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EVALUATING THE IMPACT OF MOBILE LIBRARY APPS ON STUDENT LEARNING AT CKT AUTONOMOUS COLLEGE: A CASE STUDY

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Abstract

This study aims to explore the utilization of mobile applications by undergraduate students to support their academic pursuits, with a particular focus on identifying freely available applications. In a descriptive survey design, data was gathered through a comprehensive questionnaire administered to a random sample of undergraduate students from 18 departments at Changu Kana Thakur Arts, Commerce, and Science College. A total of 284 respondents participated in the study, providing valuable insights into their engagement with mobile applications for academic purposes. The findings of this research reveal that undergraduate students demonstrate a significant frequency of mobile application usage, and the survey highlighted several notable applications that are freely accessible. These identified mobile applications were found to have a favourable impact on the students' overall teaching and learning patterns. The study indicated that students actively seek out user-friendly, free, and open-source software mobile applications to enhance their educational experiences. The outcomes of this study not only offer a comprehensive understanding of the current landscape of mobile application adoption among undergraduate students but also serve as a valuable resource for educational institutions seeking to optimize their digital learning environments. The importance of freely available applications, this research advocates for the development and promotion of user-friendly and open-source mobile applications tailored to meet the diverse needs of students in a higher education setting.

Keyword: *Mobile Applications, Open-Source Software, Digital Library, Social Media, User studies, Online resources*

Introduction:

In the rapidly evolving landscape of modern technology, mobile applications, commonly known as apps, have emerged as powerful and versatile software programs designed to run on smartphones and other mobile devices. With easy accessibility through app stores like the Apple App Store and Google Play Store, these applications have become an integral part of our daily routines, revolutionizing the way we interact, access information, and conduct business. Mobile apps offer a diverse array of functionalities, catering to a wide range of user needs and preferences. From social media apps that facilitate seamless communication and connection to productivity apps that enhance organization and efficiency, and even to entertaining games that provide moments of leisure, these small yet robust software programs have become indispensable tools in our lives. One of the most compelling aspects of mobile apps is their ability to provide on-the-go access to an expansive array of services and information. The convenience of accessing these resources from the palm of our hands has transformed

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the way we interact with the digital world. Tasks that were once confined to desktop computers or physical locations can now be accomplished effortlessly with a few taps on our mobile screens. We can check emails, manage schedules, pay bills, and perform an array of tasks irrespective of our location, offering unparalleled convenience and efficiency. The impact of mobile apps extends beyond individual convenience, as they have also facilitated significant advancements in communication and social connectivity. Social media apps like Facebook and Twitter have fostered a global network of connections, enabling us to stay in touch with friends and family, regardless of geographical barriers. We can effortlessly share our life experiences, photos, videos, and updates, fostering a sense of community and belonging in an increasingly interconnected world. The influence of mobile apps on society at large is undeniable. These applications have transformed industries and opened new avenues for business and entrepreneurship. They have given rise to the sharing economy, streamlined services, and facilitated seamless e-commerce experiences. As such, mobile apps have become vital catalysts for economic growth and innovation, shaping the future of business and consumer interactions. Mobile apps are poised to remain pivotal in shaping the fabric of our daily lives. As technology continues to advance, these apps will undoubtedly evolve to meet emerging needs and possibilities. Their constant innovation will continue to enhance our connectivity, accessibility to information, and overall quality of life. Mobile apps have redefined the way we engage with the world, and their profound influence is set to endure, impacting generations to come. The mobile apps have greatly impacted our society and have changed the way we live. They have made it possible for us to access information and services quickly and easily, and they have also made it easier for them to stay connected with others. As a result, mobile apps are likely to continue to play a key role in our daily lives in the future.

CKT College:

Khanda Colony, New Panvel, Navi Mumbai, Maharashtra, India is the location of Changu Kana Thakur Arts, Commerce, and Science College (Autonomous), which has been permanently affiliated to the University of Mumbai (2005-2006) and recognized under 2 (f) and 12 (B) (2006-2007) by the University Grants Commission in New Delhi. The college has dedicated itself to providing quality education to all strata and becoming a center of excellence in facilitating effective teaching and learning through several career-oriented traditional and specialty programs. Offered by the college are 15 undergraduate, 14 postgraduate, 07 research programs, as well as 15 remedial, 09 bridge, 20 certificate, 06 diploma, and 01 postgraduate diploma programs

CKT Library:

The reputation of being one of the premier college libraries in the vicinity of Panvel (New Mumbai) is enjoyed by the library of college, the fountain of knowledge and inspiration. The library was established in 1997-98 with the inception of the college and is located on the first floor, making it easily accessible from all sides of the college premises. It has a carpet area of about 6000 SQ. FT, and a complete catalogue of the library holdings has been created using slim version library software. An Online Public Access Catalogue (Web-OPAC) is provided to the users and is extensively used by students to search for required books and journals. All of the computers in the libraries on the campus are connected to the central server, and a local hub is provided in the library for speedy communication of data. A unique feature of the library is the Android Library mobile application, which provides links to well-known learning resources. The library is proud to provide online access to students and faculty members through the CKT Library Android

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Mobile App to reputed commercial Journals from UGC N-LIST, and open access databases such as Vidyanidhi, OpenJ-Gate, OpenDOAR, DOAJ, PubMed, and SSRN.

Objective of the study:

To carryout research work systematically, researcher has set few objectives, those are as follows;

1. To explore the different types mobile applications available and their popularity among users.
2. To understand the main features and functions of popular mobile apps links and how they are used by users.
3. To investigate the benefits and drawbacks of mobile applications
4. To provide recommendation for future research on mobile app development and use

Literature Review

(Wu and Lin) *The purpose of the Free Software Foundation is not to ensure distributing software to the end user without cost, but to ensure that the end user can use the software freely*.

Table 1. Open source licensing models.

Licensing model	Free software	Open source	Copyleft	GPL-compatible	Examples
GPL	Yes	Yes	Yes	Yes	CVS
LGPL	Yes	Yes	Partial	Yes	GNU C library
X11	Yes	Yes	No	Yes	XFree86
Python	Yes	Yes	No	Yes	Python
BSD	Yes	Yes	No	No	Apache, Sendmail
MPL/NPL	Yes	Yes	No	No	Mozilla
QPL	Yes	Yes	No	No	Qt
Sun Industry Standard Source License (SISSL)	Yes	Yes	No	No	Commercial-version StarOffice
Artistic License (AL)	No	Yes	No	No	Perl
Apple Public Source License (APSL)	No	Yes	No	No	Darwin

(Raj and Kazemian) Open Source Software has become more popular in recent years and is now widely used in college courses in disciplines that involve software development. In an effort to make the CS curriculum more appealing and relevant to students, CS educators are exploring ways to incorporate OSS into their courses. This study uses a database system implantation course to illustrate the benefits of using OSS.

(Bishop et al.) A panel of experts from industry and academia discuss the use of open source software in education. They also address the most appropriate areas of computer science and levels of study for introducing open source software. The panellist believes that open source software fosters a collaborative ecosystem that allows researchers to pool resources and expertise to tackle challenging projects.

(Lakhan and Jhunjhunwala) The Educational Institutions are turning to online platforms to provide academic resources and services, attracting the attention of investors. Despite technical challenges, online education has great potential. Open source software offers one solution to these challenges by making source code openly available to users and developers. Open Source software can provide many

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benefits for online education, including cost savings, flexibility, and community support.

(Pinto et al.) Software engineering courses often focus on teaching methodologies and concepts in small, controlled environment rather than maintenance aspects of real software systems. This is partly due to difficulty of bringing real software projects into the classroom. However, the widespread presence of open source project is helping to alleviate this problem. Some instructors have adopted contribution to open source project as a part of their evaluation process and they have reported many benefits, including improved technical and social skills among students.

(Basal et al.) The study aimed to investigate the effectiveness of a mobile application in teaching figurative idioms from the Michigan Corpus of Academic Spoken English (MICASE) corpus compared to traditional activities. A quasi-experimental research design with pre-test and post-test was used to compare the scores of the control (n=25) and experimental group performed significantly better in the post test, demonstrating the effectiveness of the mobile application in teaching idioms. The study also provides recommendation for the use of mobile applications in teaching vocabulary.

(Chang) The study used a convenience sample of 363 undergraduate and graduate students, and a structural equation modelling techniques was conducted to identify casual relationships. The result showed that the UTAUT model fits the data well, and that performance expectancy, effort expectancy, social influence, and facilitating conditions determine users' behavioural intention of using library mobile applications.

(Cummings et al.) This paper presents a framework for considering issues associated with selecting and using mobile phone health applications downloaded from the Internet. The framework is focused on health consumers and aims to provide guidance and quality assurance for the large and growing number of applications available on the market. The paper discusses a range of issues related to the selection and use of these applications, including user experience, security privacy, evidence-base, and regulation.

Methodology: The present study used a survey descriptive research method to collect the data from a sample of 284 undergraduate students enrolled in CKT College for 15 courses run by the college. A questionnaire was developed and distributed by using the Google Form to know about the utilization and benefits of CKT Library Mobile App for their teaching and learning process. A total 284 questionnaires were filled and analysed using descriptive statistical methods and pivot table. The result of the analysis was used to assess the present utilization status of the CKT library mobile app and identify areas for improvement.

Data Analysis: Total responses 284 from all the undergraduate department which includes, physics, zoology, chemistry, microbiology, mathematics, botany, information technology, computer science, biotechnology, English, Hindi, Marathi, Economics, Geography, Commerce, Accounting and Finance, Management Studies and Foundation Course etc.

Q1) Are you aware of Library Mobile App

Yes 141

No 143

49% students are aware about library mobile app, among them

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Particular	How frequently do you use Library Mobile App	
2 to 3 Times a week	42	
Daily	18	
Monthly	17	
other	113	60.92
Rarely	60	
Weekly	34	
Grand Total	284	

Figure:1 Awareness of Mobile App

Among 284 responses, 173 are not use library mobile app that is 60% responses where 111 students use the mobile app.

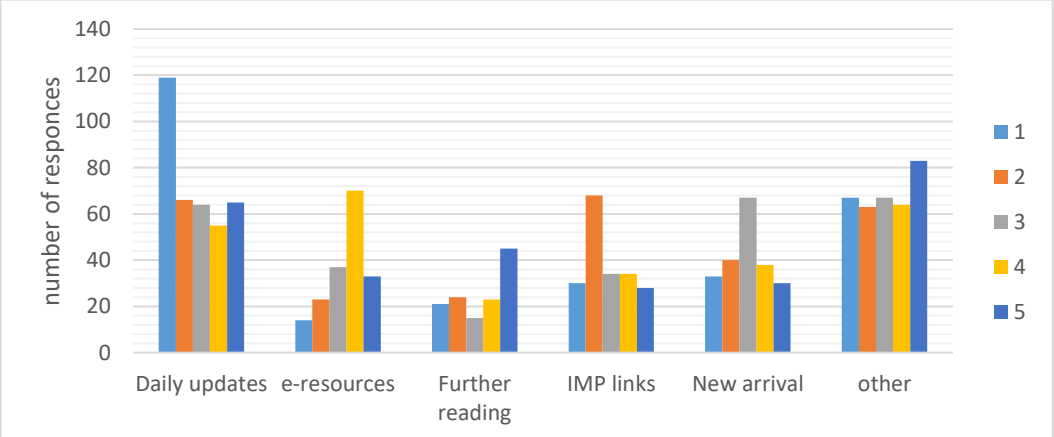
Particular	Number of Students				
Row Labels	1	2	3	4	5
Daily updates	119	66	64	55	65
e-resources	14	23	37	70	33
Further reading	21	24	15	23	45
IMP links	30	68	34	34	28
New arrival	33	40	67	38	30
other	67	63	67	64	83
Grand Total	284	284	284	284	284

Figure:2 Use of Mobile App

Ranks	Particular with number of students						Grand Total
	Daily updates	e-resources	Further reading	IMP links	New arrival	other	
1	119	14	21	30	33	67	284
2	66	23	24	68	40	63	284
3	64	37	15	34	67	67	284
4	55	70	23	34	38	64	284
5	65	33	45	28	30	83	284

Figure:3 Purpose of using Mobile App

Highest cause to browse mobile app is to check daily updates, followed by e resources and imp links.



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Row Labels	Count of Do you find current library mobile app is useful?	Percentage
No	89	31.33
Yes	195	68.66
Grand Total	284	100%

Figure:4 Usefulness of Mobile App

68.66% respondents finding the current app is useful among 111

(Only 76 respondents finds that mobile app is useful)

Hence there is huge need to inculcate the need and habit of the app

Row Labels	Count of Do you satisfy with library mobile app look and feel?	percentage
No	97	34.15
Yes	187	65.84
Grand Total	284	100%

Figure:5 Usage Satisfaction of Mobile App

Row Labels	Count of Do you use any other library mobile app?
No	212
Yes	72
Grand Total	284

Figure:6 Use of another Mobile App

Only 72(25.35%) respondents use another library mobile app.

Row Labels	Count of Do you get IMP e-resources links on library mobile app?
No	143
Yes	141
Grand Total	284

Figure:7 Awareness of IMP Links on Mobile App

Awareness open source software's are antenna pod, android studio, google one, jasonette pikashow etc. where awareness educational apps are, Bayou, Vedantu, Unacademy, Khan academy, etc. this shows lack of knowledge about library apps where everyone is handling Instagram, WhatsApp, and all social media apps on ease.

Awareness of Open Source Software's;

Android studio, Antenna pod, Single, New pipe, e-Learning, Goole one, etc.

Row Labels	Count of Are you aware of another educational app?
No	123
Yes	161
Grand Total	284

Figure:8 Awareness of another Mobile App

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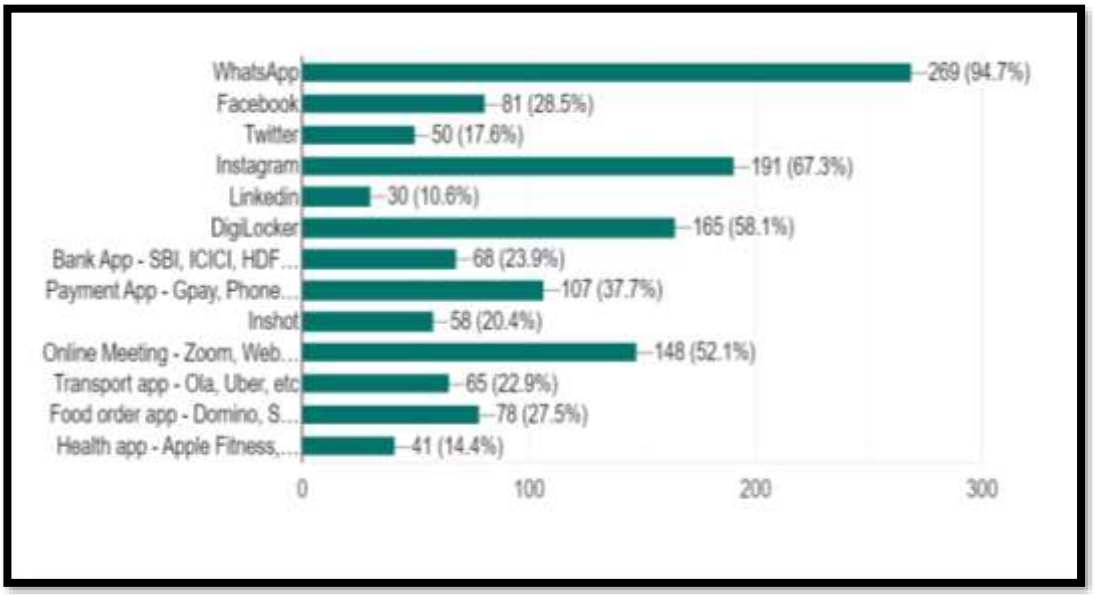
Awareness of Educational Mobile apps

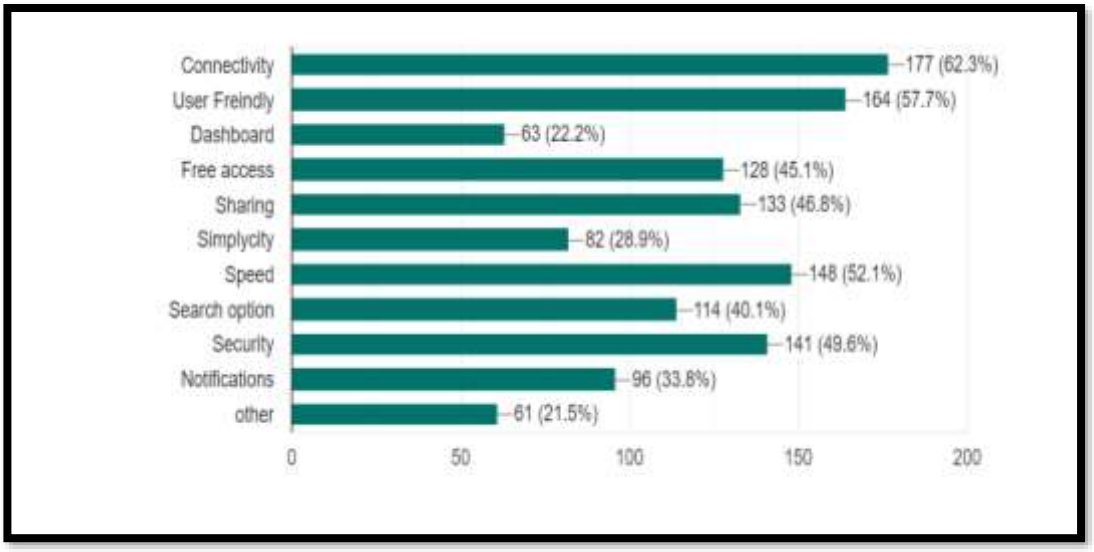
BYJU'S	Unacademy	Topper	Vedantu
Google classroom	Microsoft team	Microsoft team	Coursera
Drishti	Shiksha	YouTube	Kuku
Doutnet	BRAINLY	Akash	Telegram
Learning App	Moodle	Maharashtra State Board	Josh Talks
LinkedIn	Summaries	proton	Synap learning

Figure:9 Awareness of another Mobile App and their name

Do you use another mobile app listed below?



What are the features do you like in mobile app?



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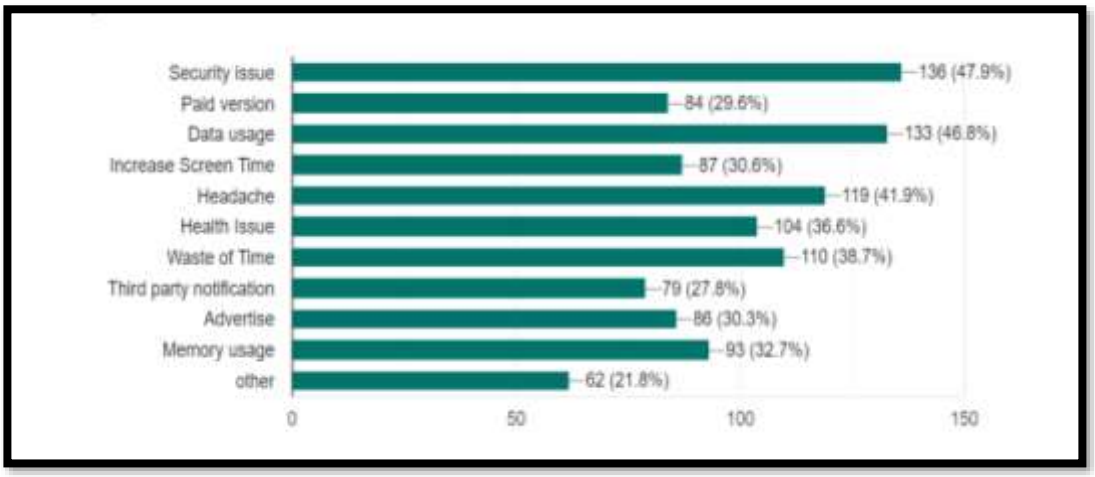
What are the disadvantages/drawback of mobile app?



Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The categories defined by AreyouawareofLibraryMobileApp = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.953	Retain the null hypothesis.
2	The categories of IF1howfrequentlydoyouuseLibrary MobileApp occur with equal probabilities.	One-Sample Chi-Square Test	.000	Reject the null hypothesis.
3	The categories defined by Doyoufindcurrentlibrarymobileappisu seful = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.
4	The categories defined by Doyoufindcurrentlibrarymobileappisu seful = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.
5	The categories defined by Doyouuseanyotherlibrarymobileapp = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.
6	The categories defined by Doyouget IMPeresourceslinksonlibrarymobilea pp = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.953	Retain the null hypothesis.
7	The categories defined by Doyouagreethatlibrarymobileappprov ideuptodateinformat = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.
8	The categories defined by DoyouawareofOpenSource Mobileapp = 1.000 and 0.000 occur with probabilities 0.5 and 0.5.	One-Sample Binomial Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

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Suggestions and recommendation:

Here are some suggestions for a case study on the use of library mobile applications by undergraduate students for studying at CKT Autonomous College

- Investigate any challenges or obstacles that students have encountered when using library mobile applications. This could include issues with technology or connectivity, or difficulties navigating the user interface.
- Consider the potential for future development or expansion of library mobile applications. For example, are there additional features or services that students would like to see added to the library mobile app?

Provide recommendations for how the library and other stakeholders can support the use of library mobile applications by undergraduate students. This could include strategies for promoting the app to students, improving the user experience, or providing training and support.

Conclusion:

The use of mobile applications by the students is increasing day by day and social media apps are used at an

alarming rate. The present study revealed that 94.4% (269 out of 284) are using WhatsApp mobile apps whereas educational mobile app usage is less (161 out of 284). It is also observed that library mobile apps are found useful by the students and daily updates, useful links, further reading, and new arrival purposes are used. Hence there is a need to inculcate the need and habit of using educational mobile apps. The use of library mobile applications by undergraduate students has shown to be a convenient and efficient way for them to access library resources and services. The ability to search and reserve books, access online databases and journals, and track due dates from their mobile devices allows students to easily stay organized and manage their library needs. Additionally, the use of mobile applications can potentially increase the usage of the library by making it more accessible to students who may not be able to physically visit the library due to time or location constraints. However, it is important for library staff to continue to monitor and evaluate the effectiveness of the mobile application in order to ensure that it is meeting the needs of the students and make any necessary updates or improvements.

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