administration staff and teachers believe that the app is useful in reducing their administrative burden, as well as improving attendance management efficiency, which is consistent with previous research demonstrating that technology acceptance is determined by perceived usefulness (Venkatesh & Bala, 2008). In particular, teachers stressed the benefit of real-time data that could support assessing students' attendance, a benefit previously identified in research on automated attendance systems (Al-Fraihat, Joy, & Sinclair, 2020). While students, nevertheless, wished that the app was easier to use — records of whether they had attended lectures were less than clear unless these were scrolled through throughout the interface — such as ease-of-use anecdotal evidence would suggest is usually an obstacle to educational design adoption (Davis, 1989; Venkatesh et al., 2003).

Additionally, both staff and students raised concerns regarding the university's technology infrastructure. These worries are consistent with literature that highlights the need for secure infrastructure to indeed effectively integrate digital tools in educational environments (Alghamdi, 2020). These activities need sufficient internet access, accessibility of devices to use the app, and availability of technical support staff when needed, thereby signifying that technological readiness is an important predictor for higher education institutions adopting digital solutions (Selwyn, 2016).

Future Recommendations

The data from the present research lead to some recommendations that can help in ensuring better acceptance of the app and successful implementation at the University Amar Telidji Laghouat as well in more similar academic institutions.

1. Comprehensive User Training and Support

Improper Usage of Digital Tools — Familiarity with digital tools was one of the most common barriers to acceptance discussed in this study, especially among staff and students. The solution to that would be implementing more thorough user training. Literature has also pointed out that misleading and usage of technology are less likely if an adequate amount of training is provided, which enhances the confidence of users and leads to better usage (Teo, 2011). Targeted training — For each user group, in-depth training should be provided to administrators and teachers on attendance data management, while students should have simpler guides that cover accessing records and the basic features of the app. Moreover, ongoing technical support needs to be offered with helpdesk personnel, user guides, and repair services (McKnight et al., 2017).

2. Improvement of User Interface and Experience

Although students generally agreed with the precursor of perceived usefulness in terms of this app, they were apprehensive about its ease of use functionality. Previous work has identified that a simple and easy-to-navigate interface can drive uptake, especially for users with low technical ability (Davis 1989; Venkatesh et al. 2003). To improve user experience, it is advised that the software be subjected to user experience (UX) testing to find any discomforts in the interface and guarantee that all relevant groups have been activated. An improved navigation would help the users find their way better, and a better aesthetic and functional quality of the app design will increase the acceptance rates (Zhao, 2020).

3. Investment in Technological Infrastructure

Furthermore, the success of the app depends on the presence of a stable technological infrastructure. According to Alghamdi (2020), a lack of technological resources, like weak internet connectivity or not enough mobile devices, can prevent digital tools in higher education from being used. Thus, the university ought to spend more money on the tech infrastructure needed for the app in question. These involve

increasing the coverage of Wi-Fi, which is extended by providing smart devices/ gadgets (i.e., smartphones or tablets) as some students do not have access to these facilities, and also technical support for the malfunctioning of systems (Selwyn, 2016). You should also ensure a contingency plan to handle any technical issue, as the continuous disruption could erode trust in the system by the user (Al-Fraihat et al.,2020).

4. Continuous Monitoring and Feedback Mechanism

The university should also start a feedback mechanism for ongoing evaluation of the app to make sure it stays viable and useful. User surveys, interviews, or focus groups help to obtain insight into users' experiences, pain points, and overall satisfaction with the app (Davis, 1989). Feedback collection will facilitate the continuous improvement of the app to serve the changing needs of its users. In terms of technology, feedback loops have been proven to be powerful in enhancing the overall user experience and creating lasting engagement (Venkatesh & Bala, 2008).

5. Broader Implementation Across Other Departments

Although this study was conducted with only participants from the Department of Letters and English Language, subsequent research should investigate the wider applicability of the app within other departments in the university. Different departments may have different needs when it comes to attendance management (e.g., larger classes or more frequent attendance tracking), so testing the app across other disciplines could show how broadly applicable or what possible aspects of the app should be improved (Selwyn, 2016). This would provide the university with information about the generalizability of the app and increase opportunities to improve it prior to a campus-wide implementation.

6. Future Research on Technology Acceptance in Algerian Universities

While this study sheds light on the acceptance of educational technology at a single institution, it should be generalized to other universities in Algeria and beyond. Comparative studies focusing on regional differences in technology acceptance might

yield a more nuanced and complete picture of the determinants that underlie technology adoption in higher education, especially in the case of regions with different levels of digital preparedness (Alghamdi 2020). In addition, longitudinal studies that also assess the impact of technology acceptance over time may provide an understanding of how digital tools affect the effectiveness of teaching, learning, and, ultimately, administrative efficiency (Venkatesh et al., 2003).

7. Policy and Institutional Support for Digital Transformation

Universities also need a holistic use of digital transformation, where technology is combined in the ways that administrative processes are done and how they teach. Previous studies showed that for technology to be successfully used it must be supported by policies at the institutional level which bring about an innovative environment and increase adequate facilities (Selwyn, 2016). A university-wide digital strategy with policies for technology integration, faculty and staff support, and equitable access to digital tools for students is a missing piece of the puzzle.

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Appendix

Acceptance Survey of an Attendance Tracking App

With the integration of technology in educational institutions, mobile applications have shown potential to streamline administrative tasks, including attendance tracking. This survey aims to assess the acceptance of a proposed mobile attendance tracking app among administration staff, teachers, and students at the University Amar Telidji Laghouat. Your insights will help identify factors affecting app acceptance and improve attendance management processes

Section 1: Demographic Information

- **Department:**

1. Department of Letters and English Language
2. Department of Translation and Interpretations

- **Role at the University:**

- Administration Staff
- Teacher
- Student

- **Years of Experience (Administration Staff and Teachers):**

- Less than 1 year
- 1-3 years
- 4-7 years
- More than 7 years

Academic Year (for Students):

- 1st year TRAD
- 1st year ENG
- 2nd year ENG
- 3rd year ENG
- M1 ENG
- M2 ENG

Section 2: Perceived Usefulness (PU)

Indicate your agreement with each statement on the usefulness of the attendance tracking app.

- **The app will improve the accuracy of attendance records.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **Using the app will save time compared to current attendance methods.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **The app will allow easier access to attendance data for students, teachers, and staff.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **The app will help reduce administrative burdens related to attendance tracking.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **How do you think the app could further improve attendance management processes in your department? (Select all that apply)**

1. Enhancing data accuracy – Reduces errors compared to manual methods.
2. Saving time on attendance tracking – Streamlines the process, making it quicker.
3. Providing real-time access to attendance records – Allows immediate access to attendance data
4. Improving transparency for students – Enables students to view their attendance records directly.
5. Reducing administrative workload – Lowers the time and effort required for staff to manage attendance data.
6. Automating attendance reports – Generates attendance reports automatically.
7. Facilitating communication about absences – Simplifies notifying students or teachers about attendance issues.
8. Tracking attendance trends and patterns – Helps analyze student attendance trends over time.
9. Integrating with other university systems – Works seamlessly with other administrative tools.
10. Minimizing errors in tracking attendance that could jeopardize grading and assessment of TD – Ensures accuracy in attendance records critical for student evaluations.
11. Other…

Section 3: Perceived Ease of Use (PEOU)on

Indicate your agreement with each statement about the app's ease of use.

- **The app will be easy to use and understand.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **I think it will be simple to learn how to operate the app.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **Using the app will not require significant technical skills.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **The app's layout and interface will make attendance tracking straightforward.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **How do you think the app could further improve attendance management processes in your department? (Select all that apply)**

1. Enhancing data accuracy – Reduces errors compared to manual methods.
2. Saving time on attendance tracking – Streamlines the process, making it quicker.
3. Providing real-time access to attendance records – Allows immediate access to attendance data
4. Improving transparency for students – Enables students to view their attendance records directly.
5. Reducing administrative workload – Lowers the time and effort required for staff to manage attendance data.
6. Automating attendance reports – Generates attendance reports automatically.
7. Facilitating communication about absences – Simplifies notifying students or teachers about attendance issues.
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9. Integrating with other university systems – Works seamlessly with other administrative tools.
10. Minimizing errors in tracking attendance that could jeopardize grading and assessment of TD – Ensures accuracy in attendance records critical for student evaluations.
11. Other…

Section 4: Attitude Toward Using (ATU)

Indicate your attitude toward using the attendance tracking app.

- **I am positive about using the app for attendance tracking.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **Using the app is a good idea for our department.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **I am open to replacing the traditional method with the app.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **I am enthusiastic about the potential benefits the app could bring.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **What challenges do you anticipate in using the app, if any? (Select all that apply)**

1. Technical issues or app malfunctions – Concerns about reliability or software bugs.
2. Difficulty in learning how to use the app – Concerns about a steep learning curve or lack of user-friendliness.
3. Limited access to necessary devices (e.g., smartphones, tablets) – Lack of access to compatible devices for using the app.
4. Insufficient technical support or assistance – Concerns about getting help if technical issues arise.
5. Privacy and data security concerns – Worries about the security of personal information and attendance data.
6. Time required to input or check attendance – Concerns that using the app may be time-consuming.

7. Dependence on internet connectivity – Challenges related to needing a stable internet connection for the app to function.
8. Potential errors affecting grading and assessment – Worries that app errors could impact grading accuracy or student assessments.
9. Compatibility with existing attendance policies – Concerns about whether the app aligns with current department procedures.
10. Other…

Section 5: Behavioral Intention to Use (BIU)

- **I intend to use the app regularly to manage attendance.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **I would recommend using the app to my colleagues and peers.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **I am likely to use the app to check and track attendance records.**

linear scale from 1 to 5 (Strongly Disagree to Strongly Agree)

- **What factors would encourage or discourage you from using the app regularly? (Select all that apply)**

1. Ease of use and user-friendliness – An intuitive, simple interface would encourage regular use.
2. Reliability and technical performance – Regular usage would be encouraged if the app is stable and free of malfunctions.
3. Access to necessary devices and technology – Having consistent access to a smartphone or tablet would support regular use.
4. Availability of technical support and training – Regular use would be encouraged if technical help is easily accessible when needed.

5. Privacy and data security – Confidence in the app's data protection measures would influence usage positively.
6. Integration with grading and assessment – Regular use would be motivated if the app supports accurate tracking relevant to assessments.
7. Time efficiency – An app that saves time and simplifies attendance management would encourage frequent use.
8. Dependence on internet connectivity – Needing a stable internet connection could discourage use if connectivity is an issue.
9. Compatibility with department procedures – Regular use would be easier if the app aligns with existing policies and practices.
10. Other…

Section 6: Additional Feedback

Do you have any other suggestions or comments about the attendance tracking app?

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Thank You

Résumé

L'objectif de cette étude est d'examiner les perspectives du personnel administratif, des enseignants et des étudiants du Département des Lettres et Langue Anglaise de l'Université Amar Telidji Laghouat (Algérie) concernant l'utilisation d'une application proposée pour le suivi des présences. Cette recherche utilise une approche mixte pour évaluer les perceptions de la facilité d'utilisation, de l'utilité et du potentiel de l'application pour améliorer les processus de gestion des présences. Basée sur le Modèle d'Acceptation de la Technologie (TAM) et la Théorie Unifiée de l'Acceptation et de l'Utilisation de la Technologie (UTAUT), l'étude explore les intentions comportementales d'adopter l'application à travers des enquêtes quantitatives et des entretiens qualitatifs. Les résultats montrent que l'application améliore considérablement la précision, l'efficacité et l'accessibilité des registres de présence tout en réduisant la charge administrative. Cependant, des obstacles tels que la formation des utilisateurs, l'infrastructure technique et les préoccupations relatives à la confidentialité ont été identifiés. Ces conclusions soulignent l'importance de concevoir l'application en tenant compte des intérêts des universités algériennes et de mettre en œuvre des stratégies adaptées pour faciliter son adoption. Cette étude contribue également à la recherche sur les technologies éducatives en offrant une perspective rarement explorée sur l'acceptation des technologies dans un contexte non occidental.

Mots-clés : application de suivi des présences, Modèle d'Acceptation de la Technologie (TAM), Théorie Unifiée de l'Acceptation et de l'Utilisation de la Technologie (UTAUT), technologie éducative, contexte non occidental, formation des utilisateurs, préoccupations relatives à la confidentialité, universités algériennes, recherche à méthode mixte, transformation numérique dans l'éducation.

الملخص

تهدف هذه الدراسة إلى استقصاء وجهات نظر الطاقم الإداري والأساتذة والطلاب في قسم الآداب واللغة الإنجليزية بجامعة عمار ثليجي بالأغواط (الجزائر) بشأن استخدام تطبيق مقترح لتتبع الحضور. تعتمد هذه الدراسة على منهجية مختلطة لتقييم التصورات المتعلقة بسهولة الاستخدام وفائدة التطبيق وإمكاناته لتحسين عمليات إدارة الحضور. بالاعتماد على نموذج قبول التكنولوجيا (TAM) ونظرية القبول الموحد لاستخدام التكنولوجيا (UTAUT)، تتناول الدراسة النوايا السلوكية لاعتماد التطبيق من خلال استبيانات كمية ومقابلات نوعية. تُظهر النتائج أن التطبيق سيُحسن بشكل كبير من دقة سجلات الحضور، كفاءتها وسهولة الوصول إليها، مع تقليل العبء الإداري. ومع ذلك، تمت الإشارة إلى بعض العوائق مثل الحاجة إلى تدريب المستخدمين، وتعزيز البنية التحتية التقنية، ومعالجة المخاوف المتعلقة بالخصوصية. تسلط هذه النتائج الضوء على أهمية تصميم التطبيق بما يتوافق مع احتياجات الجامعات الجزائرية وتنفيذ استراتيجيات ملائمة لتسهيل اعتماده. كما تساهم هذه الدراسة في إثراء البحث حول التكنولوجيا التعليمية من خلال تقديم منظور جديد وغير مستكشف بشكل كافٍ حول قبول التكنولوجيا في سياق غير غربي.

الكلمات المفتاحية:

تطبيق تتبع الحضور، نموذج قبول التكنولوجيا (TAM)، نظرية القبول الموحد لاستخدام التكنولوجيا (UTAUT)، التكنولوجيا التعليمية، السياق غير الغربي، تدريب المستخدمين، مخاوف الخصوصية، الجامعات الجزائرية، البحث بمنهجية مختلطة، التحول الرقمي في التعليم.

ANNEX

A FULL COMPREHENSIVE BUSINESS INSIGHT OF THE ATTENDED MOBILE APPLICATION

Color Palette

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TABLE OF CONTENTS

I. Introduction :

AttendED is an innovative educational technology solution designed to address the challenges associated with traditional student attendance tracking. By leveraging QR code scanning technology, AttendED provides a streamlined service that enhances the efficiency and accuracy of attendance recording. This innovation simplifies the attendance process and facilitates real-time communication between students and educators, thereby improving overall classroom management and engagement. AttendED represents a modern approach to educational administration, promoting operational efficiency and supporting educational institutions in fostering a more effective learning environment.

❖ **Problematic:**

1. Recording attendance manually consumes time, and is prone to errors resulting in inaccuracies or loss of records. For instance, in Algeria, studies indicate that taking the manual attendance can reach up to 15 mins each class and achieve a margin of error of about 20% which is practically inefficient and just as unsafe being closely associated with data inaccuracies.

2. Physical attendance lists are not only less accessible as they cannot update in real-time — hindering prompt updates for students and admins alike. More than 70% of the educational establishment which has this technology (in Algeria) immediately will have a delay in updating their attendance records, and 60% have problems with finding and accuracy.

3. Paper-based systems raise security and privacy issues, lead to paper wastage, and are not eco-friendly.

4. Attending to presence on paper in Algeria takes 5–15 minutes time for each session, suffers from a degradation rate of about 20%, and involves more than 70% of institutions experiencing delays, while 55% causing data breaches, with annual use involving over 1 million sheets of paper; moreover, it burdens more than 65% of educators with administrative work, limits feedback to no sooner

than seven days after class for over 40% students and eventually reduces student engagement.

❖ **Solution:**

- AttendED is a mobile application that leverage QR code to take attendance fast and accurate.
- l Easy communication between students and teachers in real time.
- AttendED simplifies attendance so teachers can focus on instruction.
- It allows teachers to report absentees immediately and address student issues effectively.

❖ **Added Values In The Service :**

1. By eliminating paperless attendance processes that take away precious instructional time of teachers and students, AttendED increases the efficiency of the school day so teachers can teach and students can learn.
2. AttendED employs QR code technology for marking attendance and thus ensures correctness free from human error in capturing attendance details that generate data you can trust.
3. Transparency Tying into the concept of real-time attendance information, AttendED allows teachers to quickly ascertain who is present and who is absent, thereby tailoring their teaching process to better suit the learning conditions.
4. With real-time data, AttendED ensures seamless communication between teachers and the respective student; it allows teachers to intervene when they see that a student is struggling with their work, or if they have any specific query or concern related to the subject matter.
5. lThe app allows teachers to take attendance data which can help in making decisions based on facts and figures, indication whether the students do or do not participate in class. It allows educators to become more effective with their teaching strategies and helps students achieve success.
6. AttendED uses secure QR codes and encrypts attendance data on our servers to ensure that student privacy is protected, compliance with privacy regulations are enforced on your behalf, and attendance data remains 100% confidential.

- **Mission**: To aim private educational institutions in Algeria with a modern efficient attendance management system that minimize administrative cost and help to promote accountability.
- **Vision** : To become the most used attendance solution throughout the Algerian private education field, raising the bar of accuracy and effectiveness.

- **Innovative Aspects :**

The AttendED app introduces many new features. The following are the innovative features of AttendED:

- **QR Code Technology:** QR codes are used for quick, efficient and accurate attendance tracking, minimizing manual errors.
- **Data-Driven Insights:**Also used for tracking student attendance, and provides useful analytic features to assist educators in making better decisions regarding very little information on success debriefs the way forward.
- **Real-Time Communication:**Makes the conversation of learner and educator live, prompt and responsive.
- **Operational Efficiency:** Reduce the administrative load, spend more time on teaching and less on undertaking paperwork.

AttendED offers a modern solution to attendance management in Algerian schools by using QR code technology to streamline tracking and ensure accuracy. It enhances real-time communication, provides data insights, and reduces administrative workload, allowing educators to focus on teaching. Positioned to lead in the digital transformation of Algerian education, AttendED aims to set a new standard in efficient, tech-driven classroom management.

II. Businees Modal Canvas :

AttendED is a solution based on educational technology aimed to transform attendance in Algerian private schools and universities. Through QR code technology, AttendED streamlines attendance management by replacing traditional manual methods and automating the process of taking student attendance quickly, accurately

and efficiently. Aimed especially at private institutions and colleges, AttendED provides not only means for tracking attendance records but also keeps a transparent communication between students and teachers making the environment more connected.

❖ **Key Partnerships:**

- Education Technology Advisors: For school and higher education integration.
- Providers of QR Code Technology: QR code tech you can rely on.
- Marketing Agencies: Spreading the word through multiple channels
- Educational Institutions: Partner with EdTech firms to run a pilot and provide feedback.
- Data Security Companies: High Data Protection Mechanisms

❖ **Key Activities:**

- Developing and maintaining attendance tracking software
- Integrating QR code scanning technology
- Providing customer support and training for educators
- Marketing and promoting AttendED
- Collaborating with schools and institutions for pilot testing
- Gathering user feedback for continuous improvement
- Ensuring data security and privacy compliance

❖ **Key Resources:**

- Experienced software development team
- Reliable IT infrastructure
- Access to educational institutions in Algeria
- Partnerships with QR code service providers
- Customer support and training staff
- Marketing and sales team
- Data privacy and security experts

❖ **Value Proposition:**

- Simplifies attendance tracking process with QR code scanning
- Enhances efficiency and accuracy in attendance recording
- Facilitates real-time communication between students and educators
- Improves classroom management and student engagement
- Promotes operational efficiency for educational institutions
- Supports data-driven decision making for educators
- Provides a modern solution to traditional attendance challenges

❖ **Customer Segments:**

- Universities and higher education institutions in Laghouat
- Private schools in Laghouat (Then all Algeria)
- Educational administration bodies
- Teachers and educators

❖ **Channels:**

- Direct sales to schools and universities
- Online marketing (website, social media)
- Educational conferences and events
- App stores (Google Play, Apple App Store)

❖ **Customer Relationships:**

- Awareness: Online marketing, conferences, webinars, partnerships, content marketing.
- Evaluation: Free trials, demos, testimonials, product info, webinars.
- Purchasing: Clear pricing, discounts, easy online purchase, personalized sales.
- Delivery: Seamless installation, training, support, regular updates.
- After-sales Service: Ongoing support, forums, feedback, training, clear SLAs.

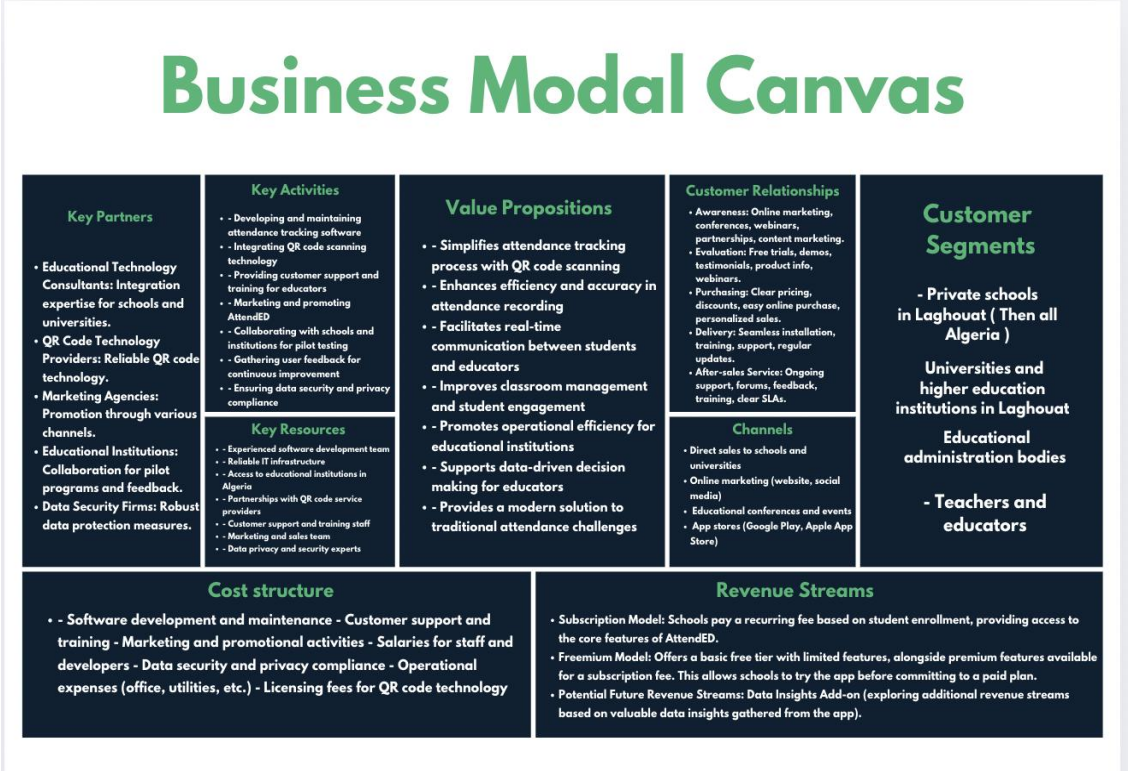
❖ **Cost Structure:**

- Software development and maintenance.
- Customers service and coaching
- Marketing and advertising activities

- Staff and developer salaries
- Data privacy and security compliance
- Operating costs (office, utility bills etc)
- License Fee for QR Code Technology

❖ **Revenue Streams:**

- Subscription: School pays a regular fee depending on the number of student enrollment and gets to use the basic functionalities of AttendED
- Freemium: Basic free tier with limited features and premium features for a subscription fee. This helps schools test drive the app prior to purchasing a full paid plan.
- Possible Future Revenue Sources: Data Insights Add-on (based on valuable data insights collected from app)



III. Value Proposition Canvas

The Value Proposition Canvas for AttendED make attendance recording system easy for Algeria private schools and universities by QR code technology. AttendED solves major pain points — cuts down on the workload, boosts precision, and improves integration — leading to an efficient education ecosystem that is interconnected.

❖ **Customer Jobs:**

- Streamline attendance records of the students.
- Make attendance administrative work easier.
- Proper record and confirmation of attendance statistics
- Enhance student and educator communication and engagement.
- To solve this problem, allow them to get information on attendance trends.

❖ **Customer Pains:**

- Long manual recording of attendance.
- The risk of human error resulting in attendance errors.
- Problems with attendance tracking in big classes.
- Limited access to live data for reporting and decision-making.
- Addressing absenteeism inefficiently caused by delayed attendance records.

❖ **Customer Gains:**

- Automatic marking of attendance which saves time and is error-free.
- Immediate access to data for quick and effective decision making.
- User-friendly with no additional training required for the staff.
- Improved transparency and accountability in attendance records.
- Enhancement of learner interaction with academic staff.

❖ **Products and Services:**

- A mobile and web application to take attendance via QR code.
- Data analytics and attendance information in real-time.
- Communication: seamless interaction between students and educators.
- User onboarding and training to clear hurdles of adoption/usage.
- For some institutions, pilot programs to reap the benefits of the app

❖ **Pain Relievers:**

- Eliminates time-consuming attendance process with a quick scan of your QR code
- Enables highly accurate attendance tracking, minimizes administrative errors.
- Provides organized, searchable records for easy data management for large student groups.
- Enables administrators to respond quicker on attendance issues by providing real-time insights
- Takes the burden off educators so they are free to teach

❖ Gain Creators:

- Provides efficiency save time on daily work tasks for teachers and staff members.
- Creates transparency and trust with reliable data on attendance.
- Boosts student-teacher connection with in-app messenger.
- Scales for growth to mature with the needs of the institution.
- Gives institutions a new, tech-savvy appearance that can impress both teachers and parents alike.

IV.AttendED Development Phase

AttendED is being developed in a structured, phased to build an application that works for Algerian private schools and universities. Each phase is about developing and refining features, scalability, usability and data security by moving through multiple phases of planning/design, pilot launch, and final implementation. This enables AttendED to provide a consistent, student-centric attendance system customized for schools.

1. Conceptualization and Planning (Completed) :

❖ **Objectives:**

- Set vision, mission, key features of AttendED.
- Recognize the pain point of the market and establish a clear project road-map.

❖ **Activities:**

- Do market research & competitor analysis.
- Define the USP of the app and target audience
- Create a timeline with milestones and resources for each phase.
- List down initial partners QR code providers, education consultants etc.

2. Branding and Design (Completed) :

❖ **Objectives:**

- Create a brand that is identifiable and well-known.
- Create a simple, easy-to-use interface specifically for schools

❖ **Activities:**

- Decide on the brand name and logo of your app.
- Create the UI/UX prototypes of the core functionalities such as QR code scanner and attendance tracker.
- Solicit feedback from teachers, administrators, and students to iterate on the design.
- Establish color schemes, layout and navigation based on feedback

3. Prototype Development (Completed) :

❖ **Objectives:**

- A functional prototype that will enable you to test the core attendance tracking functionalities of your app.
- Evaluate the usability and technical feasibility of the app.

❖ **Activities:**

- Build a working prototype with some basic QR scanning and attendance logging capabilities.
- Conduct internal testing for functionalities and bug fixes.
- Run some focus groups or a few pilot tests with users.

- Receive feedback on any area of improvement needed to be adjusted.

4. Full Development (Upcoming):

❖ **Objectives:**

- Build out AttendED completely as desired.
- Make sure for the security of data and enhance the performance of app for education space.

❖ **Activities:**

- Full back-end and front-end development including, but not limited to real-time data analysis for the students-educator connection and data exporting capabilities.
- Ensure compliance with data security and data privacy regulations.
- Perform reliability and performance stress testing.
- Fix all the approved bugs: Code Optimization.

5. Pilot Testing and Feedback (Upcoming):

❖ **Objectives:**

- To test the effectiveness and satisfaction of AttendED in a real-life setting.
- Gather feedback to improve the app for large-scale rollout.

❖ **Activities:**

- Implement Pilot Programs for AttendED in partner schools and universities.
- Track usage with surveys, interviews, & in-app metrics
- Review feedback to see where functionality and UX can be improved.
- Required tweaks from pin testing.

6. Final Launch and Marketing (Upcoming):

❖ **Objectives:**

- Successfully launch AttendED to the wider market·

- How to encourage user adoption and instill confidence with training and support.

❖ **Activities:**

- Market towards private schools and universities in Algeria
- Train and introduce material to help new users
- Provide customer support channels for onboarding and troubleshooting.
- Feedback and usage monitoring, with a plan for the next iterations and possibly features expansion.

❖ **Milestones Achieved :**

- **Validate the Idea:** We made market study to make sure that there is a need in the QR attendance app between Algerian education centre.
- **Brand Development:** Confirmed the AttendED name and created branding pieces to include a logo.
- **Protoype Development :** Developed a basic prototype that featured QR code attendance scanning and got an overall positive usability feedback.
- **Pilot Program Planning:** Ready for pilot programs in all model schools and universities to confirm efficacy

❖ **Future Development Plans :**

- **Feature Expansion**: Attendance Report, Notification in real-time, Advanced Analytics.
- **Scalability**: Make bigger institutions turn up through the app and increase performance.
- **Communication Tools**: Create in-app messaging for members to communicate amongst themselves.
- **System Integration**: Ensure that the system is compatible with existing educational management systems.
- **Marketing**: Run focused marketing campaigns for adoption in private schools and universities.
- **Ongoing Improvement**: Use feedback from users to regularly update and refine.

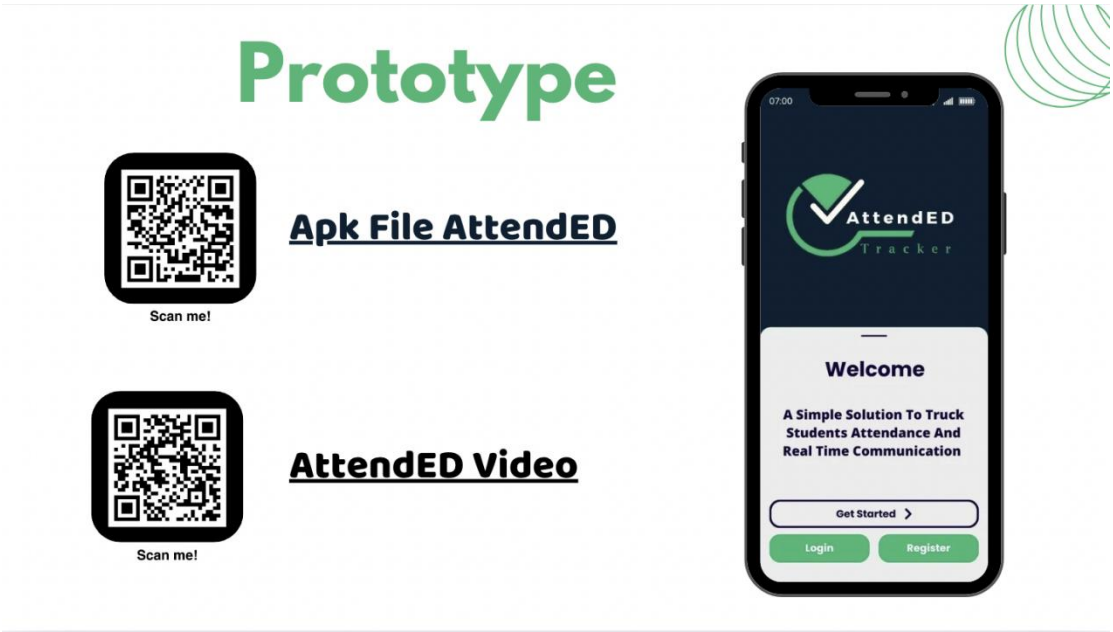
V. Prototype

❖ **How AttendED Works ?**

AttendED is a tool that simplifies attendance by using QR codes. It increases classroom management by facilitating efficiency, accuracy and communication in classrooms. Here are the steps to understand how AttendED simplifies attendance tracking and enhances classroom efficiency:

1. **Login:** Use your email and password (given to you) to login to the app as a teacher, or as a student
2. **Teacher Dashboard:** where teachers can view personal information, attendance through the "Attendance Tracker," absence justification (including who is absent), timetable & attendance reports
3. **Student Dashboard:** View all his/her modules, timetable and attendance.
4. **Justification and Messaging:** Teachers and students can submit & review class absence justifications and communicate over the "Messages" feature.
5. **Reminders and Notifications:** Class schedules, reminders for teachers and students while notifications of the classes which are going to be as well as important dates.
6. **QR Code Attendance:** The teacher creates QR codes for each class; the student scans these codes from their device to register attendance, with statuses updated daily in real-time (Present/ Absent/ Justified absence).

❖ **Prototype :**



VI.Competitive Advantages

AttendED is an attendance solution built from scratch for Algerian private schools and universities. AttendED uniquely combines its USPs and Competitive Advantages by solving specific problems with targeted solutions. This sets it further apart in scope, performance and ability to work in local context and renders it the ideal system for evolving Education management in Algeria.

❖ **Key Competitive Advantages:**

1. **Tailored for Algerian Institutions**: AttendED is tailored to meet the requirements of Algerian private schools and universities, designed around local educational practices as well as regulatory standards making it a competitive edge for both parties compared to foreign solutions.
2. **Rapid QR Code Attendance Logging**: Using QR code technology, capturing attendance takes less than two seconds per student, driving significant reduction in administrative burden and freeing up class time compared to manual methods.
3. **Enhanced Data Security and Compliance**: AttendED emphasizes on user privacy and integrates with powerful security features which safeguards the

student sensitive data on AttendED, making it compliant with strict privacy regulations (whereas many other platforms are not at all)

4. **Scalable and Flexible Subscription Model**: AttendED's pricing model is flexible to be able to serve as a base for small institutions and grow with large universities subscription packages expand organically based on the institution's size and budgeting capabilities.
5. **User-Friendly Interface with Real-Time Communication**: AttendED has a user-friendly design that needs minimal training with input from educators. Plus, the built-in messaging and notification system allows for real-time updates that help keep students and teachers engaged.

VII. Market Analysis

According to AttendED research and market analysis, there is a lucrative opportunity in the educational sector of Algeria, especially among private schools and universities. AttendED is built around the current trend of digital transformation and addresses particular needs of Algerian institutions in locus as well by paving their way towards a digitized streamlining attendance lsolution. In this analysis, we discuss the target market, existing trends in this sector and specific pain points that AttendED is designed to address making it an ideal solution for modern learning needs in a rapidly changing world of education.

❖ **Target Market Identification :**

- **Primary Focus:** AttendED is specifically designed for private schools and universities in Algeria, where the demand for efficient modern attendance systems continues to grow.
- **Initial Geographic Focus:** First, the plan is to disrupt private education institutions located in Laghouat and then gradually expand nationwide to larger cities and high-growth areas across all of Algeria

❖ **Market Trends :**

- **Digital Transformation in Education:** Algerian educational institutions are turning to digital tools for administrative matters more and more due to operational necessity, as well as a desire for modernization.
- **Increased Demand for Accountability:** Increasingly pressured to ensure accurate student attendance tracking, educational institutions are turning to reliable digital solutions in compliance with regulatory requirements.
- **Enhanced Data Security Awareness:** With more student data being collected by schools and universities, this has increased the need to confine platforms that align with data privacy requirements in accordance to local situation.

❖ **Customer Needs and Pain Points :**

- **Eliminating Manual Attendance Systems:** While effective for data gathering, using manual attendance practice will take a lot of time and has scope of errors present. AttendED QR code system is a quick and accurate solution.
- **Reducing Administrative Burden:** AttendED makes it easier for educators to concentrate on teaching by reducing administrative tasks through automatic attendance.
- **Improving Real-Time Communication:** AttendED comes with built-in communication tools that allow timely updates and notifications, thus solving the issue of better engagement between students-team members & educators.
- **Ensuring Data Privacy:** As student data becomes more sensitive, schools need solutions that are compliant and secure. The focus on data security in AttendED helps ensure the confidence of both administrators and parents.

To conclude, this business opportunities analysis shows that the growth of digital in Algerian education and the high demand for accurate attendance systems support AttendED market potential, along with identified customer needs such as operational efficiency while keeping their data safe.

VIII. Competitor Analysis

One of AttendED's competitors is a a digital platform developed by Samir Alili, a Master's student from the Department of Mathematics and Automatic Informatics at the University of M'sila. For attendance management, Alili has turned to technology:

its platform scans students using QR codes while attending classes and exams as a proof of compliance with definition requirements. It provides advanced attendance management to compute absences and track attendance hour-wise, day-wise, month-wise as well as year wise. Importantly, it has a remarkable registration speed of about 1.4 seconds per student, which facilitates swift and seamless attendance recording!

- **Competitor Strengths and Weaknesses :**

❖ **Strengths :**

1. **Regulatory Compliance:** The platform complies with the regulatory texts and provide legal frameworks for tracking attendance, which may better help educational establishments worried about compliance.
2. **Fast Registration Speed:** Its impressive time lapse of about 1.4 seconds per student in the registration process lessens unnecessary class disturbances and improves efficiency which ultimately makes it an ideal choice among educators.
3. **Comprehensive Attendance Tracking:** With the facility of tracking attendance on an hourly, daily, monthly and yearly basis institutions can keep track of their students through effective monitoring and reporting features.
4. **Simple User Interface:** The use of QR code technology makes attendance collection process easier for both students and teachers, thus reducing the learning curve and making it easy to adapt to.

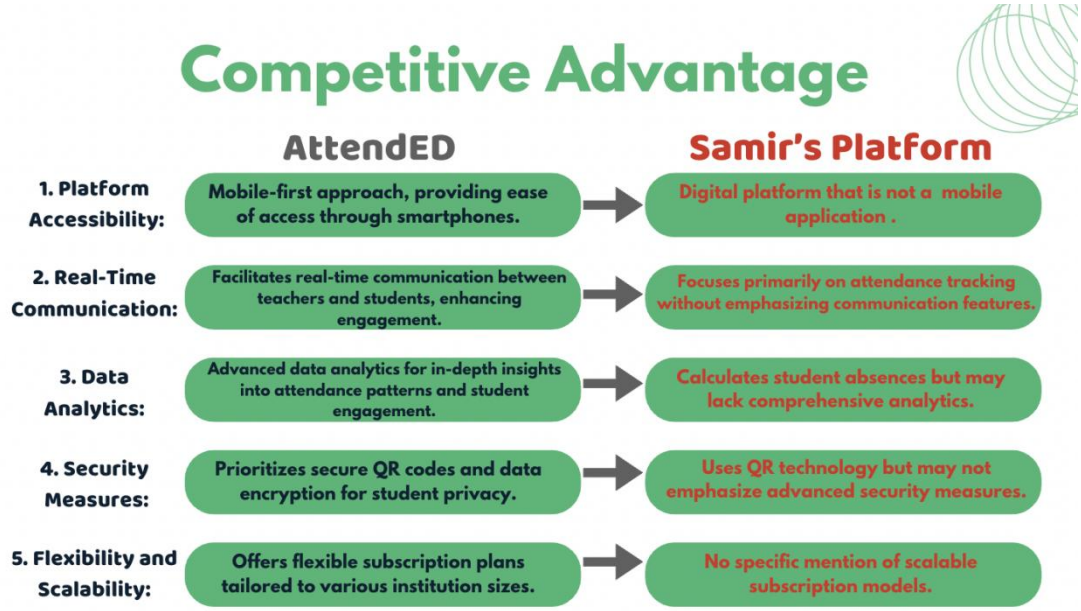
❖ **Weaknesses :**

1. **Limited Feature Set:** The platform is great for marking attendance but it might be missing key features such as integrated communication tools or analytics, which can enhance user experience and connectivity.
2. **Narrow Target Market:** It may primarily target an academic audience since the solution is a student solution, compared to other solutions which already have proven more reach about educational institutions.
3. **Dependence on QR Code Technology:** QR codes are quick, but they only work so long as students have suitable devices available and a desire to utilize them. Consider that students may not be prepared, or the technology may fail, and institutions will find themselves in trouble.

4. **Lack of Customer Support:** As a student-developed platform, there may not be sufficient customer support or resources for training and troubleshooting as compared to more established competitors which may negatively impact user satisfaction.

In summary, amir Alili's platform is great for speed and regulatory compliance but lacks features and breadth that's a gap AttendED is prepared to fill.

- **Competitive Advantages :**



IX.Marketing Strategy of AttendED

- AttendED targets private school and university institutions in Algeria. Through a mix of digital and personalised outreach strategies, AttendED will seek to develop market presence and long-term relationships with educational institutions.
- **Social Media Campaigns:**

- **Content Creation:** Create engaging content that will highlight the unique features and benefits of AttendED, showing how efficient online attendance management can be.
- **Platforms:** Use popular social media platforms such as Facebook, Instagram, LinkedIn, and Twitter to target educators and decision-makers in the education industry.

- **Promotions:** Launch promotional campaigns targeting educational institutions about the benefits of your offerings.

❖ **Direct Outreach to Private Schools:**

- **Presentations:** Visit private schools to do live demonstrations of AttendED so potential users can interact with the app.
- **Promotional Material:** Offer extensive brochures and electronic media that describe what the app does and why patients should be informed.

❖ **Engagement with Universities:**

- **Departmental Meetings:** Reach out to the English department of the University of Ammar Telidji, and present AttendED along with how it works.
- **Workshops:** Conduct workshops and seminars to give awareness of the app among faculty members and how they align it with their daily processes.
- **Pilot Programs:** Provide pilot programs with departments for a limited period, enabling them to test AttendED out within specific data sets of equipment and scale.

❖ **Promotional Offers:**

- **Free Trials:** Access to AttendED for up to 50 students (full access) for three months, open to the first 10 private schools and departments that apply. It gives institutions a risk-free way of exploring the app.
- **Discounts:** Offer promo discounts and referral discounts as a part of launch promotion campaign to encourage quick adoption.

❖ **Feedback and Testimonials:**

- **Collect Feedback:** Encourage feedback from users and recognize aspects that need refining to improve the app.
- **Share Testimonials:** Post user experiences and testimonials to strengthen credibility on AttendED within the education industry by demonstrating its real value

With this all-inclusive marketing approach, AttendED aspires to establish itself as the market leader in attendance management solutions in the Algerian education sector, while improving student-educator relationships and enhancing productivity.

X. Financial Projections

AttendED five year Financial Projections summarize projected revenues/costs and demonstrate how the app can become both scalable and eventually profitable. Subscriptions, freemium upgrades and data insights are revenue sources; development, support and marketing make up costs. This projection shows the steps AttendED is taking to become financially viable and sustainable in the long run within education.

❖ Revenue Projections :

- **Subscription Model**

➢ **Description:** Base on number of students, AttendED's biggest driver of revenue comes from regular or annual subscription fees paid by private schools and universities.

➢ **Revenue:**

✧ Year 1: 2,000,000 DZD
✧ Year 2: 1,800,000 DZD
✧ Year 3: 1,600,000 DZD
✧ Year 4: 1,400,000 DZD
✧ Year 5: 1,200,000 DZD

- **Freemium Model**

➢ **Description:** Free limited version to attract new institutions, then upsell paid premium features.

➢ **Revenue:**

✧ Year 1: 500,000 DZD
✧ Year 2: 700,000 DZD
✧ Year 3: 900,000 DZD

- ✧ Year 4: 1,100,000 DZD
- ✧ Year 5: 1,300,000 DZD

- **Data Insights Add-On**

- ➢ **Description:** Schools & universities can buy Data analysis features to enhance attendance tracking and find patterns among students.
- ➢ **Revenue:**

- ✧ Year 1: 1,500,000 DZD
- ✧ Year 2: 2,000,000 DZD
- ✧ Year 3: 2,500,000 DZD
- ✧ Year 4: 3,000,000 DZD
- ✧ Year 5: 3,500,000 DZD

- **Total Revenues**

- ➢ Aggregating all revenue sources:

- ✧ Year 1: 2,000,000 DZD
- ✧ Year 2: 2,200,000 DZD
- ✧ Year 3: 2,400,000 DZD
- ✧ Year 4: 2,600,000 DZD
- ✧ Year 5: 2,800,000 DZD

❖ Cost Structure :

- **Software Development and Maintenance**

- ➢ **Details:** This covers everything from the initial development of the app all the way to maintenance and updates.
- ➢ **Cost:**

- ✧ **Year 1**: 2,000,000 DZD
- ✧ **Year 2**: 1,800,000 DZD
- ✧ **Year 3**: 1,600,000 DZD
- ✧ **Year 4**: 1,400,000 DZD

- ✧ **Year 5**: 1,200,000 DZD

- **Customer Support and Training**

- ➢ **Details:** Training institutions on how to use the app, costs associated with ongoing support, troubleshooting and educational resources.
- ➢ **Cost:**

- ✧ **Year 1**: 500,000 DZD
- ✧ **Year 2**: 700,000 DZD
- ✧ **Year 3**: 900,000 DZD
- ✧ **Year 4**: 1,100,000 DZD
- ✧ **Year 5**: 1,300,000 DZD

- **Marketing and Promotional Activities**

- ➢ **Details:** Advertising, social media campaigns, content creation, outreach programs etc.
- ➢ **Cost:**

- ✧ **Year 1**: 1,500,000 DZD
- ✧ **Year 2**: 2,000,000 DZD
- ✧ **Year 3**: 2,500,000 DZD
- ✧ **Year 4**: 3,000,000 DZD
- ✧ **Year 5**: 3,500,000 DZD

- **Salaries for Staff and Developers**

- ➢ **Details:** Salaries for developers, designers, support, and managers.
- ➢ **Cost:**

- ✧ **Year 1**: 2,000,000 DZD
- ✧ **Year 2**: 2,200,000 DZD
- ✧ **Year 3**: 2,400,000 DZD
- ✧ **Year 4**: 2,600,000 DZD
- ✧ **Year 5**: 2,800,000 DZD

- **Data Security and Privacy Compliance**

  - **Details:** Implementation of data protection and privacy compliance to ensure data security and regulatory compliance
  - **Cost:**

    - **Year 1**: 300,000 DZD
    - **Year 2**: 400,000 DZD
    - **Year 3**: 500,000 DZD
    - **Year 4**: 600,000 DZD
    - **Year 5**: 700,000 DZD

- **Operational Expenses (Office, Utilities)**

  - **Details:** Basic operational expenses including office rent, utilities, and supplies.
  - **Cost:**

    - **Year 1**: 800,000 DZD
    - **Year 2-5**: 300,000 DZD (Fixed from Year 2 onward)

- **Licensing Fees for QR Code Technology**

  - **Details:** Yearly licensing fees necessary to pay for QR technology that the app uses.
  - **Cost:**

    - **Year 1**: 200,000 DZD
    - **Year 2**: 300,000 DZD
    - **Year 3**: 400,000 DZD
    - **Year 4**: 500,000 DZD
    - **Year 5**: 600,000 DZD

- **Total Costs**

  - **Year 1**: 7,300,000 DZD
  - **Year 2**: 7,700,000 DZD
  - **Year 3**: 8,600,000 DZD

- ✧ **Year 4**: 9,500,000 DZD
- ✧ **Year 5**: 10,400,000 DZD

❖ **Profitability Analysis**

As the app grows and scales AttendED is expected to become more profitable quicker with revenue growth year after year as well profit margin. In the table below, we show net profit margins as a percentage of total revenue (net profitability) over time, illustrating growth in profitability driven by cost stabilization and top-line expansion.

❖ **Net Profit Margin (Percentage):**

- **Year 1:** 10% (200,000 DZD net profit / 2,000,000 DZD revenue)
- **Year 2:** 20% (4,300,000 DZD net profit / 2,200,000 DZD revenue)
- **Year 3:** 29% (6,900,000 DZD net profit / 2,400,000 DZD revenue)
- **Year 4:** 40% (10,500,000 DZD net profit / 2,600,000 DZD revenue)
- **Year 5:** 47% (13,100,000 DZD net profit / 2,800,000 DZD revenue)

This steady increase in profit margin demonstrates AttendED's ability to grow revenue while maintaining cost efficiency, leading to improved financial performance.

● **Sustainability Model**

AttendED’s sustainability strategy focuses on scalable growth through diversified revenue streams, strong customer retention, and operational efficiency. The primary components of this model include:

1. **Customer-Centric Development:** As the app is updated and improved regularly, it can meet the changing needs of users over time which will help retain customers with minimal churn.
2. **Data-Driven Insights:** This utility adds even more value to institutions, and keeps the deeper customer relationships that help drive sustained revenue.
3. **Operational Efficiency:** AttendED will break even at scale through highly optimized development, customer support, and marketing processes.

AttendED plans to grow and remain profitable throughthis sustainability model and will reinvest its earnings into the platformto help drive the Digital transformation of the educational sector.

Costs & Revenues (5 Years)

Costs Category	Year 1	Year 2	Year 3	Year 4	Year 5
Software Development and Maintenance	2,000,000	1,800,000	1,600,000	1,400,000	1,200,000
Customer Support and Training	500,000	700,000	900,000	1,100,000	1,300,000
Marketing and Promotional Activities	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000
Salaries for Staff and Developers	2,000,000	2,200,000	2,400,000	2,600,000	2,800,000
Data Security and Privacy Compliance	300,000	400,000	500,000	600,000	700,000
Operational Expenses (office, utilities)	800,000	300,000	300,000	300,000	300,000
Licensing Fees for QR Code Technology	200,000	300,000	400,000	500,000	600,000
Total Costs	7,300,000	7,700,000	8,600,000	9,500,000	10,400,000

Costs & Revenues (5 Years)

Revenues Category	Year 1	Year 2	Year 3	Year 4	Year 5
Subscription Model	2,000,000	1,800,000	1,600,000	1,400,000	1,200,000
Freemium Model	500,000	700,000	900,000	1,100,000	1,300,000
Data Insights Add-on	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000
Total Revenues	2,000,000	2,200,000	2,400,000	2,600,000	2,800,000
Net Profit	200,000	4,300,000	6,900,000	10,500,000	13,100,000

Note : And keep in mind that these are estimated numbers and can be change and we are still working hard to develop it more .

XI. How to Make Money out of AttendED

AttendED's revenue generated will be based on some models depending on the private school or university needs in Algeria. With flexible subscription plans, data-driven add-ons and partnership opportunities, AttendED not only allows the educational institution to reduce their operational cost but also create a long-term financial foundation for growth & innovation.

1. **Subscription Model:**

- **Tiered Plans:** AttendED includes a subscription model for education institutions of various sizes. In terms of private schools, basic subscription covers the fundamental attendance features for smaller institutions while larger ones can purchase advanced plans with enhanced functionality such as deeper analytics and administrative tools.
- **Annual and Monthly Subscriptions:** Monthly and discounted annual options give institutions the flexibility to pick a payment schedule that fits their budget, which helps solidify steady, recurring revenue for AttendED.

2. **Freemium Model:**

- **Basic Access with Paid Upgrades:** The freemium model helps institutions gain free access to core features of the service, allowing them to experience the app's value without any strings attached. For premium features like additional communication channels, deeper data insights, or customized support options, schools can pay for enhanced functionality.
- **In-App Purchases for Additional Features:** Similar to Freemium, this allows schools to purchase specific add-ons like customized branding, support for additional languages, or extra administrative features without requiring a complete premium subscription. This flexibility in meeting institutions' different requirements enable a steady revenue expansion.

3. **Data Insights Add-on:**

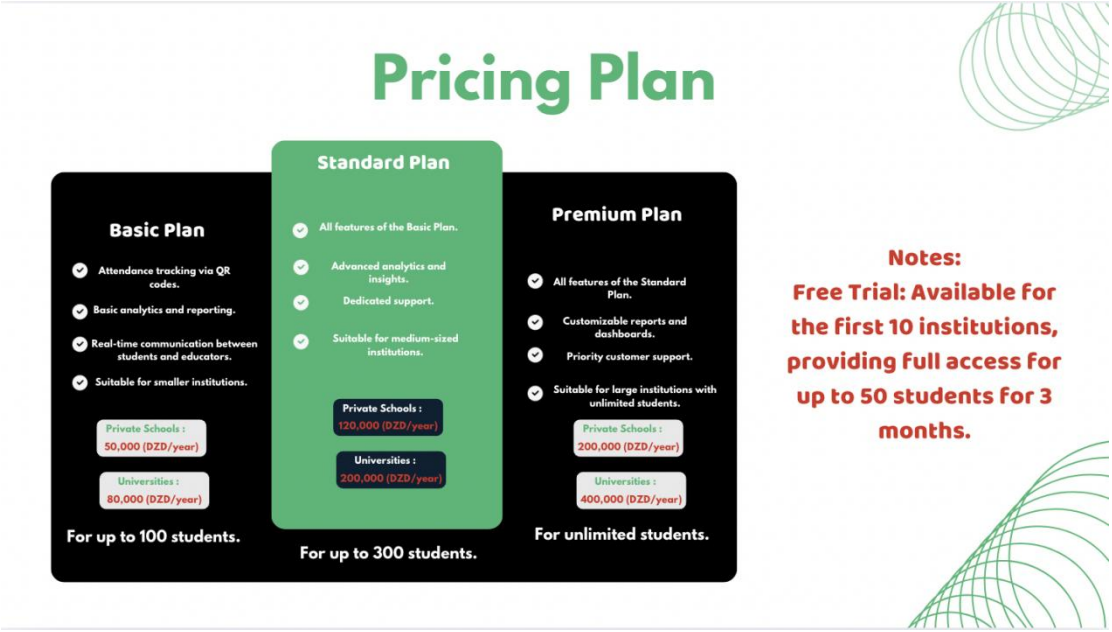
- **Advanced Analytics for Student Engagement:** AttendED has a data insights package available for schools that want deeper metrics on attendance. The add-on allows schools to identify trends in student engagement and

participation, assisting targeted initiatives towards students who are regularly absent from school or further planning for high-attendance activities.

- **Customized Reporting:** Custom reports and data visualizations can be purchased by institutions to meet specific administrative or regulatory needs. This trait is appealing for the folks at any institution who believe that data is a guiding force behind sound decisions, and even more so if they want concrete insights into how students behave.

4. Sponsored Collaborations:

- **Educational Partnerships and Sponsorships:** AttendED can also connect with educational content providers or technology brands, adding sponsored features, educational modules, or tools in a mutually beneficial way. These partnerships can also provide an additional revenue source and contribute more functionality to the app.
- **Cross-Promotions with Technology Vendors:** Partnerships with hardware vendors, like tablet or interactive board providers, create opportunities for bundled offers, benefiting both parties and promoting AttendED within a broader tech ecosystem.



XII. Conclusion

- **Summary of Key Points:**

1. **Innovative Technology:** AttendED utilizes QR code technology to change the way attendance is tracked at private schools and universities in Algeria.
2. **Enhanced Efficiency:** The app significantly enhances the accuracy and efficiency of attendance tracking, effectively moving away from traditional manual methods.
3. **Improved Communication:** The fact that AttendED encourages real-time communication between students and educators is one of the most prominent features of the platform, which allows for better classroom management.
4. **Diverse Revenue Streams:** The business model for AttendED is built on multiple revenue streams:

    - **Subscription Model:** These consist of subscription-based services directed and focused at the specific needs of an educational institution.
    - **Freemium Model:** AttendED follow a freemium model that can give access to basic features for free and broadening the receive audience.
    - **Data Insights:** schools pay for data insights and analytics, generating additional revenue.

5. **Strategic Marketing:** We have a strong marketing strategy consisting of social media, targeted outreach to schools and universities through workshops & pilot programs.
6. **Essential Partnerships:** Establishing partnerships with academic institutions, tech vendors and marketing companies is vital to extend AttendED's market presence and increase its credibility.

- **Vision for the Future:**

1. **Industry Leadership:** AttendED aims to be the premier attendance management solution in the field of education within Algeria.
2. **Continuous Innovation:** It involves a promise to keep innovating the app, to ensure its viability in the changing landscape of educational institutions and their users.
3. **User-Centric Expansion:** Future plans are to grow our services and features based on what our users need, which will improve user satisfaction.

4. **Strategic Collaborations:** The company aims to develop strategic partnerships that will strengthen the functionality of, and market adoption for the app.
5. **Educational Impact:** Ultimately, AttendED aims to offer a more time and effort-efficient learning ecosystem that embraces enhanced student engagement and educational performance throughout Algeria.

In conclusion, AttendED is poised to transform attendance management in Algerian private education through innovative technology and strategic approaches. The app's unique features and robust business model position it to meet the needs of schools and universities, ensuring efficiency and engagement in the educational experience. Below is a summary of key points and a vision for the future of AttendED.