# Modeling Green Computing Readiness and Acceptance for Environmental Sustainability in Higher institution of Learning in North-Eastern Nigeria

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## Abstract

*This research was conducted to model factors that can influence student readiness towards adoption of green computing practice in institution of higher learning in North-Eastern Nigerian. The study integrated constructs from two theories, theory of planned behavior and norms activation theories to examine adoption of green computing practice. The study employed quantitative research approach through cross sectional data collection. Over five hundred students from universities in North Eastern Nigeria were involved in the study. The data collected for the study were analysed using AMOS statistical package. The model of the study was fitted and the findings revealed that endogenous variables awareness of consequences, collectively determine student readiness, attitude and ascription of responsibilities resulting in $R^2$ of 0.67, which mean, awareness of consequences can explain 67% of variance of readiness, attitude and ascription of responsibilities. Also, ascription of responsibilities can determine student readiness, attitude and subjective norm resulting to $R^2$ of (0.47), which mean ascription of responsibilities can also explained 47% of the variance of readiness, attitude and student subjective norm. In the same vein, subjective norm can determine student readiness and attitude toward GC resulting to $R^2$ of (0.61) that is subjective norm can explain 61% variance of the variable of readiness and attitude toward GC adoption by the students. The findings established the importance of awareness of consequences; ascription of responsibilities and subjective norm as determinant of pro-environmental behavior among students. The study highlighted strategies that can increase student adoption of green computing practice.*

**Keywords:** Green Computing; Theory of Planned Behavior; Norm Activation Theory; Student Attitude and Readiness

## Introduction

Green computing is an evolving concept that addresses the escalating environmental concerns associated with information and communication technology (ICT). The term was first introduced in the early 1990s and has since become a critical focus in the IT industry due to increasing awareness of sustainability (Paul, *et al*., 2023). Green computing encompasses the environmentally responsible design, development, utilization, and disposal of computing systems, aiming to minimize their carbon footprint without compromising performance (Sikder, Ahmed & Islam, 2023). Also known as Green IT, this approach extends to sustainable cloud computing practices, where optimized resource utilization, reduced hardware dependency, and energy-efficient operations contribute to both cost savings and environmental protection. Goel, Masurkar *et al*. (2024) posited that as digital transformation accelerates, green computing plays a pivotal role in mitigating the ecological impact of data centers, electronic waste, and energy-intensive computing processes.

Green computing fundamentally differs from traditional IT systems in its objectives and environmental impact. While traditional IT prioritizes performance and functionality, often relying on energy-intensive hardware, high power consumption, and generating substantial e-waste, green computing emphasizes sustainability through energy-efficient hardware, reduced power usage, and minimal e-waste (Shrotriya, *et al*, 2024). Unlike conventional systems dependent on fossil fuels, green computing integrates renewable energy sources, significantly lowering carbon emissions and promoting circular economy principles in electronics. The environmental benefits of green computing include reduced carbon footprints, decreased electronic waste, and greater reliance on clean energy advantages that also translate into organizational cost savings, improved energy efficiency, and stronger corporate social responsibility (CSR) profiles. Conversely failing to adopt green computing, we led to exacerbating climate change, through higher emissions, unchecked e-waste and environmental harm, alongside financial penalties, regulatory non-compliance, and reputational damage for organizations (Maimba, 2019). The urgency of green computing is underscored by ICT's expanding role in healthcare, finance, education, and manufacturing sectors where digitalization drives rising energy demand.

Green computing encompasses two primary strategies: energy efficiency and electronic waste management (e-waste). Energy efficiency focuses on minimizing resource consumption across CPUs, servers, and peripherals, while e-waste management addresses the sustainable disposal and recycling of obsolete electronics (Agarwal & Nath, 2011). Given the increasing complexity of modern technology spanning diverse hardware, intricate systems, networks, and human interaction green computing initiatives must adopt a holistic approach, covering every stage from product conception to disposal. Pazienza, *et al*., (2024) asserted four key techniques for achieving a sustainable computing environment: The technique includes; Green usage: Reducing energy consumption in computers and peripherals while promoting eco-friendly usage patterns; Green disposal: repurposing outdated technology or ensuring proper recycling of electronic waste to minimize environmental harm; Green design: developing energy-efficient devices, such as servers, printers, and projectors, with sustainability as a core principle; Green manufacturing: Selecting environmentally friendly materials from the outset and avoiding hazardous substances to reduce the ecological impact of discarded equipment.

These strategies collectively contribute to a more sustainable computing ecosystem while addressing economic and regulatory demands. Green computing aims to minimize the environmental impact of information technology through sustainable practices (Shittu *et al* 2016). Several determinants influence its adoption, shaping organizational policies, technological choices, and industry trends. Green computing norm continue to be an issue of concern in the recent time this explain why several researchers has develop model to explain this important issue in human computing history. Theory and models are tested through research from several societies and populations; the outcome of these findings from different studies seems inconclusive because most of these findings cannot be extrapolated beyond the sample of a specific population. Hence the imperativeness of exploring further research on understanding psychological perspective of users from different cultural context. This present study is hinged on two theories which are; Theory of Planned Behaviour (TPB) and Norms Activation Theory respectively.

**Theory of Planned Behaviour (TPB)**

The theory of planned behaviour is one of the most commonly applied theoretical frameworks for predicting and understanding human behaviour. It evolved from the earlier theory of reasoned

action (Ajzen, 2011). TPB was proposed by Ajzen (1985) and further developed and supported by empirical evidence by Ajzen (1991). TPB was proposed to explain human behaviour and has been extended to numerous important fields including sociology, psychology, health, sports and university education. The Theory of Planned Behaviour argues that human action is guided by three kinds of beliefs: behavioural beliefs, normative beliefs, and control beliefs. A behavioural belief, an individual's belief about the results of behaviour, creates the individual's attitude toward the behaviour. Normative belief, which refers to an individual's perception of how a behaviour will be judged by significant others, produces a subjective norm. Control belief refers to an individual's perceptions of the control he or she has over the behaviour, which is connected to perceived behavioural control. This perception of control is related to factors that may facilitate or impede performance of the behaviour and whether the individual perceives the behaviour as easy or difficult to perform (Ajzen, 1991).

Studies on the application of the Theory of Planned Behaviour (TPB) in understanding green computing practices have been severally conducted such as that of Taufiq-Hail, Ibrahim and Yusuf (2017) on SAAS cloud computing as a means of green IT acceptance model: a theory of planned behaviour model at Malaysian public universities' context which found that attitude and perceived behaviour control are significant predictors of behaviour intention, while subjective norms is not. Further, behaviour intention emerged to be a strong predictor of Accepting and Using SaaS Cloud Computing services as a means of Green IT. This aligns with findings from Guchacha (2019) in South Eastern Kenya University, where cloud technologies have greatly transformed service delivery in academic libraries and in addition has led to introduction of new services. Use of cloud computing in libraries has tremendous benefits to users as it enables access of services anywhere and anytime, although there are challenges related to inadequate computing facilities.

.**Norms Activation Theory**

The Norm Activation Model (NAM), initially developed by Schwartz (1977), remains a prominent framework for understanding the drivers of altruistic and pro-environmental behaviours. Pro-environmental behaviour is often conceptualized as a form of pro-social behaviour, as it benefits others by mitigating harmful impacts on shared natural systems (Truelove, et al., 2014). Within NAM, behavioural intentions are shaped by personal norms

(PN), which are themselves influenced by awareness of consequences (AC) and ascription of responsibility (AR). According to NAM, pro-environmental behaviour begins with an individual's recognition of the negative consequences of their actions (AC), followed by a sense of responsibility (AR) for those consequences, ultimately leading to the activation of personal norms (PN) and subsequent behavioural intentions. PN, considered the most critical predictor in NAM, reflects a moral obligation to engage in (or refrain from) specific actions (Han, 2014). AC triggers PN by making individuals aware of their impact on others, while AR reinforces this process by instilling a sense of accountability. This simply means that when individuals perceive adverse effects of their behaviour (AC) and accept responsibility (AR), they are more likely to develop strong PN, directly influencing their intentions.

Despite NAM been widely applied in pro-environmental behavioural research, and other fields, there are persistent debates regarding the relationships and sequencing of NAM variables. The traditional NAM framework posits a linear progression (AC → AR → PN → intention), supported by empirical evidence while an alternative perspective suggests that AC and AR may directly influence PN, which then drives intentions (Fan, *et al*., 2025). Another view proposes that AC and AR moderate the relationship between PN and intention, with PN exerting a stronger effect when AC and AR are high. Despite, studies have applied the Norm Activation Model (NAM) to examine pro-environmental behaviours, including green computing practices, with findings supporting its relevance in educational settings. For instance, a study by Riaz and Awais (2024) on pro-environmental behaviour toward solar energy using norm activation model and social influence found that all proposed hypothesis are accepted except one. The hypothesis of mediation impact of social norm between AC and peoples intention to recommend solar energy was not supported in this study.

Taken together, the Theory of Planned Behaviour (TPB) and Norm Activation Model (NAM) are relevant to this study because they collectively explain the psychological, social, and moral drivers of green computing adoption. TPB predicts behaviour through attitudes, social norms, and perceived control, while NAM emphasizes moral obligation (personal norms) triggered by environmental awareness and responsibility. Empirical studies confirm their applicability in sustainable IT contexts, making them ideal for analyzing green computing practices among

Nigerian students and lecturers, where both practical barriers (TPB) and ethical motivations (NAM) influence behaviour.

**Objectives of the Study**

The major focus of this study is to test a model through the lenses of norm activation theory and theory of planned behavior in order to provide explanatory reason for acceptance or rejection of green computing practice in the setting of this study. Based on these objectives, the following framework below is developed and tested for the study.

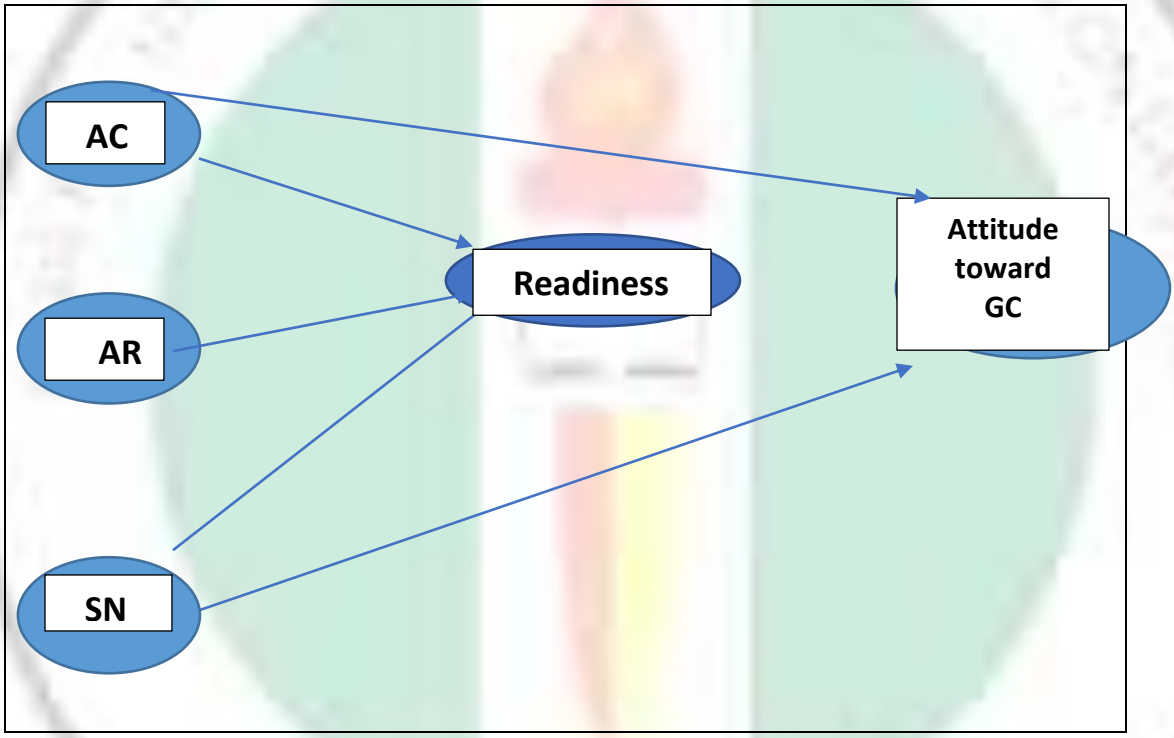


Figure 1: Theoretical framework of the study based on TPB and NAT

*Keys: Awareness of Consequence (AC); Ascription of Responsibility (AR); Subjective Norm (SN); Readiness toward Green Computing (RTC); Attitude Towards Green Computing*

**Literature Review and Research Hypotheses**

Based on the hypothesized model of the study as shown in figure (1) above, the following literature are reviewed.

**Awareness of Consequences on Student Readiness, and Attitude toward Green Computing**

In recent studies, the awareness of consequences and the ascription of responsibilities in relation to green computing are key factors influencing student readiness to adopt sustainable technology practices. For example, a study on students' intention toward AI-driven green entrepreneurship indicates that pro-environmental personal norms, alongside subjective norms, significantly influence students' readiness to engage in green practices (Zhang & Jiang, 2025).Similarly, in another research that explored the influence of subjective norms and ascription of responsibility in the context of green computing in Sri Lankan universities. The study found that subjective norms and ascription of responsibility were pivotal in shaping students' behavioral intentions toward green computing, although attitudes did not significantly impact these intentions (Loo, *et al.* 2023; Halgahagama & Kavirathna, 2023).Moreover, other studies have focused on the role of subjective norms in shaping habits and intentions in relation to green computing practice. A comprehensive study integrating the Theory of Planned Behavior and Value-Belief-Norm Theory by (WH Loo *et al*., 2023) found that subjective norms and personal responsibility significantly influenced the responsible acquisition of computers, which is integral to sustainable computing practices. The ascription of responsibility, particularly in the context of green IT adoption, is another critical factor. Research indicates that individuals who perceive a greater sense of responsibility toward green computing are more likely to engage in sustainable practices (Asadi & Hussin, 2018).. Based on literature review, this study postulated as follows:

i. Awareness of consequences would significantly influence students attitude toward green computing
ii. Awareness of consequences would significantly influence students readiness toward green computing
iii. Awareness of consequences would significantly influence students subjective norms toward green computing
iv. Awareness of consequences would significantly influence ascription responsibility toward green computing

**Subjective Norms on Students Attitude and Readiness towards Green Computing Practice**

Zhang and Jiang (2025) explore how pro-environmental personal norms (EPNs) and subjective norms (SNs) shape students' green entrepreneurial intentions in higher education settings. Their findings suggest that subjective norms, alongside personal beliefs, play a crucial role in

influencing students' readiness to engage in green computing practice. Also, Kasemwattanasuk (2025) discusses the influence of subjective norms and perceived behavioral control (PBC) on students' behavioral intention toward green entrepreneurship. The study shows that subjective norms significantly affect students' acceptance and readiness to adopt green computing. Normalini, *et al* (2024**),** focus on the adoption of mobile learning technologies during the pandemic and their impact on students' readiness to embrace sustainable practices. Their findings reveal that subjective norms, together with attitude, account for a substantial portion of the variance in students' intentions toward green practices Halgahagama and Kavirathna (2023) investigate factors influencing students' behavioral intention toward green computing practices in Sri Lankan universities. The study shows that subjective norms, along with attitudes, significantly shape students' readiness to engage in environmentally sustainable computing practices. Nash and Wakefield (2022) explore the role of identity in shaping attitudes and intentions toward green IT. Their research highlights that subjective norms are integral to forming students' readiness and attitudes toward adopting green IT solutions. Ojo, *et al* (2019) examines the relationship between green IT attitudes and behavioral change among Malaysian IT professionals. The study finds that subjective norms, along with other factors, significantly influence students' engagement in green computing behaviors. It is therefore postulated as follows that:

v: Subjective norms would significantly influence student attitude towards green computing practice

vi: Subjective norms would significantly influence student readiness towards green computing practice

**Ascription of Responsibilities on Student Attitude, Subjective Norms and Readiness towards green computing**

In a study conducted by Fauzi, *et al* (2022) on the ascription of responsibility in the context of sustainable tourism, the findings showed that students' sense of responsibility, coupled with subjective norms, significantly influences their intention to adopt green practices. Their research underscores the importance of personal accountability in promoting environmentally responsible behaviors Similarly, Loo, *et al* (2023) examines the antecedents of responsible computer acquisition behavior, integrating subjective norms and personal responsibility. The study shows

that students' ascription of responsibility to environmental issues is crucial in shaping their behavior toward green computing practices, even when such behaviors are not socially widespread. Also, Halgahagama and Kavirathna (2023) focus on the role of ascription of responsibility in students' readiness to adopt green computing in Sri Lankan universities. They found that responsibility toward environmental impact significantly influences students' behavioral intentions to engage in sustainable computing practices, alongside subjective norms and attitudes. The study of Greisel,, *et al* (2023) explore the role of subjective norms and personal responsibility in pre-service teachers' readiness to incorporate scientific theories in their teaching practices. The study highlights that a strong sense of responsibility, influenced by social and subjective norms, is essential in facilitating students' engagement in green practices, including green computing behaviors. To this end, this study postulated that:

vii: Ascription of responsibility would significantly influence student attitude toward green computing

viii: Ascription of responsibility would significantly influence student readiness toward green computing

ix: Ascription of responsibility would significantly influence student subjective norms toward green computing

**Methodology**

**Participants**

The participants of the study comprises of undergraduate students in higher institution of learning in some selected universities in North-Eastern Nigeria. These universities are Modibo Adamawa University, Yola; Federal University of Kashere, Gombe; Abubakar Tafawa Balewa University, Bauchi; and Northeast University Gombe. The total number of students was (589), out which 350 representing 59.3% were male, while 239 representing 40.9% were female respectively. Also, 454 representing 77% were drawn from public University, while 136 representing 22.9% were drawn from private university for the study.

**Instrument of the Study**

The instrument used for gathering the data of the study was a survey questionnaire. The instrument comprises of two sections. The first section was the demography part, while the second section comprises of items part. The factors of interest in the study consist of variables

from norm activation theory (NAT) and Theory of Planned Behaviour (TPB), which include; (Ascription of Responsibility; Awareness of Consequence; Subjective Norm, Attitude and Readiness to accept green computing practice) The questionnaire of the study consisted of 35 items, with (7) items for measuring awareness of consequence; (7) items for measuring ascription of responsibility; (7) items for measuring attitude; (7) items for measuring subjective norm and (7) items for measuring readiness to accept green computing practice. Five points likert scale was adopted for the instrument. The reliability of each of the construct was computed. The reliability computed using Cronbach Alpha value with coefficients of each construct are: Ascription of responsibility was (.89); Awareness of consequence was (.88); Attitude was (.90); Subjective norm was (.89) and Readiness was (.86).

**Table 1: Summary of all the Construct of the Study**

| Construct | Items | Factor Loading | Cronbach Alpha | CR | AVE |
|---|---|---|---|---|---|
| **Awareness of Consequences** | AC1 | .714 | | | |
| | AC2 | .712 | .88 | .89 | 0.67 |
| | AC3 | .733 | | | |
| | AC4 | .682 | | | |
| | AC5 | .756 | | | |
| | AC6 | .668 | | | |
| | AC7 | .720 | | | |
| Ascription of Responsibility | AR1 | .712 | | | |
| | AR2 | .704 | | | |
| | AR3 | .682 | .89 | .90 | 0..80 |
| | AR4 | .671 | | | |
| | AR5 | .741 | | | |
| | AR6 | .691 | | | |
| | AR7 | .695 | | | |
| **Subjective Norm** | SN1 | .692 | | | |
| | SN2 | .666 | | | |
| | SN3 | .704 | .89 | .91 | 0.81 |
| | SN4 | .712 | | | |
| | SN5 | .702 | | | |
| | SN6 | .711 | | | |
| | SN7 | .732 | | | |
| **Attitude** | ATT1 | .721 | . | | |
| | ATT2 | .734 | | | |
| | ATT3 | ..700 | 90 | .91 | 0.82 |
| | ATT4 | .738 | | | |
| | ATT5 | .716 | | | |
| | ATT6 | .702 | | | |
| | ATT7 | .706 | | | |
| **Readiness** | RD1 | .678 | | | |
| | RD2 | .700 | | | |
| | RD3 | .729 | .86 | .88 | 0.65 |
| | RD4 | .716 | | | |
| | RD5 | .713 | | | |
| | RD6 | .699 | | | |
| | RD7 | .715 | | | |

**Table 2: Discriminant Validity**

| Construct | AWARECON | ASCROFRES | ATTITUDE | SUBJNORM | READNS |
|---|---|---|---|---|---|
| **Awarecon** | **0.67** | | | | |
| **AscripCons** | .532 | **0.80** | | | |
| **Attitude** | ,523 | .526 | **0.81** | | |
| **Subjnorm** | .509 | .561 | .561 | **0.82** | |
| **Readiness** | .476 | .466 | .491 | .481 | **0.65** |

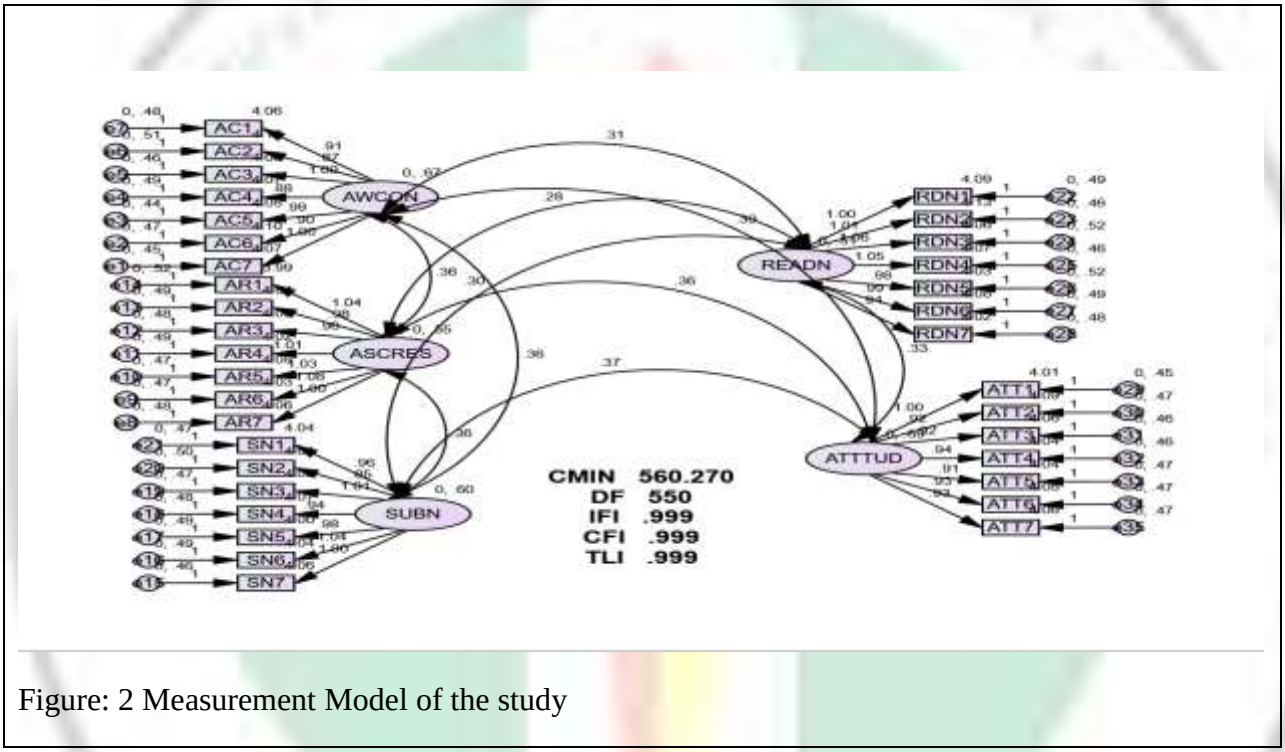


Figure: 2 Measurement Model of the study

**Confirmatory Factor Analysis**

According to Heir *et a*l (2010) and Teo (2011) confirmatory factor analysis (CFA) is an impotent analysis in model development. In this study, CFA was conducted to examine the pattern of interrelatedness of the observed variable of the study. This is crucial for testing the propose relationship of the variable prior to fitting of the model. Another important of CFA is to check for misspecification. In this study CFA was computed. To check the CFA, multiple statistical model fit was used. According to Hu and Bentler (1999), Teo (2011) in other to check CFA, multiple statistical model fit are required to be examined to determine the appropriateness of CFA computed. Some of the suggested indices are Chi-square test, since Chi-square is sensitive to sample size, other indices to check include the Chi-square normalized by degree of freedom

(x/df) is also important but in this study, the sample used was over five hundred in number which is a little bit high. Also, other fit indices suggested by Hair et al (2019) that was used is one incremental index and one absolute index was computed as part of the fit indices for CFA.

Furthermore, RMSEA was selected because it provide consistent result. Other fit indices are CFI, IFI, TLI respectively. According to Hair *et al*, (2011), for the fitting of CFA, the acceptable indexes should have a value equal to or greater than .90 for CFI, TLI, and IFI as the case may be. Also, a value close to .06 is recommended for RMSEA before it could be accepted. If all these statistical requirements are met, it shows that there is good fit between the hypothesized model and the observed data (Liman & Ismail, 2015). The CFA computed for this study in figure 2 above shows that Chi-square=560.270; P-Value= .000; RMSEA= .006; CFI=.999; TLI=.999. All the output shows that the data was free from outliers.

**Hypotheses Testing**

**Figure 4: Revised Model**

| Hypotheses | Path | Path Coefficient | Result | |
|---|---|---|---|---|
| H1 | AWCON→READN | **.18** | Supported | |
| H2 | AWCON→ATTITD | **.30** | Supported | |
| H3 | AWCON↔ASCRES | **.23** | Supported | |
| H4 | ASCRES→READN | **.14** | Supported | |
| H5 | ASCRES→ATTITD | **.30** | Supported | |
| H6 | ASCRES↔SUBN | **.25** | Supported | |
| H7 | SUBN→READN | **.19** | Supported | |
| H8 | SUBN→ATTITD | **.27** | Supported | |
| H9 | ATTITD→READN | **.21** | Supported | |

**Path Analysis**

A check on the result in the figure 4 shows that all the hypotheses were statistically supported. Though, the effect size appears to be low, for instance, awareness of consequences significantly influence student readiness to adopt green computing practice ($\beta$ =0.18, p>0.05). Also, awareness of consequences significantly influence students attitude to adoption of green computing revealed ($\beta$ =0.30, p>0.05). Similarly, awareness of consequences significantly correlated with ascription of responsibilities with ($\beta$ =0.25, p>0.05). Furthermore, ascription of responsibilities significantly influence readiness of students toward adoption of GC ($\beta$ =0.14, p>0.05). Also, ascription of responsibilities significantly influence attitude towards GC practice ($\beta$ =0.30, p>0.05). Ascription of responsibilities significantly correlate with subjective norms ($\beta$ =0.25, p>0.05). Subjective norm also significantly influence student readiness towards GC

adoption (β =0.19, p>0.05). In the same token, subjective norm significantly influence attitude towards GC adoption (β =0.27, p>0.05). Lastly, student attitude significantly influence their readiness towards GC adoption (β =0.21, p>0.05). The endogenious variables awareness of consequences, collectively determine by student readiness, attitude and ascription of responsibilities resulting in $R^2$ of 0.67, which mean, awareness of consequences can explain 67% of variance of readiness, attitude and ascription of responsibilities. Also, ascription of responsibilities can determine student readiness, attitude and subjective norm resulting to $R^2$ of 0.47, which mean ascription of responsibilities can explained 47% of the variance of readiness, attitude and student subjective norm. In the same vein, subjective norm can determine student radiness and attitude toward GC resulting to $R^2$ of 0.61, that is subjective norm can explain 61% variance of the variable of readiness and attitude toward GC adoption by the students.

**Discussion**

The study model factors influencing students' readiness and attitude toward adoption of green computing practice in Nigeria. To ensure the attainment of this objective, constructs from two different theories Norms activation theory (NAT) and theory of planned behavior (TPB) constitute the variable of the model. A study on pro-environmental behavior carried out by Fan, et al (2025) justified testing of factor influencing pro-environmental behavior, through the lenses of NAT and TPB which is said to have explanatory strength to explain such behavior. In this study, five variables were identified and used for modeling and the variable includes awareness of consequences, ascription of responsibility, subjective norm, readiness and attitude towards green computing practice. Based on the findings, the model shows that awareness of consequence would statistically influence students' readiness to adopt green computing practice, though the effect size (0.18) was low, yet positive, this finding supported the findings of Zang and Jiang, (2025) that concluded that awareness of consequence can positively influence student readiness to AI-driven green entrepreneurship. Also, the finding of the study revealed that awareness of consequence would influence students attitude towards green computing with effect size of (0.30), the finding corroborate the submission of Savari, et al, (2023) that found three variables, Awareness of Consequence (AC), Perceived Behavioural Control (PBC), and Subjective Norms (SN) to be the strongest indicators of users attitude to pro-environmental behavioural intention Also, the finding of the study was in tandem with Cordeso et al, (2022)

finding that submitted that the higher the awareness of the environmental consequences of IT operations the more positive it influences individuals' sense of responsibility, thereby enhancing their intention to adopt Green IT practices. Similarly, the finding of the study was in agreement with Zhang and Jiang (2025) which reported that personal norms governing green computing behavior are shaped by both ascription of responsibility and awareness of consequences, aligning with NAT's proposition that moral obligation emerges when individuals recognize their contribution to environmental harm.

Furthermore, the finding revealed that awareness of consequences would correlate with ascription of responsibility with effect size of (0.23), this shows that the more the students are aware of the negative effect regarding pro-environmental behavior the more they take responsibility and precaution on green computing practice. The finding supported Han (2014) that stated thus, when individuals perceive adverse effects of their behaviour (AC) and accept responsibility (AR), they are more likely to develop strong PN, which we directly influenced their intentions. The study further support Siew *et al* (2025) finding which discovered that awareness of consequence and ascription of responsibility jointly predict sustainable computing behaviors across the acquisition, use, and disposal stages of computer products, which in turn reinforcing the role of moral obligation in shaping pro-environmental IT behavior

The finding of the study also revealed that ascription of responsibility influence student readiness with effect size of (0.14) and attitude toward green computing initiative with effect size of (0.30). The finding was in agreement with Halgahagama and Kavirathna (2023) finding which explored the role of various psychological factors, including the ascription of responsibility, in determine students' behavioral intentions towards green computing in Sri Lankan universities. They found that students who felt a greater personal responsibility toward environmental sustainability were more likely to adopt green computing practices. The study also showed that ascription of responsibility statistically influence student attitude toward GC. The finding was in agreement with Cordero, *et al* (2022) also emphasized the importance of responsibility ascription in influencing individual attitudes toward Green IT adoption. Their research suggested that ascribing responsibility for environmental impact significantly affects the readiness to adopt green technologies, with a strong correlation found between perceived responsibility and pro-environmental behavior. In a related finding by Esfahani and Rahman (2016) developed a

framework that explain morality and responsibility as germane to the adoption of green IT systems. Their findings established the significant role of ascription of responsibility in determine users' attitudes and intentions to adoption and sustainable practices in IT settings,

The finding of the study equally revealed that ascription of responsibility correlate with student subjective norm with effect size of (0.25). The finding was in tandem with the study conducted by Siew, *et al* (2025) which compared various antecedents of green computing behavior, shows that the ascription of responsibility toward environmental issues, especially the responsibility for the effect on greenhouse strongly correlates with subjective norms. This correlation further influences individuals' behavior at various stages of green computing, from acquisition to disposal. The study indicates that as individuals perceive greater responsibility for environmental outcomes, they are more likely to be influenced by social norms to adopt green computing practices

The study also showed that subjective norms statistically influence student readiness with effect size of (0.17) and attitude towards green computing practice with effect size of (0.27). This finding was in agreement with Gopinathan, *et al* (2025) findings that explored how subjective norms, along with attitudes and behavioral intentions, affect the implementation of green IT practices. Their study indicated that subjective norms positively influenced individuals' intentions and readiness to adopt green computing, reinforcing the importance of social influence in the adoption of environmental technologies. Similarly, the study of Ojo, *et al* (2019) on green computing adoption among IT professionals in Malaysia supported the findings of this study.. Their research revealed that subjective norms, in addition to environmental beliefs and attitudes, were crucial in shaping the readiness of professionals to engage with green computing technologies. This study suggests that social and environmental norms play a pivotal role in influencing technological adoption in organizational and educational contexts.

Lastly, the finding of this study revealed that students attitude statistically influence their readiness for the adoption of green computing with effect size of (0.21). This finding concurred with Ivwighreghweta and Adjogri (2025) finding which explored the factors affecting the readiness of university staff to adopt green computing practices. They found that staff members' positive attitudes toward environmental sustainability directly influenced their preparedness to engage in green computing behaviors. The study emphasized that a proactive attitude toward

environmental responsibility was key to implementing green computing practices in academic settings. Also, the study of Kollab and Yousef (2023) which examined the relationship between green IT awareness and adoption among IT students supported the finding of this study. Their study demonstrated that students with positive attitudes toward green computing were more likely to adopt green IT practices. The findings indicate that awareness of environmental issues, combined with a positive attitude toward sustainable practices, fosters greater adoption readiness among students

**Theoretical and Practical Implication**

Theoretically, the study has confirmed the explanatory strength of both theory of planned behavior TPB and norm activation theory NAT as effective for explaining users pro-environmental behavior. Also, the finding revealed that reasons advance for adoption of GC practice is multi-dimensional and cannot be explain by constructs from a single theory but multiple theoretical perspectives is required to gauge users attitude and readiness. The study further increased the theoretical importance of TPB and NAT for explaining pro-environmental behavior in respective of the population involves or geographical zone where the study is conducted. In terms of practical implication, the study can assist Nigerian government at increasing the awareness of green computing practice among computer users in order to fulfill the need of adoption of pro-environmental behavior. The finding would also enable Nigerian government to determine how to accelerate their efforts towards adoption of GC practice..

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