



Mobile Learning Applications and Their Impact on Students' Academic Performance in Rural Schools

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Abstract

Mobile learning is a recognised methodology due to its numerous advantages, including the ability to access educational content at any time and place, customisation of content to meet students' needs, and prompt feedback. This study aims to demonstrate that learning facilitated by a customised smartphone application can successfully improve the academic achievement of Rural School (RS) students by implementing periodic evaluations via the mobile application. This study proposed Mobile Learning Applications and their Impact on Students' Academic Performance (MLA-SAP) in RS. The study subjects were students in RS, Uzbekistan. An MLA-based approach was implemented in the test group ($n = 20$), whereas the control group engaged in a lecture-based traditional classroom setting ($n = 35$). An outlook scale has been employed to assess students' perceptions of mobile learning, while a test of success was utilised to evaluate the impact of MLA on student academic performance. Interviews have been conducted with RS students and teachers for a qualitative analysis. The results indicate that MLA may facilitate SAP. Both groups exhibited markedly elevated scores regarding MLA.

Keywords: Mobile Learning, Rural School Students, Performance, Qualitative Analysis, Uzbekistan.

1. Introduction

Over the last twenty years, there has been a significant surge in the educational sector in Uzbekistan. Certain experts assert that this is attributable to the involvement of private businesses in the administration of educational institutions. They have merely showcased a façade for their financial benefit, as suggested by others [1]. Therefore, a change in approach is necessary to facilitate advancement in the process of instruction and learning within the context of RS education. A novel approach is required to supplant the outdated teaching and learning processes.

To provide excellent educational opportunities, particular focus must be directed towards certain fundamental issues. There is no connection between academic learning and real-world applications in RS education [9]. Integrating technology into education is necessary as a possible solution to resolve this issue. In this setting, the establishment of educational standards may be facilitated by using mobile devices, as this technological innovation has become ubiquitous [2]. Since smartphones and tablets are portable and applicable to students' daily activities, they can also be utilised in the educational sector. Students may receive customised learning materials tailored to their prior knowledge and preferred learning styles. Young children find it easy to engage with touch screens, similar to their comfort in playing with toys [13].

Mobile applications facilitate ease of use for children as they do not necessitate an additional mouse and keyboard [4]. Research indicates that contemporary children are more comfortable utilising touch devices such as mobile phones [6]. Children are observed to allocate significant time to screen exposure. In this context, it is imperative to implement mobile applications in educational institutions, particularly in rural Uzbekistan, as many kids attend schools to access free and obligatory schooling [5].

At present, digital devices are regarded as integral to civilisation. Electronic gadgets infiltrate the educational experiences of children. Consequently, society necessitates proficiency with computers [3]. In this context, tablets seem to have become ubiquitous in contemporary schools. These are utilised consistently for educational purposes. The International Monetary Fund and other financial organisations are initiating measures to empower educational leaders to acquire tablets or mobile devices for school education, which is expected to produce improved outcomes [8].



It is observed that children will not learn without appropriate technology. Intelligent mobile phones have emerged as a prevalent medium for primary and secondary school education [11]. Learners can acquire expertise by exchanging information via mobile applications with their educators and peers [10]. Mobile schooling provides advantages, including rapid access to knowledge for students, varied learning modalities, contextualised education, autonomy in learning, facilitation and encouragement of the learning process, enhanced course involvement, willingness to engage in coursework, and significant positive impacts on academic performance, as evidenced by research findings [7].

Contemporary digital technologies are anticipated to enhance the educational system. The educational system ought to be digital, facilitating enhanced learning for students [15]. Globally, children are utilising tablets for academic purposes or informal technology-assisted learning. The intellectual development of students is anticipated to be enhanced by mobile computing devices. Simultaneously, administrations aim to enhance education at all levels by implementing technology[12]. This would facilitate the implementation of mobile apps in education. Various studies indicate that educational outcomes at the school level are enhanced through technological aids, such as mobile applications, compared to conventional methods [14]. Consequently, implementing mobile applications would yield significant advantages for students attending school.

2. Methods

In Uzbek rural regions, mobile devices are utilised by individuals of all ages, educational backgrounds, and financial circumstances. Nevertheless, MLA in primary education within RS has not yet proliferated to the required extent. This is likely due to users' unawareness of its advantages. Research indicates that the utilisation prevalence of innovative technology increases when consumers recognise its benefits. The perceived value significantly and advantageously impacts users' (RS in Uzbek) behavioural intention to utilise MLA in teaching-learning.

RS of MLA must find the technology user-friendly, which will subsequently influence their decision to engage with it. The RS students understand that they will encounter issues and incur losses at the outcome stage whenever they utilise the framework or technology. The students will utilise mobile applications. This mobile technology is perpetually linked to uncertainty because of its unpredictable nature. Behavioural and environmental insecurities would adversely impact users' intentions to utilise mobile applications for their studies. A reduction in reported threats would lead users to embrace the technology more readily, thereby enhancing their adoption behaviour. A sense of risk adversely affects intention.

The price value is defined as the monetary worth of a product or service rendered. The monetary value of services or products significantly influences the adoption decisions of users, specifically school students or their parents, when they are responsible for the associated costs. The price significantly influences client decision-making processes. It is observed that, in the context of an institution, when users are not responsible for the financial burden of fresh offerings or technological expenses, it does not impact the users' business intelligence. The RS does not anticipate supplying students with mobile devices or covering internet service expenses. In the current context, price value adversely affects consumer behavioural intention.

This work employed an exploratory design as the research methodology. Educational materials (presentation, specimen, video content, audio file, assignments, test, and discussion) were available to both groups via a system for managing their education. The influencing factors of the investigation are academic performance and attitude toward learning via mobile devices. The variables autonomous of the study are MLA and traditional instructional conditions.

Mobile learning cohort (20 participants): This group was instructed to use an MLA paradigm. Tablets were allocated to this group, and the learning administration system and educational content were accessible on mobile phones.

Conventional learning cohort (35 participants): This group was instructed in a conventional educational setting. A learning administration system and educational content were accessible to this group, but this time via the Internet. The "Attitude Index Toward MLA" was created by academics to assess participants' views regarding mobile learning. Information was gathered from 75 rural Uzbekistan primary school students to develop a sample item collection. Data gathered from students were analysed, resulting in the creation of a draft comprising 55 items. Following experts' recommendations from various educational systems, unsuitable and analogous items were omitted from the draft. The draft consisted of fifty-one elements (41 positive and 10 negative) following modifications. The 5-point Likert scale was categorised as follows: strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1).

Semi-structured interviews were conducted to elucidate participants' perspectives on the execution procedure. Four students selected arbitrarily from the MLA group underwent interviews. The information-gathering instrument was employed as a partially structured interview format comprising 10 open-ended queries about the online submission process. The present study employed parametric and non-parametric testing, accounting for a typical distribution and uniformity. The statistics obtained from participants were analysed utilising SPSS 20.0 software.

3. Results and Discussion

The study subjects were students in RS, Uzbekistan. An MLA-based approach was implemented in the test group ($n = 20$), whereas the control group engaged in a lecture-based classroom setting ($n = 35$). The evaluation survey responses (Fig. 1) regarding the impact of the MLA on RS-SAP indicated that students expressed a highly favourable opinion.

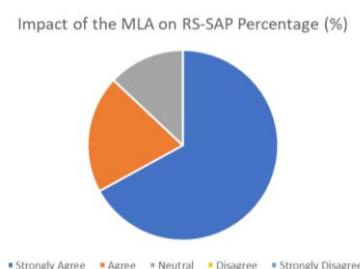


Fig 1. Impact of MLA on RS-SAP (%)

Fig. 1 depicts the impact of MLA on RS-SAP (%). Most participants chose "Strongly Agree," reflecting a highly favourable response and strong perceived influence of the MLA. A diminutive yet significant segment selected "Agree," whereas a minority maintained a "Neutral" position. Significantly, no respondents indicated disagreement or strong disagreement, highlighting the general satisfaction and assessed value of the MLA in improving the RS-SAP system. This indicates the tool's robust acceptance and efficacy in pragmatic educational or analytical contexts.

4. Conclusion

This study examined Mobile Learning Applications and their effect on students' academic performance (MLA-SAP) in RS. The participants in the study were students from RS, Uzbekistan. An MLA-based methodology was employed in the experimental group ($n = 20$), while the control group participated in a conventional lecture-based classroom environment ($n = 35$). An evaluative scale has been utilised to gauge students' perceptions of mobile learning, while a success assessment was employed to measure the influence of mobile learning applications on academic performance. Qualitative analysis has been performed through interviews with RS students and teachers. Most participants chose "Strongly Agree," reflecting a highly favourable response and strong perceived influence of the MLA. The findings suggest that MLA could promote SAP. Both groups demonstrated significantly increased scores in MLA.

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