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The Impact of Biometric Time and Attendance System on Workforce Management Outcomes: The Moderating Role of Managerial Commitment in the Service Sector in Northern Ghana

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Abstract: *In the advent of marauding technology, Workforce Management (WFM) has witnessed tremendous enrichments, especially, with the automation of time and attendance of employees. This is where Biometric Time and Attendance Management System (BTAMS) comes in handy. Undoubtedly, BTAMS has become an indispensable tool in managing workforce due to its perceived usefulness. Managerial Commitment (MC) also often associated with high success rate in technology adoption and indispensable in implementing any enterprise resource planning tool. This study adopted a cross-sectional descriptive survey design and collected data from 226 respondents. The analysis revealed that BTAMS has a positive relationship with workplace loafing, while having a positive significant effect on employee attendance too. Furthermore, the study found no direct significant effect on employee compensation. Interestingly, the study showed a significant moderating effect of MC on the relationship between BTAMS and employee attendance, but no significant positive relationship between BTAMS and employee compensation.*

Keywords: Biometric attendance system, Workforce management, Principal component analysis, Managerial commitment, Confirmatory factor analysis

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1. Introduction

In unending quest to finding workforce management solutions, various automated tracking technologies have been invented to ensure a more reliable employees' attendance tracking and recording (Abbasi & Bamakan, 2022). It is noteworthy that studies have been conducted on these different employees tracking technologies, including biometric-related systems that utilise human biological characteristics in configuring attendance system and identification (Bawar & Devrim, 2022). One stark finding of these research is that the old and obsolete attendance management systems as in employee logbook and manual system is not only prone to errors, it is tedious and time consuming but also susceptible to proxy, phishing and information theft and have all proven to be ineffectual (Alden et al., 2022). It is for these reasons, as argued by Aishwarya and colleagues that accurate employee tracking and authentication has become indispensable in managing employee attendance, where BTAMS comes in handy (Aishwarya et al., 2022). Biometric attendance identification is inimitable and unique to each employee, everlasting, fast and is not easily forged (Alden et al, 2022). It is a worthy alternative to the conventional attendance systems at it saves time with an average clocking duration of 3.8 seconds as against 17.8 seconds with the traditional attendance system (Badmus et al., 2021).

Owing to the perceived benefits, biometric time and attendance system has gained prominence in scholarly and workforce management cycles. As suggested, this is as a result of desperate search for Enterprise Resource Planning (ERP) solutions to managing attendance holistically at the workplace (Ian & Carry, 2019). In reality, businesses that desire robust attendance management systems adopt state-of-the-art tracking systems (Chad, 2019). These systems possess strategic significance in curbing absenteeism, reducing compensation cost as well as boosting the overall business performance. In effect, they assure of a robust attendance management solution (Chiradeep, 2019).

Prior to the advent of BTAMS, businesses and employers resorted to manual [attendance] tracking, daily head-count, employees' logbook system and paper timesheet marking. All these, including the more advanced card system were compromised and were rendered ineffective. Nonetheless, a seeming antidote has been offered in the form of an attendance system that utilises employee' biometric characteristics such as iris, fingerprints, facial recognition and voice patterns to configure, track and monitor employee attendance.

Essentially, BTAMS offers unparalleled gains in capturing accurate and reliable real time attendance data. It augurs well for timely entry and promotes change in attitude and discipline in the workforce. It helps businesses comply with the labour laws and reduces the incidence of non-compliance penalties (Chad, 2023). However, the operational niceties notwithstanding, it is contended that biometric attendance system is not entirely precise (Alden et al., 2022).

1.1 Statement of the Research Problem

Workforce management comprises of activities, processes, and tools employed to manage a company's workforce. It focuses on maximising employee returns towards organisational goals (Marija, 2019). Personnel-centric businesses could adopt more elaborate workforce and attendance management technologies as their outturns are enormously dependent on employee headcount. Companies require employee tracking systems that are robust against manipulations and abuse (Mary, 2022). As a result, there is no rebuffing for BTAMS. Isaac and colleagues postulate that in matters of workforce analysis, daily attendance tracking, keeping audit registers, computing overtime, and transposing digital data to the payroll system, BTAMS is unrivalled by any other attendance management system (Isaac et al., 2022).

Notwithstanding the much-touted efficacy of BTAMS, it is still beset with challenges. As conceded, biometric attendance systems are not without flaws. A false rejection mistake could occur dismissing a configured personality who endeavours to enter into the system or a force acknowledgement of an individual who is not actually the person it identified to be (Alden et al., 2022). Thus, the technology is therefore a double-edged sword. It could enhance or ruin the very purpose of adoption and could present dire consequences for both employees and owners of businesses (Gupta et al., 2019). For these reasons, the use of the system has ignited debate and controversy over its impact on productivity (Villaroman et al., 2018). Brent (2020 para 3) points out:

> *Time and attendance system aren't much better at accuracy. Employees forget to punch in or out and it can be excessively time consuming to always have to do so, as well as having a negative impact on employee morale. In addition, vacation days, sick time and holidays may be left unaccounted for with the system.*

Again, the system is unable to identify or detect a loafing staff (Chinedu, 2016). Indeed, the adoption and implementation of the attendance system is greeted with mixed impressions on its effectiveness in managing the workforce. Based on these scathes on the system, this research wondered whether its adoption is measured up to the gains in workforce management.

Thus far, there have been considerable studies on the system elsewhere or in Ghana [e.g. Saidur et al., (2023); Gupta et al., (2023); In Ghana , Debrah et al., 2020; Anto-Baffoe, 2017; Kommey et al., (2018) & Benjamin et al., (2018)]. These studies globally and the few in Ghana have taken the trajectory of studying the algorithms, architecture and design to the seeming neglect of its implementation and adoptive impact- the prime motivation for adopting the system.

Again, conspicuously missing in the scheme of BTAMS studies is the moderating role of managerial commitment. Luay and others posited that managerial commitment enhances the adoption and utilisation of technology. The decision of management facilitates the decisions related to the acquisition and deployment of technology. On the contrary, the lack thereof stifles the adoption process and its effective implementation (Luay et al., 2021). Managerial commitment is essential in the adoption and implementation of BTAMS. Sadly, however, this subject is inadequately explored in the scheme of BTAMS discussions, reviews and research.
However, the pervasive adoption requires extensive research situated in the context of managerial commitment as an enhancer in reaping the full benefits. This research was therefore set out to examine the impact of BTAMS on workforce management outcomes- employee time and attendance (ETA), employee compensation (EC) and workplace loafing (WPL). And further to situate the impact in the context of managerial commitment as a moderating variable.

1.2 Research /Conceptual Framework

The aim of the present research was to assess the impact of BTAMS on employee time and attendance, employee compensation and workplace loafing as outcomes of workforce management. This impact is situated in the complex web of connected variables and is clearly discernible in a depicted conceptual framework (see figure 1).

Considerable improvement in technology has enabled different shades of technology-driven attendance management systems (Krishna et al., 2019). Employee attendance system is a window that is specifically designed for organisations to enhance workforce management and help track attendance in a convenient way and consequently improve efficiency and punctuality (Olagunju, 2018). The system obliges employees to arrive early at the workplace. It prevents employees from taking long breaks and engaging in unscheduled absences (Villaroman, 2018). On employee compensation, it is claimed that a compensation scheme that is regulated by an electronic attendance offers greater influence in promoting discipline and productivity among employees (Dedi, 2020). Comparatively, the use of BTAMS in determining employee compensation has lower cost as against the conventional methods of time keeping. The adoption could save up to 2.2% gross pay that is directly linked with attendance cheating (James et al., 2014).

The primary aim of adopting the biometric attendance system is to ensure regular attendance and punctuality to enhance productivity. It helps track employees' presence or absence and contributes to effective management of working hours (Kisame, 2016). On the contrary, BTAMS is not able to identify or track idle time of employees (Chinedu, 2016). In this case, absence rates may be found to be much higher than what is actually presented by attendance registers. The proclivity for employees to engage in attitudes or behaviours that are not work-related, but counterproductive, even when they clock in and clock out, is not far-fetched. Consequently, productivity may be dented which precludes a company from enjoying sustained competitiveness. These assertions berate the ability of BTAMS to stem the tide of workplace loafing. It is therefore intriguing to investigate the effects of BTAMS on workplace loafing.

The four research variables; BTAMS (independent variable), employee time and attendance, employee compensation (dependent variables) and managerial commitment (moderating variable) were therefore conceptualised in this research. The pictorial representation which indicates the relationship between these concepts in this research is depicted in the form of a conceptual framework in Figure 1.

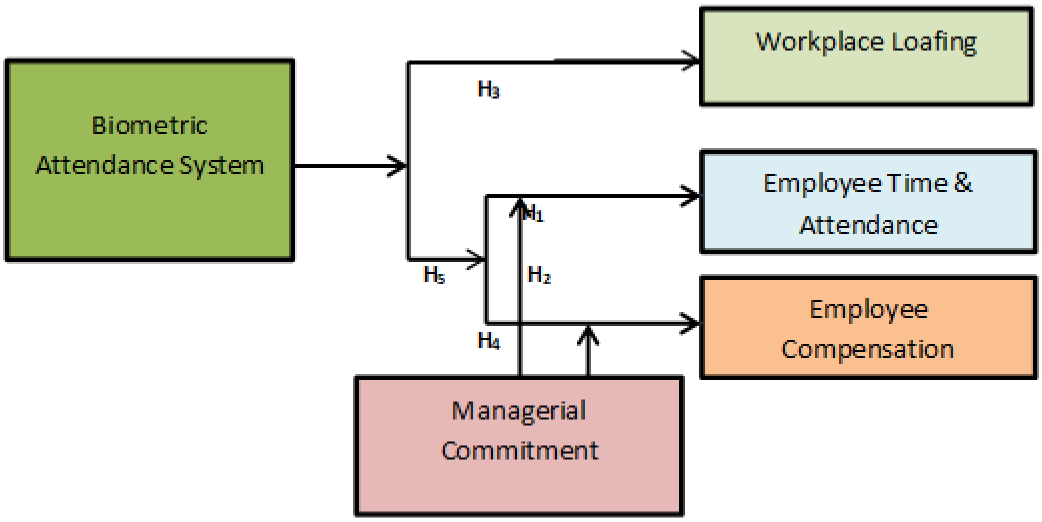

Figure 1: Conceptual Framework

1.3 Research Hypothesis

H1: Biometric time and attendance system has positive significant impact on employee time and attendance.

H2: Biometric time and attendance system has positive significant relationship with employee compensation.

H3: Biometric attendance system has a negative effect on WPL.

H4: MC has positive significant moderating effect on the impact of BTAMS on ETA.

H5: MC has a positive significant moderating effect on the relationship between BTAMS and EC.

2. Method

2.1 Design

The study stemmed from a positive paradigm with its objectivist outlook of social phenomena. With this in mind, the research adopted a quantitative approach to categorizing data. A cross-sectional descriptive survey design was also used in collecting and analysing data with a structured questionnaire being the instrument for collecting data.

Quantitative method as a strand of research aims at inferring relationship between variables by adopting mathematical, computational and statistical analytics. Data collected could be categorised and measured in terms of scales. It is only quantitative research that makes it possible to present raw data in the form of graphs for easier analysis of results (Ahmed et al., 2019). As an instrument, a questionnaire is the key tool for gathering numeric data. It enhances the collection of quantitative data in a standardized form to ensure internal consistency and coherence for analysis. Questionnaire is apparent, especially, in cases where resources are limited (Roopa & Rani, 2017). The questionnaire was designed with adopted or adapted items from previous instruments. All questions limited respondents to a fixed set of questions (Closed-ended) in a 5-point Likert scale and were pre-tested. The questionnaire was closed-ended and was administered on 226 respondents sampled randomly from the population. Notwithstanding the adoption and adaption of items in the instrument, validity and reliability of the instrument were further tested.

2.2 Research Participants

Respondents from whom data was collected for this research were eservice sector employees of both public and private organisations that utilized the biometric time and attendance in recording employee attendance. In all, data provided by 226 of such employees was analysed and test the hypotheses of this study. Typical of a skewed gender representation in formal work in Ghana, there were more male than female respondents. The demography of the sample depicted youthful respondents and a few were aging as presented in Table 1 below.

Table 1: Profile and Demographic Features of Respondents

Variable	Category	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
Age	≤ 20 Years	1	1	0.44	0.44
	21-30 Years	71	72	31.42	31.86
	31-40 Years	107	179	47.35	79.21
	41-50 Years	44	223	19.47	98.68
	> 50 Years	3	226	1.32	100
	Total	**226**	**-**	**100**	**-**
Gender	Male	151	151	66.8	66.8
	Female	75	226	33.2	100
	Total	**226**	**-**	**100**	**-**
Education	Secondary	12	12	5.3	5.3
	Tertiary (Diploma, HND Bachelors)	185	197	81.9	87.2
	Postgraduate (Masters and Above)	29	226	12.8	100
	Total	**226**	**-**	**100**	**-**
Staff	Management Level	25	25	11.0	11.0
	Senior Staff	120	145	53.2	64.2
	Junior Staff	81	226	35.8	100
	Total	**226**	**-**	**100**	**-**
Organisations	Public	132	132	58.4	58.4
	Private	94	226	41.6	100
	Total	**226**	**-**	**100**	**-**

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2.3 Instrumentation

Research instruments are various tools and techniques that are used to systematically collect measure and analyse data in research. A comprehensive grasp of quantitative research instrument is essential in promoting research, this includes theory and practice as it gives credibility, accuracy and validity to the results and findings (Jupeth, 2023). This research intended to collect and analyse the perceptions of participants on the research hypotheses from primary sources and these responses converted into numerical data in order to apply statistical tools to measure and interpret the results. As such, a survey questionnaire was chosen as the instrument for data collection. Questionnaire, according to Saul is relatively cheaper, rapid and efficient way of collecting large amount of data from a larger sample size (Saul, 2023). A questionnaire made up of closed-ended questions and consisting of questions pertaining to cost and usefulness, security of the system, ease of use, behavioural change, and accurate calculation of payroll, managerial support and provision of technical information was designed by the researcher. Items in the instrument were adopted, adapted or modify to suit the objectives of the research. However, all items in the instruments were subjected to Exploratory and Confirmatory Factor Analyses CFA) to confirm their validity as if they were all developed anew and items that loaded at least .5 were admitted into the construct. The questions were scaled where responses were graded on a continuum. Responses were graded on a 5-point Likert scale designated as (1) [SD]-Strongly Disagree, (2) [D]-Disagree, (3) [SLA]-Slightly Agree, (4) [A]-Agree and (5) [SA]-Strongly Agree.

2.4 Principal Component Analysis (PCA) of the Instrument

Validity describes the extent to which a particular instrument actually depicts real generalizable prognostic data on the basis of input features. Reliability on the other hand, measures the degree to which a research tool or technique is robust or predisposed to replication (Stefan &Michael, 2022). Data was subjected to rigorous statistical analysis using SPSS package and validity determined by exploratory and confirmatory factor analysis. Items whose factor loadings were above 0.5 (0.5≤) were considered best fit and thus admissible. Reliability of the questionnaire was measured by the Cronbach alpha (α) at the threshold score of .70 or above for admissibility in the construct. Tables 2 present the statistics on the validity of the instrument. The instruments recorded an overall Cronbach alpha (α) of .938.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.885
Bartlett's Test of Sphericity	Approx. Chi-Square	6213.411
	df	630
	Sig.	.000

2.4.1 Factor Extraction

Table 3: Summary of Factor Loadings, Communalities and Descriptive statistics

Factor		Communality after Extraction	Mean	Std Dev	Factor Loadings	Analysis N
Item		**Component One: Perceptions on Biometric Time and Attendance**				
1	BTAMS1	.664	3.5221	.94373	.487	226
2	BTAMS2	.688	3.7168	.98855	.590	226
3	BTAMS3	.743	3.6593	.93039	.615	226
4	BTAMS4	.758	3.4071	.89081	.696	226
5	BTAMS5	.788	3.5354	.89497	.609	226
6	BTAMS6	.685	3.3584	.99771	.657	226
7	BTAMS7	.729	3.4115	.81848	.653	226

Item		**Component Two: Employee Time and Attendance**				
1	ETA1	.815	3.5019	.91319	.743	226
2	ETA2	.739	3.4690	.92444	.644	226
3	ETA3	.821	3.4336	.93691	.665	226
4	ETA4	.814	3.3540	.93257	.676	226
5	ETA5	.709	3.4115	.81303	.745	226
6	ETA6	.633	3.2699	.87795	.585	226
7	ETA7	.865	3.2920	.86596	.618	226
8	ETA8	.668	3.4125	.93981	.627	226
Item		**Component Three: Workplace Loafing**				
1	WPL1	.780	3.3719	1.0035	.632	226
2	WPL2	.759	3.2832	.95656	.612	226
3	WPL3	.804	3.3451	.94064	.646	226
4	WPL4	.896	3.3142	.83452	.651	226
5	WPL5+	.715	3.4513	.9423	.661	226
Item		**Component Four: `Employee Compensation**				
1	EC1	.625	3.0619	1.03093	.764	226
2	EC2	.696	3.0310	.83475	.762	226
3	EC3	.659	3.1018	1.02558	.792	226
4	EC4	.637	2.9779	1.04751	.757	226
5	EC5	.609	2.9000	.85961	.727	226
6	EC6	.745	3.1021	.85025	.824	226
Item		**Component Five: Managerial Commitment**				
1	MC1	.695	3.5442	.86425	.618	226
2	MC2	.703	3.3894	1.02791	.703	226
3	MC3	.806	3.5531	.79962	.749	226
4	MC4	.764	3.4735	.89030	.688	226
5	MC5	.696	3.5842	.80802	.638	226
6	MC6	.863	3.340	.91817	.696	226
7	MC7	.662	3.4745	.77270	.655	226
8	MC8	.018	3.3805	.81996	.653	226
9	MC9	.701	3.7743	87811	.637	226
10	MC10	.505	3.8628	.82394	.500	226

The least number of factors to be admitted into the construct for further analysis was computed by factor loadings. Hair et al., (2018) posited that, a factor loading that is significant for a sample of 220 samples is .50. Accordingly, all items loaded at least .50 except BTAMS1 which loaded .487 was excluded. Cross loadings were however identified with some of the items. This could be remedied according to Hair et al (2018) by communality not less than .50. A check indicated that all items have at least .50 communalities. Given these values, factor analysis was satisfactory with all items admissible for confirmatory factor analysis.

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2.5 Structural Equation Modelling
Confirmatory Factor Analysis (Measurement Model)

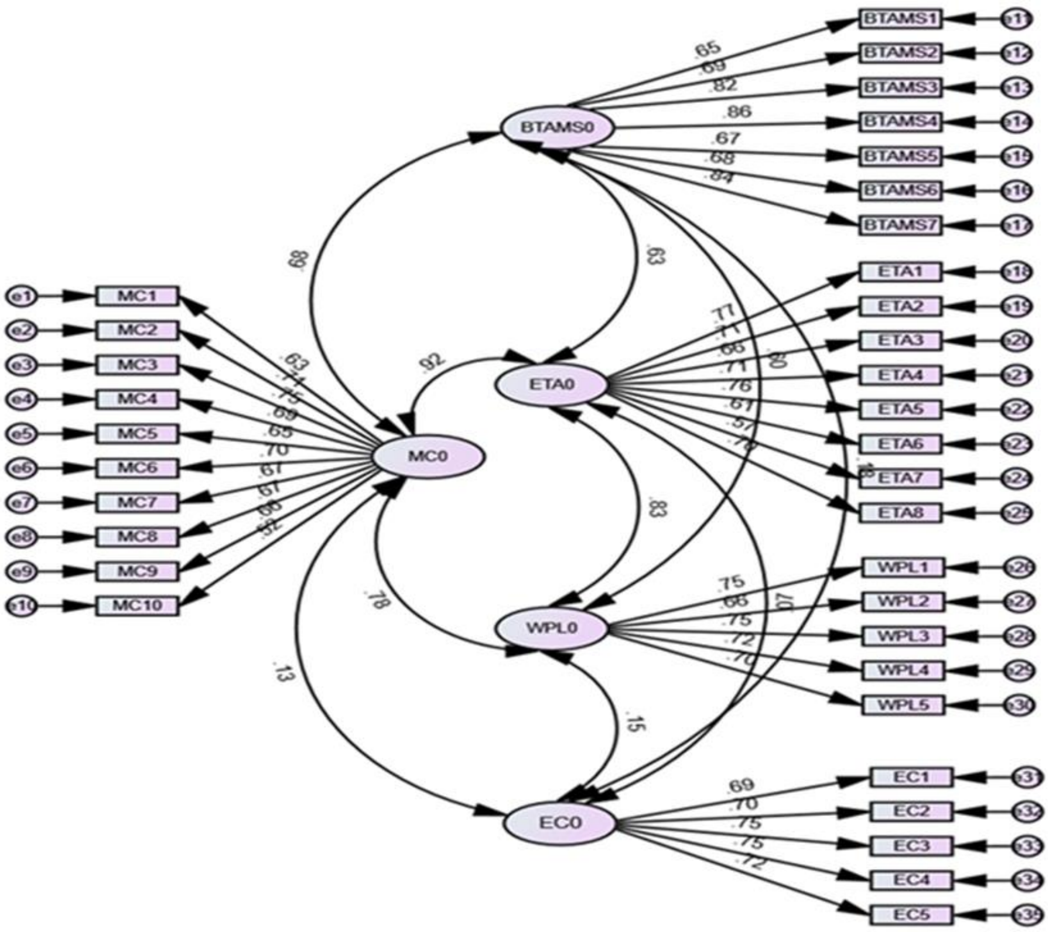

Figure 2: Confirmatory Factor Analysis Model Plots

Confirmatory Factor Analysis was conducted on the construct to determine the suitable number of factors under each component of the construct. With recourse to Hair and others' (2018) proposition, factors that loaded at least .5 were admitted whilst those with factor loadings less than .5 were eliminated from the measurement model. The Confirmatory Factor Analysis (CFA) results above presented acceptable factor loadings as each item in the construct exceeded the acceptable limit of .50. The Model Fit indices indicated a model Comparative Fit Index (CFI) of .640 and Root of Mean Square Error Approximation (RMSEA) was .129. The factor presented a chi square of 10.666, df of 9 with a p-value of .000 and Tucker Lewis index (TLI) was .611. The measurement demonstrated high level of construct validity. It presented acceptable indices under the present rule making all the factors admissible and certified the model, a good fit.

2.6 Reliability statistics, Composite reliability index (CRI), and Average variance extracted (AVE)

Cronbach's alpha was used to ascertain the reliability or internal consistency of the instrument. This is because the coefficient alpha is commonly used to estimate reliability of a composite score. The acceptable score of .70 is the threshold of any estimation and considered good. All the components of the construct recorded Cronbach's alpha values above the .70 threshold which validates the reliability of the instrument as presented in Table 3. The analysis revealed a α value of .939, which is a strong indication of internal consistency of the items (Nunnaly, 1978; Sekaran & Bougie, 2016).

Furthermore, the AVE analysis of factors confirmed through CFA analysis revealed an adequate estimation of AVE for factors (BTAMSO .56, ETAO .49, WPLO .51, ECO .46, and MCO .44 respectively). The estimates (.51 through .56) had fulfilled the recommended value of AVE (Fornell & Larcker, 1981) and therefore confirmed the construct validity of the confirmed factors. Though estimates (.49 through .46) fell a bit apart from the recommended cutff point (.50), yet they were very close to the recommended ratio. These findings demonstrate evidence of convergent validity for the scales.

Interestingly, the construct reliability of the scales was further evaluated through the application of CRI method. Results of CRI revealed substantial evidence of construct validity (BTAMSO .89, ETAO .88, WPLO .84, ECO .77, and MCO .89 respectively). These results fulfilled Hair et al.'s (2018) guidelines where CRI .70 percent or greater is recommended. Tables 4 and 5 shows the details.

Table 4: Reliability and Scale Statistics

Cronbach's Alpha	Cronbach's Alpha based on Standardized Items	Mean	Variance	Std Deviation	N of Items
.938	.939	118.6212	322.918	17.96979	35

Table 5: Construct Reliability and Validity of the Scales

Variable	No of Items in Construct	Cronbach's Alpha (α)	AVE	CRI
Biometric Time and Attendance (BTAMSO)	6	.885	.56	.89
Employee Time and Attendance (ETAO)	8	.874	.49	.88
Workplace Loafing (WPLO)	5	.840	.51	.84
Employee Compensation (ECO)	6	.877	.46	.77
Managerial Commitment (MCO)	10	.889	.44	.88

Note: [1]Composite reliability Index formula = $(\Sigma\ factor\ loadingd)^2 / (\Sigma\ factor\ loadingd)^2 + \Sigma\ \varepsilon\ j$.
[2]Average Variance Extracted (AVE) formula = $(\Sigma\ factor\ loadingd)^2 / (\Sigma\ 1\text{-}\ factor\ loadingd)^2 + \Sigma\ \varepsilon\ j$.

3. Testing of Hypotheses/Discussion of Findings

The overall objective of the research was to describe as well as test hypotheses and draw conclusions about relationship between the variables. Therefore, both descriptive and inferential statistics were used. Correlation analysis was done to estimate the relationship between the variables. Regression analysis was also done to test the hypotheses. The research sought varied perceptions, attitudes and practices in the implementation of BTAMS and thus sampled respondents from both the public and private sector organisations. From table 4.0, it is evident that 132 (58.4%) respondents were drawn from the public sector and 94 (41.6%) were from the private sector.

Testing of hypothesis was done through regression analysis. Regression analysis is a statistical technique used in estimating the degree of relationship between the dependent variable and one or more independent variables. It could be used to estimate the present relationship and predict changes in the relationship in the future. Both simple linear and multiple linear regressions models were adopted in this research, with the technique being Pearson's regression module. This was as a result of the linear nature of the variables. **Simple Linear model » WMOs =** $a + bX_1 + e$ **& Multiple linear model » WMOs =** $a + bX_1 + c(X_1 * X_2) + e$**.** The regression statistics of the study demonstrated in the Table 6 below:

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Table 6: Regression Analysis Statistics

Regression	*βeta*	*R*	R^2	*df*	*P-value*
ETA««BTAMS	.559	.559	.312	1	.000
EC««BTAMS	.155	.155	.024	1	.120
WPL««BTAMS	.530	.530	.281	1	.000
ETA««BTAMS_x_MC	.728	.728	.529	1	.000
EC««BTAMS_x_MC	.154	.154	.024	1	.201

A regression model generated by SPSS was used to test the hypotheses in the research. The study measured the impact of BTAMS on workforce management outcomes such as, ETA, EC and WPL. It also tested the moderating effect of MC on ETA and EC.

H1 investigated whether BTAMS has a positive significant impact on ETA. Hence, EC was regressed against BTAMS. The model statistics rejected the null hypothesis in favour of the alternative hypothesis as it presented a beta value of .155, R2 =.312 and the critical value of .000. This means that a significant (.000) value of 31.2% of changes in ETA is attributable to proportionate changes in BTAMS. The hypothesis is thus supported. It could therefore be deduced that intensified implementation of the system can improve positively employee attendance. This finding dovetails into earlier findings by Verma et al., (2016), Olagunju (2018) and Ali et al., (2018) which established significant relationship between BTAMS and ETA and concluded that BTAMS helps improve employee attendance.

H2 evaluated and tested the hypothesis that BTAMS has a positive significant effect on EC. Regression statistics, however, did not reveal any statistical significance given (p=.120, R=.155, R2=.024 & β=.155). The results from the regression indicated that, a paltry 2.4% of changes in compensation could be explained by BTAMS. Though, BTAMS has a positive effect on EC, the effect is insignificant. H2 is therefore rejected. Invariably, BTAMS relevance to EC is negligible. Hence, BTAMS is rarely considered in compensation decisions. This corroborates Kisame's (2016) assertion that BTAMS has no significant effect on EC and thus, it is less reliable in determining compensation or payroll computation. But however, contravenes Akhil et al., (2022) finding that salaries of late employees are deducted by the system. The finding of Akhil et al. (2022) is similar to an earlier finding by Dedi (2020) that compensation was calculated based on the attendance system, the higher the number of days the bigger pay obtained.

H3 sought to investigate the negative effect of BTAMS on WPL as proposed in the research. In this case, WPL was regressed against the predictor variable-BTAMS, whose outcome was statistically positive and significant given the βeta value of .530 with the level of significance being .000, R-squared was .281. This statistical illustration showed that 28.1% change in WPL is as a result of BTAMS. In a nutshell, the positive hypothesis was thus supported. WPL is positively affected by BTAMS which in itself is undesirable as BTAMS encourages WPL. The implication of this outcome is that even if employees' clock in or out, they are not likely to be found on the job as the relationship between BTAMS and WPL is positively significant. Alternatively, for BTAMS to have desirable effect on WPL it should relate negatively with it. Ideally, when workers clock in, they are expected to stay through the working day to accomplish assigned tasks. This finding dovetails into an earlier assertion by Chinedu (2016) that biometric attendance system cannot monitor idling employees and that human supervision is crucial in the implementation of the system. It means that employees may clock in or out but are not found on the job or run private errands and engage in activities that could be described as non-work related. This finding also berates the finding of Dedi (2020) that the attendance system help instill discipline among employees. At best, it can only instill the discipline of being present at work but out of it.

H4 determined the moderating role of MC on the impact of BTAMS and ETA. Thus, an interaction effect was created into the relationship between BTAMS and ETA. Obviously, this model presented positive statistically significant moderating effect, given (βeta =.728, R=.728, R2=.529 & P-value =.000). As shown, the statistics demonstrated that a significant 52.9% of change in ETA is as a result of the multiplying effect of BTAMS and MC. The regression statistics supported the alternative hypothesis. The research found managerial commitment as playing a positive significant moderating role on the impact of BTAMS on employee time and attendance. This means, a reinvigorated managerial commitment on the implementation of the biometric time and attendance can lead to the full realization of the employee regularity and punctuality, the foremost reason for the adoption of BTAMS. This finding bear some semblance with an earlier finding by Odero and Ndolo (2019), who identified managerial commitment as a linchpin in the adoption of new electronic system and vital to its effective implementation.

H5 regression analysis sought to compute the moderating effect of MC on the relationship between BTAMS and EC. Analogously, regression statistics illustrated insignificant positive moderating effect on the relationship between BTAMS and EC (Beta=.154, R=.154, R2=.024 & p-value =.201). In essence, the result revealed a marginal influence of the combined effect of BTAMS and MC on the effects of BTAMS on EC as they could cause only 2.40% of the change in EC, suffice it to conclude that the alternative hypothesis to this model was not supported. The implication is that MC has no significant moderating effect on the relationship between BTAMS and EC. This finding could be novel and offers a new dimension to BTAMS discourse. It could therefore be argued that management is not concerned with activating the compensation component of BTAMS. This, if not done could make the operationalisation of the system incomplete.

4. Limitation and Suggestions for Further Research

Despite the insightful findings of this research, the research concentrated on the service sector in the northern part of Ghana as a study setting or source of data. This could have limited the population of users of the biometric time and attendance system and could present a skewed view of its impact. Based on the limitation of this research, a broader study is therefore suggested to include all the sectors of the Ghanaian economy such as manufacturing and/or a comparative study that juxtaposes the implementation practices of BTAMS in the public and private sector perspectives.

5. Conclusion

This study was undertaken to examine the impact of biometric time and attendance management system on selected workforce management outcomes, thus, employee time and attendance, workplace loafing and employee compensation, with the moderating effect of managerial commitment on the relationship between BTAMS, ETA and EC. The results indicated that BTAMS diminishes absenteeism and improve attendance of employees and with reinvigorated implementation absenteeism could steadily be eliminated. The effect of BTAMS on employee compensation was not felt as the system was rarely consulted in determining employee compensation. Curiously, the attendance rather encourages workplace loafing as

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emphasis is just clocking in/out without ensuring employee presence at the workplace throughout the working day. Employees could clock in and disappear or engage in counterproductive work behaviours that could hamper the day's productivity. Again, managerial commitment was seen on improving attendance with the system and could be the basis for improved attendance. This was in sharp contrast with the commitment to ensuring that employee compensation was determined by the estimation of the attendance system and or is rarely consulted or triggered in determining employees' pay.

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