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## **Methods of Checking Staff Attendance at Work in Managing Universities in Rivers State, Nigeria and Greater Accra Region, Ghana**

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### **Abstract**

*The study examines methods of checking staff attendance at work in managing universities in Rivers State, Nigeria and Greater Accra Region, Ghana. The study adopted descriptive research design. The population comprised forty-two (42) principal officers. The sample for the study was the three universities in Greater Accra Region, Ghana. 100% of the principal officers made up the sample size of 42 principal officers. The instrument for the study was a self-constructed questionnaire titled "Method of Checking Staff Attendance in University Management questionnaire (MCSAUMQ). The instrument was validated by 3 experts. Cronbach Alpha method was used to establish the reliability coefficient of 0.86 showing that the instrument was reliable for the study. Mean and percentage rank was used to answer the 1 research question while z-test was used to test the null hypothesis at 0.05 alpha level of significance. The study revealed that checking staff attendance at work is a system for recording and reporting early or late arrival of staff and ghost names thus, recommended that university administrations and policy formulators in the sector should provide biometric registration at all sectors to promote effective method of checking workers attendance to work.*

**Keywords:** Attendance, Biometric Time, Paper and Pen, Identification Card, Closed Circuit Camera.

### **Introduction**

Attendance is the act of being present or participating in a particular event, class, meeting, or activity. It is a record or measurement of individuals who are present at a specific location or event during a given period of time. Attendance is commonly used in educational settings to track students' presence in classes, lectures, or other academic activities. It is also relevant in the workplace to monitor employees' presence during working hours. In the workplace, attendance records may be used for various purposes, including payroll, performance evaluations, and compliance with company policies. Attendance is also a fundamental aspect of monitoring and managing participation in various contexts to ensure accountability and track individuals' involvement in specific activities.

Attendance is as simply showing up for work (Cambridge Business English Dictionary). Staff attendance is however, when employees are to show up for work. This is especially important

for non-exempt employees who frequently perform jobs that require a person to be there to serve customers. Over the years, taking and checking staff attendance at work has been in existence. In this millennium, checking staff attendance had been advanced and employers have developed several methods of checking staff attendance records so as to eradicate 'ghost' names from their payrolls (Nguyen, and Chew, 2019). The initial-level task of any attendance tracking and management system is to get a number of the participants entering and leaving the premises, so to get accurate real-time data on the number of attendees.

In Universities as a community, workers take it for granted of reporting to work at will. For effective job performance in universities, workers need to report to work and perform the required assignments. The universities also have some methods which they use to check-mate the workers to have staff physically present at work like the attendance register. It is important to note that universities have reached a level where proper attendance register needs to be kept. Every staff of the university needs to record time-in and time-out but not in proxy. A modern technology may be used to manage this system in the university to curtail time stealing in attendance register.

There is a multitude of possible automatic or semi-automatic techniques suitable for the task, such as various contact and non-contact optical and laser scanning (for a barcode tag, finger print, photo ID document, etc.), contact-type reading/writing (for one-wire semiconductor iButtons, magnetic strips, chip cards, etc.), infrared sensing, image processing and recognition, proximity tags/cards reading and Radio Frequency Identification (RFID), and so on. Each of them has got its own advantages and drawbacks (Khan, Masrek & Nactzar, 2021).

Time and attendance system is simple and useful way of recording the hours worked by employees as well as providing 'who is' and 'who is not' on site; hence the clock-in system. This clock system has been proven over time to be a game changer in whole educational process (Ugada, 2023). This clock-in system has a wide range of tracking workers from clock cards, swipe badges to biometric finger hand scanner. These advanced clock-in machines identify a person scanning the unique size of the hand, providing 100% effective clock-in solution. This completely eliminates the close friends' problem of colleagues clocking-in for one another.

Biometric time clocks are features of more advanced time attendance system. Using a key, code or chip can generate fraud in the system. Biometric recording attempts to cut-down on fraud such as close friends' clock-in. this helps prevent other types of fraud such as ghost-employees

where employees are not actually at work. This sophisticated system helps to monitor and analyze useful data recording staff working hours. This will help universities in the long run increase productivity as used in Nigeria and Ghana and reduce cost, other methods of checking staff attendance such as pen and paper recording, use of chip, code and swipe card can be faked or forged in any way which may render the system not to be watertight.

Laser scanning (fingerprint, barcode, ID document, etc.). The relevant technologies and systems have been well developed and widely employed, primarily in the access control, security, goods and asset tracking, sale checkpoint, etc. systems. Lately they also found their way into the conference tracking applications, (Wegleiter, 2021). The scanning tools are normally well integrated with the relevant application software run upon both mobile and desktop computer systems and devices. The relatively negative feature of the scanning based systems is the partially intruding character of the attendance registration: the delegates need to physically scan their identifiers every time they pass the entrance scanner (whether a hand-held or stationary type). In large events this could create queuing and “bottlenecks”. The above drawbacks are also true with regard to the contact-type tags, key fobs, cards, etc., for example, iButtons (Yang, and Yan, 2021) or simple magnetic and chip cards.

Biometric attendance record is the quickest and easiest to overcome attendance tracking problems, because it cannot be forged or faked. The system is as beneficial as it is; user friendly, easy to use, fast recording automatically, saves a lot of time to record detail accurately, better security, prevents time theft and saves money for the institutions. Another method of checking staff attendance is the use of paper and pen.

Paper and Pen Method of Staff attendance registration in any organization is important to ensure the continued operation. Paper and pen attendance system is use to record the present of staff to work. For any organizations, that record their attendance with large number of staff, there will be a problem as one staff can help the other staff to sign his/her attendance even though they do not go to work or either the staff is late to work. Makhura (2019) states that absence of record administration will in a way influence the conduct of the workers. It is therefore imperative for every staff to register his/her name in any record book provided by the organization. The organization has her obligation to check daily, weekly or monthly on every staff as to be abreast with time. Notwithstanding, however, pen and paper recording of attendance has its own challenges. For example, it wastes a lot of time when every staff should

wait turn by turn just to record his/her present at work not having in mind the number of hours to work per day (Nguyen & Chew, 2019).

Also, at the time natural disaster such as rain, fire may strike, all documents in the office may be destroyed, causing loss of records. There is also likelihood that the leaflet of those records may be torn away or damaged on any obvious reason either by staff or anyone. In addition, the organization may employ timekeeper to supervise the recording to avoid time-stealing by staff which is additional cost. Staff handwriting and legibility can be a setback when compiling record at the end of the week or month. This may lead to a mistake from the compiler. There may be large volume of papers to work with when using pen paper registration.

Jam, et, al., (2018) clarify that:

*The objective art automated time and attendance system is to keep track of working hours for employee pay and computation and payroll processing, avoid unauthorized overtime enforce company policies (for example; store open and closes time) and so forth. (P. 494).*

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### **Identification (ID) Cards / Swipe Cards**

Identification cards (ID) have become an essential component of facility and workplace safety. It is nearly impossible to walk into a workplace without one. Some organizations therefore used the ID card or swipe card concurrently with a clock-in / out to register the attendance of employees in the work place. This helps to remove pen and paper attendance checking to put fraud in time stealing at a very minimal level. Time and attendance are essential in any organization if that would make that organization to meet her targets.

Olayini (2018) and Akomolafe (2019) however contend that in strict sense, there is nothing to oversee in time in light of the fact that the hands of clock keep on moving outside our ability to control yet that an individual ought to choose what to do with time and how best to arrange his exercises inside time allotment. All these convey to the way the time, itself can't be changed, yet its administration require a few strategies, administrative abilities and practices with a specific and goal to accomplish foreordained authoritative and individual targets. Time administration in its current idea alludes to self-control, asset administration arranging setting objectives, appointment, and responsibility of invested energy, planning, sorting out and adjusting needs (Muhammandu, *et. al.*, 2021).

## **Biometric Method**

In biometrics, especially in information technology encompasses methods to analyze physical and behavioural identities to extract unique features for identification or monitoring purposes. Biometric methods involve the use of unique physical or behavioral characteristics to identify and verify individuals. These methods rely on the distinctiveness of certain traits to accurately authenticate a person's identity. Various physical features including faces, eyes, fingers, hand, veins, ears and teeth can be used by this technology. Biometric offers a secure method of access of sensitive services and obviates the need to carry out a token, card, or remember several passwords. The techniques also reduce the risk of lost, forgotten or copied passwords, stolen tokens of over the shoulder attacks. Most people nowadays recognize fingerprint which is widely used today in places such as air ports and the legal system, and it is built into devices such as laptops, phones. (Lim et. al., 2021).

Newman (2021) identifies biometrics as authentic and has three main advantages as low cost of deployment (cost effective), simply to implement and user must be physically available at the point of identification or verification. In any fingerprint image, there are dark lines which are called ridges, whereas the spaces in between those dark lines are called valleys. Ridges and valleys often run in parallel but there are two things that happen to any print. It is either, the ridges and the valleys terminate or they bifurcate. Termination of a fingerprint is simply the situation in which a particular ridge ends abruptly while bifurcation is the situation by which the line splits into two. In the analysis of the fingerprint images during matching (authentication), the pattern of the fingerprint exhibits one or more regions where the ridge lines assume distinctive shapes; which are: loop, delta and whorl. If the fingerprint scan matches any one stored in the database at the enrolment phase, the staff with the fingerprint will be updated as present for the lecture.

Fingerprint register perceived as introduction of security as well as trust for organizations, governments and individuals. Obviously, individual from many cultures are suspicious of being monitored by “officials organizations’ using finger print monitoring could be considered as invasion of privacy and some misconceptions exist in the general populace concerning hygiene or transfer of diseases using fingerprint devices. (Newman, 2021). Notwithstanding the above assertion, however, Cavoukian, (2018), Boatwright and Luo (2019), Newman (2021) state that fingerprint eliminates many, if not all, of the risks and major benefits of the system such as:

fingerprint features cannot be forgotten, stolen or lost, it is hard to forge or share and can be combined with token or other identification cards.

(Wang and Yongxu, 2018) posit that fingerprint recognition system scalable for adoption by different sizes of organizations from small companies to national government, so this should not be a problem. Bhargave (2021), Klokoiva (2021), Kothavale, (2019) and Zhang, (2019) stated that fingerprint recognition method with all its benefits would be ideally suited for adoption by universities to employ identification among large number of students within the school. Closed circuit camera can as well be used in the school.

Closed circuit camera otherwise known as closed circuit television (CCTV) refers to a visible video system intended only for a limited number of viewers. Closed-Circuit Camera, commonly known as a CCTV (Closed-Circuit Television) camera, is a surveillance system that uses video cameras to transmit signals to a specific set of monitors or video recorders in a confined space. Unlike broadcast television, where signals are openly transmitted, CCTV systems are "closed-circuit," meaning the video feeds are only available to a limited set of monitors or recording devices within a private network. Closed-circuit camera system include: Cameras which are the devices that capture video footage. CCTV cameras come in various types, including analogue, digital, and IP cameras. They can be fixed or have pan-tilt-zoom capabilities, and they may be designed for indoor or outdoor use. Monitors relay the video signals from the cameras which are displayed on monitors in real-time. These monitors are typically located in a central control room or security station where operators can observe the footage.

Video Recorders involve CCTV systems often include recording devices, such as DVRs (Digital Video Recorders) or NVRs (Network Video Recorders). These devices store video footage for later review or analysis. Modern systems may use digital storage media, such as hard drives or network-attached. This camera, some organization do not only use it for security, crime prevention, traffic monitoring purposes only but also for checking staff attendance at workplace. Nowadays, complete surveillance is not possible through human eyes, so therefore CCTV video security system is necessary for all business types irrespective of whether it is a small business or multinational companies in which the universities are one part of them. The use of CCTV provides unbiased method of performance evaluation and prevents the interference of a manager's feelings in an employee's review (Mishra and Crampito, 2018).

### **Statement of Problem**

Many staff in universities do not register their time-in and time-out in the attendance register. Some register in proxy which may lead to 'ghost' names on paying vouchers of many universities. The universities spend so much money providing registers in all departments but the purpose have been defeated. That is to say, staff of universities comes to work at will, leave work anytime and sometime absent from work for some days. This is thereby reducing productivity in the institutions and projecting high cost of spending in the universities. It is against these backdrops, the researchers considered some methods of checking staff attendance at work in universities in Rivers State, Nigeria and Greater Accra Region, Ghana. This will help the institutions to use the best method in checking attendance among universities staff to maximize productivity.

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### **Research Objective**

The following research objectives guided this study:

Identify the methods of checking staff attendance in university and determine the efficient methods of reducing cost and increase productivity in universities in Rivers State, Nigeria and Greater Accra Region, Ghana.

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### **Research Question**

What are the methods of checking staff attendance at work in university management in Rivers State, Nigeria and Greater Accra Region, Ghana?

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### **Hypothesis**

There is no significance mean difference between principal officers in Universities in Rivers State, Nigeria and Universities in Greater Accra Region, Ghana on method of checking of attendance at work.

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### **Methodology**

The design for the study was descriptive survey design. The population of the study comprised all the three universities in Rivers State, Nigeria (Rivers State University, University of Port Harcourt and Ignatius Ajuru University of Education) and three Universities in Greater Accra Region, Ghana, (University of Ghana, Region; Central University College, Prampram and Valley View University, Oyibi). In the Universities in Rivers State, Nigeria, there are twenty-one (21) principal officers and twenty-one (21) principal officers in Universities in Greater Accra Region, Ghana. The population therefore comprised forty-two (42) principal officers

who constituted the respondent for the study. The sample for study was the three universities in Rivers State, Nigeria and three Universities in Greater Accra Region, Ghana. Census sampling technique was used as such formed the sample size of this study. All the forty – two principal officers were taken representing 100% of the population. The researcher used questionnaire to generate information without manipulating the variables. The instruments for data collection were questionnaire titled: Method of Checking Staff Attendance in University Management Questionnaire (MCSAUMQ).

The questionnaire contains items on the variables. The research questions were patterned after the four-point modified Likert scale of Strongly Agree (SA), Agree (A) Disagree (D) and Strongly Disagree (SD) with values 4, 3, 2 and 1 respectively. The questionnaire was subjected to scrutiny by experts. The Cronbach alpha method was used to establish the reliability coefficient of the instrument which gave a reliability index of 0.86. The instruments were administered and retrieved by the researcher. The research questions were answered using mean and Standard Deviation While z-test was used to test the hypothesis at 0.05 level of significance.

## Results and Finding

### Research Question 1:

What are the methods of checking staff attendance at work in university management in Rivers State, Nigeria and Greater Accra Region, Ghana?

**Table 1: Weighted mean and rank order statistics on the methods of checking staff attendance at work in universities in Rivers State, Nigeria and Greater Accra Region, Ghana.**

S/N	Methods of Checking Staff Attendance	Mean for Principal Officers in Rivers State, Nigeria.	Rank	Mean for Principal Officers in Greater Accra Region, Ghana	Rank
1	Pen and Paper Registration	1.67	3 <sup>rd</sup>	1.48	4 <sup>th</sup>
2	By Clock-in and Clock-out	1.62	4 <sup>th</sup>	3.81	3 <sup>rd</sup>
3	By Biometric Method	1.71	1 <sup>st</sup>	3.86	1 <sup>st</sup>
4	By Closed – Circuit Camera	1.71	1 <sup>st</sup>	3.84	2 <sup>nd</sup>
	Aggregate Mena ( $\bar{x}$ )	6.71		12.63	
	Aggregate SD	1.68		3.16	



**Table 1:** Showed that items with serial number 1, 2, 3, and 4 have their various mean values below the criterion mean value of 2.50 for the principal officers in Rivers State, Nigeria. This is to say, they all disagree the methods of checking staff attendance at work. Meanwhile, biometric method and closed-circuit camera method ranked 1<sup>st</sup> with mean score of 1.71.

Paper and pen method of registering attendance ranked 3<sup>rd</sup> with mean score of 1.67 and clock-in or clock-out card ranked 4<sup>th</sup> with means score of 1.62 the principal officers in Rivers State, disagreed the methods of checking staff attendance at work, biometric and closed-circuit camera methods remained the effective methods of checking staff attendance in universities in Rivers State from the analysis.

Principal Officers in Greater Accra Region, Ghana have agreed to clock-in or clock-out card method, biometric method and closed-circuit camera method as their various mean values are above the criterion mean value of 2.50. Regrettably they disagreed with paper and pen registering method as the mean value of 1.48 is below the criterion mean value of 2.50.

The analysis can further be agreed by rating from the highest to the lowest mean scores. Biometric method to check attendance ranked 1<sup>st</sup> with a mean score of 3.86, the table revealed that using closed-circuit method ranked 2<sup>nd</sup> with mean score 3.84. Clock-in or clock-out method ranked 3<sup>rd</sup> with mean score of 3.81 and paper and pen register method ranked 4<sup>th</sup> with a mean score of 1.48.

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### Test of Hypothesis

**Table 2: z-test calculation of the mean difference between principal officers in the universities in Rivers State, Nigeria and University in Greater Accra Region, Ghana on methods of checking staff attendance at work in managing universities.**

Categories	N	$\bar{X}$	SD	df	z-cal.	z-crit.	Remark
Principal Officers in Rivers State Universities, Nigeria.	21	1.68	0.96				
				40	5.92	1.96	Rejected
Principal Officers in Greater Accra Region Universities, Ghana	21	3.16	0.61				

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**Table 2:** Revealed that principal officers in the Universities in Rivers State, Nigeria have mean and standard deviation scores of 1.68 and 0.96 respectively while principal officers in Universities in Greater Accra Region, Ghana have mean and standard deviation scores of 3.16 and 0.61 respectively. With a degree of freedom, 40 at an alpha level of 0.05, the calculated z-value of 5.92 is greater than the z-critical value of 1.96. By implication, the null hypothesis is rejected. Therefore, there is a significant difference in the means ratings of principal officers on methods of checking staff attendance at work in managing universities in Rivers State, Nigeria and Greater Accra Region, Ghana.

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## Discussions

Time management is component in managing universities by administrators. The study identified four methods to check staff attendance at work. This includes; paper and pen register, clock-in or clock-out cards, biometric and closed-circuit camera methods. The study revealed that checking staff attendance at work is a system for recording and reporting late or early arrival of staff to work, absenteeism and eradicating ‘ghost’ names from universities’ payrolls. It is cleared, that biometric method is efficient and time saving method of recording staff attendances. This study is in agreement with the study of Newman (2021) but disagree to the study of Cavoukian (2018) but this is not surprising to the researchers as principal officers in Rivers State Nigeria, Greater Accra Region Ghana agreed to the effective method of checking staff attendance at work using biometric.

The high technologies used to develop this system will provide users with rapid access to any information regarding to staff attendances. Paper and pen register may cost the organization as it has greater disadvantages over other methods mentioned in this study. The method stands at time-stealing and registering in proxy. Clock-in or clock-out method is a little advanced but has its setback. Here the cards can be given out while the staff is not at work. This is in agreement with Olaniyi (2018) as proven of the usefulness of clock-in or clock-out method eliminating pen and paper attendance check.

Ami-Narh, *et. al.*, (2021) studied the adoption of biometric fingerprint timekeeping technology in Ghanaian business community on effectiveness and impact. The study revealed that biometric timekeeping technologies are more secured than traditional timekeeping methods. It is also stated that investing in biometric timekeeping technologies is worth the cost and biometric hardware technologies are not susceptible to frequent breakdown as compared to traditional methods.

## **Conclusion**

Methods of checking staff attendance is paramount to the university managements in order to reduce waste when new technologies are used. Pen and paper are becoming outdated. The new technologies will inject new blood into the system to boost productivities and stamp out ‘ghost’ names from the paying vouchers. The findings reveal that biometric methods and closed-circuit cameras ranked highest in both regions, indicating their effectiveness in tracking staff attendance. Pen and paper registration and clock-in or clock-out cards receive lower mean scores, suggesting their inadequacies. A z-test analysis indicates a significant difference in the mean ratings of principal officers between universities in Rivers State, Nigeria, and Greater Accra Region, Ghana. This implies variations in the perception and adoption of attendance tracking methods. Paper and pen methods are deemed outdated, and the adoption of new technologies is recommended to boost productivity and eliminate time-stealing practices. The study advocates for the widespread adoption of biometric registration in universities to enhance accuracy, eradicate time-stealing, reduce record loss, and eliminate ghost names from payrolls. As such, universities should phase out the use of paper and pen registration and focus on more advanced and reliable technologies as this will streamline attendance management processes, enhance efficiency and contribute to a more productive and accountable work environment.

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## **Recommendations**

Based on the findings of this study, the researchers recommend that:

University administrators and policy formulators in the sector should endeavour to provide biometric registration at all sectors to promote effective method of checking workers attendance to work. This will help eradicate time-stealing, record loss, “ghost” names on payrolls and impersonation in the universities. Universities in both regions should consider the widespread adoption of these technologies to enhance accuracy and efficiency in attendance management.

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