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Research Paper

Awareness and Utilization of Self-tacking Applications for Optimal Academic Productivity of Business Education Students in Rivers State Universities

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ABSTRACT: *The study examined the awareness and utilization of self-tracking applications for optimal academic productivity of Business Education students in Rivers State Universities. The research was guided by four objectives, four research questions, and four hypotheses. Descriptive survey design was employed. The population comprised of the entire second year Business Education students in Rivers State University and Ignatius Ajuru University of Education, numbering 505 of which 372 students responded, representing 73.7% of the population. Data was collected using a self-structured questionnaire based on a four-point rating scale. The instrument was validated by two experts from Business Education and one from Measurement and Evaluation. Reliability was established using the spilt-half method, yielding a Spearman-Brown Coefficient of 0.93. Data analysis was conducted using mean ratings and standard deviation, while the hypotheses was tested using t-test at 0.05 level of significance. The study concluded that second year Business Education students in Rivers State Universities are aware to a high level that Google Calendar and Google Docs can be utilized as a Self-tracking Applications. However, while Business Education students at Rivers State University utilize Google Calendar and Google Docs to a moderate extent, those at Ignatius Ajuru University of Education utilize Google Calendar and Google Docs to a high extent.*

KEYWORDS: *Self-Tracking Applications, Academic Productivity, Business Education, Google Calendar, Google Docs*

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I. INTRODUCTION

In an increasingly digitalized world, university students continually seek ways to manage the diverse demands of academic life and optimize their productivity. The initiation of self-tracking applications—tools designed to monitor and enhance various aspects of personal behavior, such as time management, study habits, and overall wellness—offers promising potential to support students in achieving their academic goals [1]. These applications, ranging from task managers and habit trackers to fitness and mindfulness apps, provide a means to not only track progress but also to gain valuable insights that can lead to improved efficiency and better academic performance. Despite the availability and potential benefits of these tools, the extent to which university students are aware of and effectively utilize self-tracking applications remains uncertain. To effectively meet the needs of Business Education students and contribute to their academic success and personal growth, there is need to understand the extent to which students are aware of and utilize these self-tracking applications.

Awareness is the knowledge that something exists, or the understanding of a situation or subject based on information or experience [2]. It is a perception of or familiarity with something. It is the state or condition of being informed, conscious, or cognizant of something. Awareness is a concern about, and well-informed interest about something. Awareness refers to the knowledge or perception of a situation, fact, or a particular piece of information. Awareness is a concept that applies to various aspects of life, involving the recognition, understanding, and conscious attention to different situations, emotions, and information. It is only what one is aware of that one can utilize.

Utilization has become a key concept in various fields, including business, healthcare, technology, and education. Utilization is the act or instance of making practical, effective or profitable use of something [3]. It is the application, or deployment of something for a specific purpose or function. Utilization involves making the best possible use of resources, tools, or opportunities to achieve desired outcomes. It involves putting something into practical use to achieve a specific goal or function. Utilization can also be referred to as the frequency of use of something [4]. Utilization often implies not just use, but effective use. This means that something is being used to its full potential or capacity, ensuring that resources are not wasted. Utilization maximizes efficiency, manages cost and ensures sustainability of resources while meeting goals. Utilization can be measured in either percentage, signifying how much of a resource is being used compared to its total available capacity or it can be measured in terms of output or productivity [5].

Productivity is how effectively resources are used to achieve a desired result. It can be described as the quality, state, or fact of being able to generate, create, enhance, or bring forth goods and services. It is the concept of getting more done with the resources available, whether it is time, effort, or materials. Productivity means how effectively a person manages their time and tasks to achieve goals or complete work efficiently [6]. Personal productivity refers to how consistently and efficiently an individual completes tasks or accomplishes goals [7].

For students, productivity is about maximizing learning and academic achievement through smart and efficient approaches to studying and task management [8]. It encompasses time management, effective learning techniques, quality work output, consistency, balance, and resourcefulness. Productivity for a university student refers to the efficient and effective use of time, energy, and resources to achieve academic goals and personal development [9]. It involves completing required tasks, such as studying, assignments, and projects, in a timely and quality manner while also maintaining a healthy balance with extracurricular activities and personal life. In other to optimize productivity in their academic pursuits, Business Education students would need to be aware of and utilize productivity tools like self-tracking applications.

Self-tracking is the practice of gathering data by systematically documenting information about oneself on a regular basis in order to produce statistics about one's bodily functions or everyday habits which would be analyzed to improve one's physical or mental well-being (Lupton, 2017). Self-tracking is used to describe the practices by which people monitor their everyday life. It can be viewed as the practice of recording information about one's life using digital tools. It measures human activity. Self-tracking is the practice of monitoring and recording personal data related to various aspects of one's life, such as health, fitness, productivity, or habits, often using apps or devices. Kristensen and Ruckenstein [10] hold that this information is used to gain insights, set goals, and make informed decisions for self-improvement. Generally, self-tracking is any deliberate, methodical project focused on some aspect of a person or the world they live in, in order to generate data that can potentially be used for self-develpoment [11]. It provides valuable insights, motivation, and support for students seeking to create a balance in their lives. Behavioural patterns are observed and adjusted to produce a desirable outcome.

Self-tracking is not new but it has not always been digital. People have always kept logs of their activities for various reason. The development of technology has simply digitalized self-tracking, making it easier for people to collect, track and analyze the data [10]. Software developers have provided a wide array of applications which can be used to track almost anything one needs to track. Self-tracking applications are mobile applications designed to help individuals monitor, record, and analyze personal data related to various aspects of their lives [12].

Self-tracking applications and technologies are widely used in daily and in health care where biometric data, health indicators and vital signs are monitored for improved well-being. There are also hundreds of apps to track our psychological side. Mood, emotions, stress, energy level, and more can be recorded and observed to determine stressors and triggers. There are apps for tracking location, movements, driving, travel, computer and mobile usage, project time, and productivity. Lupton [13] says self-tracking can be categorized into several types, depending on what aspects of life are being monitored. These different types of self-tracking help individuals monitor and improve various aspects of their lives, leading to greater awareness, better decision-making, and overall personal development. Self-tracking is not limited to smartphones. Other wearable devices such as wristbands, smartwatches, or pedometers are worn on the individual's person. These apps typically utilize sensors built into smartphones or wearable devices to collect data, which is then analyzed and presented to users in the form of charts, graphs, and statistics. There is availability of tracking applications like Habitify, Welltory, Withings, Nike Fuelband, iOS Health, and I-Connect which was specifically designed for students to keep track of their daily habits. These apps can be personalized to meet the particular specification and lifestyle of each individual student.

According to Kristensen and Ruckenstein [10] various other aspects can be tracked in the life of a university student such as productivity, goals, assignments, exam preparation, learning progress, grades, time spent on various activities, and daily habits. There are innumerably number of self-tracking applications. Some

popular self-tracking applications specifically designed to help students enhance their productivity include Trello, Toggl, Forest, RescueTime, Anki, My Study Life, Be Focused, Habitica, HabitBull, GradeView, Microsoft OneNote, Notion, Google Keep, Evernote, and so many others. This study will focus on Google Calendar, and Google Docs. These apps were chosen after considering factors like availably of the app on both Android and iOS platforms, free downloads, storage space, offline usability, and doesn't require in-app purchases to function fully or updated. These apps help students track their time, manage their tasks, stay focused, and organize their academic lives more effectively, ultimately boosting productivity and academic success.

While self-tracking applications can be highly beneficial for students, Lupton and Smith [14] cautioned that there are also some potential drawbacks to be aware of such as over-reliance on technology, possibility of distraction, financial cost of smartphones, loss of flexibility, and risk of burnout. They emphasized that privacy of data and third party use of data is always a major concern with digital collection, storage and analysis of data. Self-tracking can also be a time-consuming activity for students who are learning to manage their time. Other issues to look out for are obsession with metrics, inaccurate data, and information overload.

Although self-tracking has its challenges, it is without doubt a useful tool for students to utilize as it offers several benefits for Business Education students such as improving time management, reducing procrastination, organized study plans, consistent study habits which leads to improved academic performance. Self-tracking provides insights into habits, creating self-awareness with which behavioural adjustments can be made for personal development [15]. With digital self-tracking, work overload, last-minute rush work, and stress can be avoided. Health and wellness monitoring ensure that students get regular sleep, exercise, and healthy diet plan to maintain their physical and mental well-being. Self-tracking applications can enhance focus, concentration, and mindfulness during study sessions. They can help university students become more accountable, disciplined, motivated, and organized, during habit formation. The awareness and utilization of self-tracking apps empower Business Education students to take control of their academic and personal lives by providing tools to manage time, tasks, and habits more effectively. This leads to heightened productivity in the academic performance of Business Education Students as they prioritize task, set and achieve goals.

Business Education students are those who study Business Education as a course of study in institutions of higher learning. Wogboroma [16] asserts that Business Education entails education or training in business related courses like marketing, accountancy, business administration, entrepreneurship. Okiridu and Godpower [17] view Business Education Courses as helping to build skills, knowledge, ethics, values and attitude that will aid an individual to be able to face life challenges around them and function effectively as entrepreneurs, professional teachers and function as operators in organizations such as: Accountants, Entrepreneurship, Managers, Marketers, and Secretaries etc. Business Education courses teaches students how to be disciplined, manage resources and maximize their potential, develop needed skills, improve their performance and become abreast with modern technologies. Business Education focuses on skills acquisition in different areas such as office technology and management, management information systems, management, marketing, digital marketing, entrepreneurship, cooperative studies, insurance, and accounting, among others.

There are many studies on the utilization and benefit of self-tracking applications in various areas of health care such as fitness and wellbeing, medication, sleep pattern, diet and nutrition. However not many studies are available on the utilization of self-tracking applications in the education section and certainly not amongst students of Rivers State Universities. This study seeks to fill that gap, and pave way for other studies that will explore self-tracking applications and other aspects of students' life, both as undergraduates and post graduates. There are many untapped benefits of self-tracking that would be of benefit to university students if only they are aware of them and utilize them. It is the goal of this researcher to expose Business Education students to the life changing impact of utilizing self-tracking applications.

II. STATEMENT OF PROBLEM

In today's fast-paced, digitally driven academic environment, university students are faced with increasing demands to effectively manage their time, learning activities, and personal responsibilities. Business Education students, in particular, are expected to develop not only academic competencies but also organizational, technological, and self-management skills essential for success in both school and the workplace. As a result, the ability to optimize academic productivity has become more crucial than ever.

Software programs such as Google Calendar and Google Docs can serve as self-tracking applications which Business Education students in Rivers State Universities can utilize to monitor their activities, manage their study routines, and improve learning outcomes. These tools have the potential to promote self-regulated learning, enhance time use, and foster accountability, all of which are integral to academic productivity. However, despite their growing popularity and availability, it remains uncertain how aware Business Education students are of these tools, and to what extent they actually utilize them for academic purposes.

Preliminary observations and anecdotal evidence suggest that many students either underutilize self-tracking applications or are unaware of their potential benefits. This gap raises important questions about students' exposure to and engagement with such technologies. Without sufficient awareness and meaningful utilization of self-tracking applications, students may struggle to manage academic workloads effectively, leading to poor performance, stress, and underachievement.

Therefore, the problem this study seeks to investigate is the level of awareness and extent of utilization of self-tracking applications by Business Education students in the university, and how these factors influence their academic productivity. Addressing this problem is essential for informing educational strategies that enhance students' digital self-regulation skills and overall academic success.

III. PURPOSE OF THE STUDY

The main purpose of this study is to ascertain the level of awareness of Self-tracking Applications amongst Business Education Students in Rivers State Universities and to determine the extent Self-tracking Applications are utilized in optimizing students' academic productivity. Specifically, the study sought to:

1. Determine the level of awareness of Google Calendar as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities.
2. Determine the level of awareness of Google Docs as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities.
3. Determine the extent of utilization of Google Calendar as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities.
4. Determine the extent of utilization of Google Docs as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities.

IV. RESEARCH QUESTIONS

The following research questions guided the study:

1. What is the level of awareness of Google Calendar as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities?
2. What is the level of awareness of Google Docs as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities?
3. What is the extent of utilization of Google Calendar as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities?
4. What is the extent of utilization of Google Docs as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State Universities?

V. HYPOTHESIS

The following null hypotheses was tested at 0.05 level of significance:

1. There is no significant difference in the mean ratings of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on the level of awareness of Google Calendar as a self-tracking application to optimize academic productivity.
2. There is no significant difference in the mean ratings of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on the level of awareness of Google Docs as a self-tracking application to optimize academic productivity.
3. There is no significant difference in the mean ratings of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on the extent of utilization of Google Calendar as a self-tracking application to optimize academic productivity.
4. There is no significant difference in the mean ratings of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on the extent of utilization of Google Docs as a self-tracking application to optimize academic productivity.

VI. METHODOLOGY

The study adopted a descriptive survey research design to determine the level of awareness and the extent to utilization of self-tracking applications among Business Education students in Rivers State Universities. Four research questions and four null hypotheses were formulated to guide the study. The population of the study comprised of all 505 second year Business Education students in Rivers States Universities for the 2004/2005 academic session. 86 students from Rivers State University (RSU) and 419 students from Ignatius Ajuru University of Education (IAUE). The entire population was used, meaning there was no sample or sampling technique. A questionnaire titled "Awareness and Utilization of Self-tracking Applications for Optimal Academic Productivity of Business Education Students Questionnaire" (AUSAOPBES) was used as the instrument for this research study to collect data. The instrument was rated on a

four-point rating scale: Very High Level/Extent (VHL/VHE = 4 points), High Level/Extent (HL/HE = 3 points), Moderate Level/Extent (ML/ME = 2 points) and Low Level/Extent (LL/LE = 1 point). The instrument was validated by two Business Education experts and one Measurement and Evaluation expert. Its reliability was established using the spilt-half reliability test, yielding a Spearman-Brown Coefficient of 0.93. The researchers administered 505 copies of the questionnaire and retrieved 372 copies which was used for analysis. Mean rating and Standard deviation were used to answer the research questions. Mean values between 3.50 and 4.00 indicated a Very High Level/Extent. Mean values between 2.50 and 3.49 indicated a High Level/Extent. Mean values between 1.50 and 2.49 indicated a Moderate Level/Extent while Mean value of 0.50 to 1.49 indicated Low Level/Low Extent. The null hypotheses were tested using t-test at 0.05 significance level. The decision rule was to accept the null hypotheses if the t-calculated was less than the t-critical value of 1.96, otherwise the null hypotheses is rejected.

VII. RESULTS

Research Question 1

What is the level of awareness of Google Calendar as a self-tracking application to optimize academic productivity of Business Education Students in Rivers State University (RSU) and Ignatius Ajuru University of Education (IAUE)?

Table 1: Means Responses on the Level of Awareness of Google Calendar as a Self-Tracking Application for Optimal Academic Productivity of Business Education Students in Rivers State Universities.

S/N	Item	RSU N = 74			IAUE N = 298		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
1.	I know lecture timetable, my schedule, and assignment due dates can be displayed on Google Calendar	3.04	0.99	High Level	3.25	0.86	High Level
2.	I know my study plan, group work, and reminders can be set on Google Calendar	3.20	0.89	High Level	3.11	0.87	High Level
3.	I know I can plan my personal activities using Google Calendar	2.59	1.02	High Level	3.01	0.85	High Level
4.	I know to consult Google Calendar before accepting invitations or planning more events	2.50	1.09	High Level	2.50	0.96	High Level
	Grand $\bar{x}$ & SD	**2.83**	**1.00**	**High Level**	**2.97**	**0.89**	**High Level**

Source Field Data (2025)

Data presented on Table 1 revealed that Business Education Students in Rivers State Universities are aware to a high level that Google Calendar can be utilized as a Self-tracking Application for optimal academic productivity. This is evident in the mean responses of the respondent. The items indicated mean and standard deviation values respectively as follows: awareness that Google Calendar can be used to display lecture timetable, schedule and assignment due dates. (3.04, 3.25 and 0.99, 0.86), awareness that Google Calendar can be used to plan group work with other students and set reminders for all entries. (3.20, 3.11 and 0.89, 0.87), awareness that Google Calendar can be used to plan personal activities, (2.59, 3.01 and 1.02, 0.85), awareness that they should consult their schedule on Google Calendar before planning more events or accepting new invitations. (2.50, 2.50 and 1.09, 0.96). The Grand Mean of 2.83, 2.97 and standard deviation of 1.00 and 0.89 respectively indicated that to a high level, Business Education students at Rivers State University and Ignatius Ajuru University of Education are aware that Google Calendar can be utilized as a Self-tracking Application for optimal academic productivity.

Research Question 2

What is the level of awareness of Google Docs as a self-tracking application to optimize the academic productivity of Business Education Students in Rivers State University and Ignatius Ajuru University of Education?

Table 2: Mean Responses on the Level of Awareness of Google Docs for Optimal Academic Productivity of Business Education Students in Rivers State Universities.

S/N	Item	RSU N = 74			IAUE N = 298		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
5.	I know lecture timetable, and my study plan can be displayed on Google Docs	2.87	1.10	High Level	3.07	0.90	High Level
6.	I know I can track my assignments and group work using Google Docs	2.64	1.07	High Level	2.68	0.94	High Level
7.	I know Google Docs can be used to plan personal activities	2.34	1.06	Moderate Level	2.63	0.98	High Level
8.	I know to consult Google Docs before accepting invitations or making plans	1.91	0.95	Moderate Level	2.49	1.00	Moderate Level
9.	I know to take short notes using Google Docs	3.39	0.98	High Level	3.38	0.86	High Level
	Grand $\bar{x}$ and SD	**2.63**	**1.03**	**High Level**	**2.85**	**0.94**	**High Level**

Source: Field data (2025)

Data presented on Table 2 revealed that Business Education Students in Rivers State Universities are aware to a high level that Google Docs can be utilized as a self-tracking application for optimal academic productivity. This is evident in the mean responses of the respondent. The items indicated mean and standard deviation values respectively as follows: awareness that Google Docs can be used to display lecture timetable and study plan, (2.87, 3.07 and 1.10, 0.90), awareness that Google Docs can be used to track assignments and group work (2.64, 2.68 and 1.07, 0.94), awareness that Google Docs can be used to plan personal activities (2.34, 2.63 and 1.06, 0.98), awareness that Google Docs should be consulted before accepting invitations or making more plans (1.91, 2.49 and 0.98, 0.86), awareness that Google Docs can be used to take short notes (3.39, 3.38 and 0.98, 0.86). The Grand Mean of 2.63, 2.85 and standard deviation of 1.03 and 0.94 respectively indicated that to a high level, Business Education students at Rivers State University and Ignatius Ajuru University of Education are aware that Google Docs can be utilized as a self-tracking application for optimal academic productivity.

Research Question 3

What is the extent of utilization of Google Calendar as a self-tracking application to optimize academic productivity among Business Education students in Rivers State University and Ignatius Ajuru University of Education?

Table 3: Mean Responses on the Extent of Utilization of Google Calendar as a Self-Tracking Application for Optimal Academic Productivity of Business Education Students in Rivers State Universities.

S/N	Item	RSU N = 74			IAUE N = 298		
		$\bar{x}$	SD	Remarks	$\bar{x}$	SD	Remarks
10.	I use Google Calendar to display lecture timetable and due dates for assignments	2.38	1.11	Moderate Extent	3.04	0.98	High Extent
11.	I use Google Calendar to display my study plan, schedule and group work	2.51	1.01	High Extent	2.73	0.89	High Extent
12.	I use Google Calendar to plan personal activities	1.85	0.98	Moderate Extent	2.48	0.95	Moderate Extent
13.	I consult Google Calendar before planning activities or accepting invitation	2.32	1.11	Moderate Extent	2.38	0.96	Moderate Extent
	Grand $\bar{x}$ and SD	**2.27**	**1.05**	**Moderate Extent**	**2.66**	**0.95**	**High Extent**

Source: Field data (2025)

Data presented on Table 3 revealed that Business Education Students in Rivers State University utilize to a moderate extent while those at Ignatius Ajuru University of Education utilize to a high extent Google Calendar as a Self-tracking Application for optimal academic productivity. This is evident in the mean responses of the respondent. The items indicated mean and standard deviation values respectively as follows: utilization of Google Calendar to display lecture timetable and due dates of assignments (2.38, 3.04 and 1.11, 0.98), utilization of Google Calendar to display study plan, work schedule, and group work (2.51, 2.73 and 1.01, 0.89), utilization of Google Calendar to plan personal activities (1.85, 2.48 and 0.98, 0.95), consulting Google Calendar before planning activities or accepting invitations (2.32, 2.38 and 1.11, 0.96). The Grand Mean of 2.27 and 2.66 and standard deviation of 1.05 and 0.95 respectively indicated that Business Education Students at Rivers State University utilize Google Calendar as a Self-tracking Application to a moderate extent while those at Ignatius Ajuru University of Education utilize it to a high extent for optimal academic productivity.

Research Question 4

What is the extent of utilization of Google Docs as a self-tracking application to optimize academic productivity among Business Education students in Rivers State University and Ignatius Ajuru University of Education?

Table 4: Mean Responses on the Extent of Utilization of Google Docs as a Self-Tracking Application for Optimal Academic Productivity of Business Education Students in Rivers State Universities.

S/N	Item	RSU N = 74			IAUE N = 298		
		$\bar{x}$	SD	Remarks	$\bar{x}$	SD	Remarks
14.	I use Google Docs to display my lecture timetable and my study plan	2.38	1.16	Moderate Extent	2.94	1.04	High Extent
15.	I use Google Docs to plan and track my assignments and group work	2.11	1.12	Moderate Extent	2.61	0.99	High Extent
16.	I use Google Docs to determine how much time to spend on other personal activities	1.80	1.01	Moderate Extent	2.49	1.00	Moderate Extent
17.	I consult with my plans on Google Docs before accepting invitations or planning more activities	1.76	0.87	Moderate Extent	2.34	1.05	Moderate Extent
18.	I take short notes on Google Docs	3.26	1.05	Moderate Extent	3.24	0.96	High Extent
	Grand $\bar{x}$ and SD	**2.26**	**1.30**	**Moderate Extent**	**2.72**	**1.01**	**High Extent**

Source: Field Data (2025)

Data presented on Table 4 revealed that Business Education Students in Rivers State University utilize to a moderate extent while those at Ignatius Ajuru University of Education utilize to a high extent Google Docs as a Self-tracking Application for optimal academic productivity. This is evident in the mean responses of the respondent. The items indicated mean and standard deviation values respectively as follows: utilization of Google Docs to display lecture timetable and study plan (2.38, 2.94 and 1.16, 1.04), utilization of Google Docs to plan and track assignments and group work (2.11, 2.61 and 1.12, 0.99), utilization of Google Docs to determine how much time to spend on personal activities (1.80, 1.01 and 2.49, 1.00), consulting Google Docs before accepting invitations or planning more activities (1.76, 2.34 and 0.87, 1.05), taking short notes on Google Docs (3.26, 3.24 and 1.05, 0.96). The Grand Mean of 2.26 and 2.72 and standard deviation of 1.30 and 1.01 respectively indicated that Business Education Students at Rivers State University utilize Google Docs as a Self-tracking Application to a moderate extent while those at Ignatius Ajuru University of Education utilize it to a high extent for optimal academic productivity.

VIII. HYPOTHESIS

Hypotheses 1

There is no significant difference in the mean responses of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on their level of Awareness of Google Calendar as a self-tracking application to optimize their academic productivity.

Table 5: Summary of t-test Analysis on the Mean Responses of Business Education Students in Rivers State Universities on their Level of Awareness of Google Calendar as a Self-tracking Application for Optimal Academic Productivity.

Institution	N	$\bar{x}$	SD	df	α-level	t-crit	t-cal	Decision
RSU	74	2.83	1.00					
				370	0.05	1.96	1.10	Accepted
IAUE	298	2.97	0.89					

The data in Table 5 reveals a calculated t-value of 1.10 with 370 degrees of freedom at 0.05 level of significance. Since the calculated t-value of 1.10 is less than the t-critical value of 1.96, the null hypothesis is accepted. This indicates that there is no significant difference in the mean ratings of Business Education students from Rivers State University and Ignatius Ajuru University of Education regarding the level of awareness of Google Calendar as a self-tracking application for optimal academic productivity.

Hypotheses 2

There is no significant difference in the mean responses of Business Education Students in Rivers State University and Ignatius Ajuru University of Education on their level of Awareness of Google Docs as a self-tracking application to optimize their academic productivity.

Table 6: Summary of t-test Analysis on the Mean Responses of Business Education Students in Rivers State Universities on their Level of Awareness of Google Docs as a Self-tracking Application for Optimal Academic Productivity.

Institution	N	$\bar{x}$	SD	df	α-level	t-crit	t-cal	Decision
RSU	74	2.63	1.03					
				370	0.05	1.96	1.67	Accepted
IAUE	298	2.85	0.94					

The data in Table 6 reveals a calculated t-value of 1.67 with 370 degrees of freedom at 0.05 level of significance. Since the calculated t-value of 1.67 is less than the t-critical value of 1.96, the null hypothesis is accepted. This indicates that there is no significant difference in the mean ratings of students from Rivers State University and Ignatius Ajuru University of Education regarding the level of awareness of Google Docs as a self-tracking application for optimal academic productivity.

Hypothesis 3

There is no significant difference in the mean ratings of Business Education students in Rivers State University and Ignatius Ajuru University of Education on their extent of utilization of Google Calendar as a self-tracking application to optimize their academic productivity.

Table 7: Summary of t-test Analysis of Business Education Students in Rivers State Universities on their Level of Utilization of Google Calendar as a Self-tracking Application for Optimal Academic Productivity.

Institution	N	$\bar{x}$	SD	df	α-level	t-crit	t-cal	Decision
RSU	74	2.27	1.05					
				370	0.05	1.96	3.08	Rejected
IAUE	298	2.66	0.95					

The findings presented in Table 7 indicate a calculated t-value (t-cal) of 3.08 and a critical t-value (t-crit) of 1.96 at a significance level of 0.05 and with 370 degree of freedom. It is observed that the calculated t-value is more than the critical t-value. Therefore, the null hypothesis is rejected, leading to the conclusion that there is a significant difference between Business Education students at Rivers State University and those at Ignatius Ajuru University of Education as regards their utilization of Google Calendar as a self-tracking application for optimal academic productivity.

Hypothesis 4

There is no significant difference in the mean ratings of Business Education students in Rivers State University and Ignatius Ajuru University of Education on their extent of utilization of Google Docs as a self-tracking application to optimize their academic productivity.

Table 8: Summary of t-test Analysis of Business Education Students in Rivers State Universities on their Level of Utilization of Google Docs as a self-tracking application for Optimal Academic Productivity.

Institution	N	$\bar{x}$	SD	df	α-level	t-crit	t-cal	Decision
RSU	74	2.26	1.30					
				370	0.05	1.96	2.84	Rejected
IAUE	298	2.72	1.01					

The findings presented in Table 8 indicate a calculated t-value (t-cal) of 2.84 and a critical t-value (t-crit) of 1.96 at a significance level of 0.05 and with 370 degree of freedom. It is observed that the calculated t-value is more than the critical t-value. Therefore, the null hypothesis is rejected, leading to the conclusion that there is a significant difference between Business Education students at Rivers State University and those at Ignatius Ajuru University of Education as regards their utilization of Google Docs for optimal academic productivity.

IX. DISCUSSION OF THE FINDINGS

The findings from research question one indicates that second year Business Education students at Rivers State University and Ignatius Ajuru University of Education to a high extent are aware of Google Calendar as a self-tracking application for optimal academic productivity. The results of this research are similar to that of Gegenfurtner, Schmidt-Hertha [18] who stated that self-tracking tools, particularly digital calendars, have been widely recognized as effective for fostering time management, task organization, and goal-setting behaviors among students. Google Calendar, is a widely accessible and user-friendly tool, which enables students to schedule tasks, set reminders, and allocate study periods effectively, contributing to improved academic performance and reduced procrastination [19]. The test of hypothesis one revealed that there is no significant difference in the mean ratings of students from Rivers State University and Ignatius Ajuru University of Education regarding the level of awareness of Google Calendar as a self-tracking application for optimal academic productivity.

The findings from research question two indicates that second year Business Education students at Rivers State University and Ignatius Ajuru University of Education to a high level are aware of Google Docs for optimal academic productivity. The result agrees with Hwang, Wang [20] who stated that digital tools such as Google Docs enable students to organize their work, track progress, and engage in effective time management. Given the increasing reliance on online learning and digital literacy skills, university students' awareness and adoption of Google Docs as a self-tracking tool reflect broader trends in modern higher education [21]. The test of hypothesis two revealed there is no significant difference in the mean ratings of students from Rivers State University and Ignatius Ajuru University of Education regarding the level of awareness of Google Docs for optimal academic productivity.

The findings from research question three indicates that second year Business Education students at Rivers State University and Ignatius Ajuru University of Education to a moderate extent utilize Google Calendar as a self-tracking application for optimal academic productivity. The results of this research are similar to that of Nicolas [22] whose study on online tracking tools revealed that students who actively use digital calendars tend to exhibit higher levels of self-efficacy and time-management skills, which are essential for balancing academic and extracurricular commitments. Furthermore, research by Zhu and Doo [23] highlights that university students increasingly integrate technology-driven self-management tools into their learning processes, demonstrating their awareness and preference for applications like Google Calendar. While Google Calendar offers various productivity-enhancing features, such as event scheduling, reminders, and task integration, its use among students varies depending on individual preferences, digital literacy, and the availability of alternative time-management tools [23]. Research suggests that while many university students recognize the potential benefits of digital calendar applications, only a moderate proportion actively integrate them into their daily academic routines [22]. Research by Khiat [19] indicates that students often use Google Calendar sporadically rather than systematically, which results in moderate overall adoption. The test of hypothesis three reveals that there is a

significant difference between Business Education students at Rivers State University and those at Ignatius Ajuru University of Education as regards their utilization of Google Calendar as a self-tracking application for optimal academic productivity.

The findings from research question two indicates that second year Business Education students at Rivers State University and Ignatius Ajuru University of Education to a moderate extent utilize Google Calendar as for optimal academic productivity. The results of this research are similar to that of Nicolas [22] whose study on online tracking tools revealed that students who actively use digital calendars tend to exhibit higher levels of self-efficacy and time-management skills, which are essential for balancing academic and extracurricular commitments. Furthermore, research by Zhu and Doo [23] highlights that university students increasingly integrate technology-driven self-management tools into their learning processes, demonstrating their awareness and preference for applications like Google Calendar. While Google Calendar offers various productivity-enhancing features, such as event scheduling, reminders, and task integration, its use among students varies depending on individual preferences, digital literacy, and the availability of alternative time-management tools Zhu & Doo, [23]. Research suggests that while many university students recognize the potential benefits of digital calendar applications, only a moderate proportion actively integrate them into their daily academic routines Nicolas [22]. Research by Khiat [19] indicates that students often use Google Calendar sporadically rather than systematically, which results in moderate overall adoption. The test of hypothesis two reveals that there is a significant difference between Business Education students at Rivers State University and those at Ignatius Ajuru University of Education as regards their utilization of Google Calendar as for optimal academic productivity.

X. CONCLUSION

Based on the findings of the study, it is concluded that Business Education students in Rivers State Universities are aware to a high level that Google Calendar and Google Docs can be utilized as a Self-tracking Application to optimize academic productivity. However, while Business Education students at Rivers State University utilize Google Calendar and Google Docs to a moderate extent, those at Ignatius Ajuru University of Education utilize Google Calendar and Google Docs to a high extent for academic productivity.

XI. RECOMMENDATION

Based on the findings of the study, the following recommendations are proposed:

1. Universities should foster a technology-friendly academic environment which would improve digital usage amongst undergraduates.
2. Student advisors can incorporate self-tracking applications in mentoring students on study habits, time management, and productivity.
3. Awareness campaigns can be carried out by student bodies on the benefits of self-tracking applications. These campaigns can offer technical support and training for students unfamiliar with these and other productivity tools. They can recommend free, offline or institutional-support applications.

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