



Interpersonal Climate and Students' Engagement in Nigeria University: A Confirmatory Factor Analysis Approach

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ABSTRACT

The significant relationships that lecturers develop and maintain with their students in institutions cannot be overlooked as studies recognize it to have a positive impact on their academic outcomes. This study assessed lecturers interpersonal climate and students' academic engagement in Nigeria university. The study adopted the correlational design of the survey type. The population for the study comprised all 49,153 undergraduate students of university of Ilorin, Nigeria. The required number of respondents for the study was ascertained using the Krejcie and Morgan table and 381 participants were chosen using a convenient sampling procedure. A self developed survey instrument titled "Interpersonal Climate and Students' Engagement Survey" (ICSES) was constructed based on the focus of the study to gather primary data by means of empirical survey-based research methods which allows for the test of research hypotheses formulated for the study. ICSES scale was subjected to face and content validity and reliability coefficient of .89 obtained adjudged the instrument reliable. The factors necessitating these interpersonal climate in school were explored and results show that except for the interrelation of the construct of shared vision on academic engagement with a low factor loading of .30, all other factors explored (Empathy, Leadership Pattern and compassion) were through measures of the constructs with high factor loading >.50 and have significant interactions with student engagement. The formulated hypothesis reveals that a significant relationship exist between the constructs understudied with p-value <.05. The implication of this findings as well as recommendations were highlighted in this study.



Introduction

Like every organizations, there are collection of practices that inform the actions of every members in the ways they behave. Education institution like universities have its unique philosophy, values, norms and patterns which is a reflection of how members administer all physical, material, human and financial resources within their reach in achieving the institutional objectives. These unique characteristics that are set of lasting internal features distinguishes one institution from the other. Ranked among the top three universities in Nigeria (AD Scientific Index, 2021) and top among the most sorted Universities in Nigeria, University of Ilorin has been the most preferred institution by Nigerian admission applicants over the last five years (JAMB, 2021). This uniqueness is one of the foundations that set the tone of climate of this institution. However, the University years can represent a developmentally challenging transition into adulthood. Aside from the academic pressure students experience, for many, it is the first time being away

from home and making new friends. Existing literature (Eisenberg et al., 2007; Raufelder, Nitsche, Breitmeyer, Kesler, Herrmann, & Regner, 2016; Kitzrow, 2005; Gallagher, 2007) posit that, university students are entering more overwhelmed and damaged environment as untreated mental health disorders are prevalent in University student population. Hence, integrating opportunities for compassion within the University classroom is an important endeavour.

Additionally, across the numerous studies of climate is the recurrent question of what aspect of climate is linked to students' engagement and achievement; hence, identifying the underlying mechanism calls for further research. Similarly, criticisms from past research studies (Brennan, Bradshaw, Furlong, 2014; Wang and Degol, 2016) for reliance on a uni-dimensional model of climate based on a single scale has called for multi-level modeling procedures to support more complex conceptualizations of climate and engagement of student in school. Esposito (1999) found that, the school climate dimension with the strongest relationship to student academic and social development was the teacher/student relationship. This aspect of climate reveal the important impact on learners' school adjustment which in turn show an increase in academic engagement as well as social skill development such as cooperation and assertiveness. The climate of a university which can be conceived as its personality is a set of lasting internal psychological features that can distinguish one university from the other. According to Hoy et al., (2007), the interpersonal climate is the overall feeling or emotional mood of people. It is the dominant feeling between people who are involved in each other which arises out of the way people communicate, the feeling, and atmosphere they try to build in different situations.

Emphasis on student engagement in school emerged in the 1980s when researchers described organization and culture of comprehensive high schools in terms of "Dispirited Teachers and Disengaged Students." Since then, students' engagement in school has been increasingly recognized as essential for successful learning in school. Research studies on students' engagement has been perceived in variety of ways. Kuh, Kinzie, Buckley, Bridges and Hayek (2006) sees engagement as an overarching concept researched from sociological, social network, organizational, psychological, cultural, pedagogic and economic perspectives while others emphasize on students' cognitive characteristics, active participation, and emotional commitment to their learning (Chapman, 2003; Fredricks, Blumenfeld, Paris, 2004). In recent time, student engagement has been recognized as one of the important factors in student learning and academic achievement such as achievement test scores and course grades (Lei, Cui, Zhou, 2018; Fredricks Filsecker, & Lawson, 2016; Lawson and Masyn, 2015). Many research studies have also reported that high student engagement is associated with academic achievement (Dotterer & Lowe, 2011; King, 2015; Konold, Cornell, Jia & Malone, 2018; Wang and Holcombe, 2010).

Although student engagement at school is influenced by various individual and family factors, however, Hamre and Pianta, (2007) posit that classrooms characterized as high in emotional climate have teachers who are sensitive to students' needs and take their students' perspectives into account. In this regard, teachers in classroom high in classroom interpersonal climate are aware of their students emotional and academic needs and respond to their students by choosing appropriate activities that both encourage self-expression and cater for their interests and points of view. In the same vein, research has found significant associations between school interpersonal relationships and several student outcomes related to student engagement in school, higher academic achievement,, and higher efficacy (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Bertolini, 2011).

Convincingly from the background above, climate of the school relates to the academic engagement of the students in several ways. In the same vein, student engagement is vital to academic achievement in school, hence, the relationship that teachers develop with their students has an important role in academic growth and engagement of learners. Engaged students are attentive, participate in class discussions, exert effort in class activities, and exhibit interest to learn (Fredricks et al., 2004). Disengaged students on the other hand become disruptive, are less likely to aspire higher educational goals, have lower grades, and are more likely to drop out of school. They report being bored, anxious and angry about being in the classroom (Skinner, Furrer, Marchand, Kindermann, 2008). Many studies reviewed have made a significant effort to explain the relationship between interpersonal climate and students' academic engagement. However, it fails to explain how lecturers' emotional state affect students' engagement in school. Also, none of these studies have explored the factors of interpersonal climate as it relates to students' academic engagement in Nigeria universities, therefore, this study aims to fill this gap.

Theoretical Framework

To better explain this study, it is hinged on Basic Psychological Needs Theory (BPNT). The theory is encompassing as it connects lecturer-student interactions with students academic engagement. These needs, which are assumed to be universal, are the need to feel autonomous, competent, and related. In relation to

school, students experience of psychological needs satisfaction play an important role in their academic engagement. The theory is relevant to this study as it supports students' basic psychological needs and continuously satisfy their learning needs in school environment. The satisfaction of the mentioned basic psychological needs provide the energy and direction for students to engage in activities that satisfy these needs and will positively affect students motivation and engagement to learn (Deci & Ryan, 2011). therefore, lecturers play a pivotal role in the satisfaction of students needs by supporting their autonomy, competence and relatedness. The lecturer involvement within the learning environment is assumed to be positively affect students' need satisfaction and their motivation and academic engagement. The research study of Opdenakker and Maulana (2010) showed the importance of students' perceptions of lecturer support and involvement to students' level of growth of academic engagement. This implies that, lecturer support and lecturer-students relations may be more important to young students especially those at risks and those who live and learn in a disadvantaged context.

What is Academic Engagement?

In the field of education, the term academic engagement has grown in recent decades resulting from an increased understanding of the roles that intellectual, emotional, behavioral, physical and social factors play in the learning process and overall development of learners. Generally, the concept of academic engagement is predicated on the belief that, learning improves when students are inspired, inquisitive and interested. In other context, however, academic engagement may refer to how leaders, educators and other adults might engage students more fully in governance and decision making processes in school, learning opportunities and community services. The learning environment is key player in fostering student engagement to learn (Maulana, Opdenakker, Stroet, Bosker, 2013) and developing students' motivation in learning (Akey, 2006; Garcia-Reid, Reid, Peterson, 2005). However, it should be noted that many scholars hold different views on students; engagement. For instance, observable behaviour such as attending classes, participating in discussion, turning in work on time may be perceived as form of engagement while the internal state of students such as enthusiasm, curiosity, optimism, motivation and interests could be perceived as a form of engagement. Which ever way, it is important to state that, lecturers need to be aware that positive energy predicts school adjustment and may also serve as a defensive factor for learners at high risk of poor school development outcomes (Lander, 2009). Thus, a lecturer as a key factor in promoting a culture of engagement and achievement can positively impact student behaviour in the classroom by creating a culture that promote quality delivery of instruction that uses relevant instructional strategies to meet the academic needs of the learners (Weiss & Pasley, 2004). For instance, Heller, Calderon and Medrich (2003) and Akey (2006) posit that, instructional strategies such as group activities and assignment, long-term projects, hands-on activities and lessons that draw from students' backgrounds, interests and academic needs are highly effective in engaging students in the class. Hence, the inclusion of student interests in the learning process increases student engagement in learning.

Why does interpersonal relationship matters?

Gone are the days of absolutism, where the lecturers acted as a machine dishing out the facts while the student silently absorbed them. Today's classroom is student-centred, they are active participants who also share responsibility of planning and implementing learning activities. Interactions between student and lecturer is essential in developing a working relationship within the classroom as lecturer's role is that of facilitator of learning experiences. Poor interpersonal climate often results in poor relationships, thereby, creating problems that are difficult to solve (Thomas, Karmos & Altekru, 1981). Lecturer-student relationship must be based on firm foundations of mutual trust and understanding to be an effective mechanism for helping students (Teeter 1975). the significance of trust between student and lecturer is corroborated by Clinkscale (1979) where it was stated that it is an important ingredient in developing rapport with students. Smith (1980) observed that the lecturer-student interaction that includes specific factors of praise, task orientation, lecturer questioning and learners' initiation and responses appeared to be significant predictor of learners' progress in reading. Clinkscale (1979) also stated that, as one examines the years of changing styles and modes of instruction, one single factor that stands out is the quality of relationship between lecturer and learner that makes or breaks the learning achievement of students.

The leadership of lecturers promotes an engaging process that influence student behaviour and provides an emotional connection between lecturers and students (Bolkan & Goodboy, 2010; Sharma, 2002). Lecturers as leader also work closely with colleagues and students to accomplish university goals using their experiences to improve students' performance (Blase, Blase & Philips, 2010; Smylie, 2010). Indeed, lecturers cannot have an impact on intellectual development without becoming involved in their students' emotional development. An empathetic lecturer can make a conscious effort to develop a caring relationship with their students (Jimenez, 2017). Patrick, Tumer, Meyer, and Midgley (2002) discussed in their study that

through lecturer-student interactions, conceptualization of what constitutes motivation to learn increases and result to a greater degree of learning in the classroom. Additionally, Heller et al. (2003) and Akey (2006) found in their studies that students who noted that their lecturers were supportive and care about their success were likely to be engaged in the classroom and perform academically well. Lending credence to the above,

Research Problem

Classroom is a social setting where students and lecturers interact. The quality of the interactions which depends on the tone of the classroom setup influence student engagement in their academic activities. However, beyond the classroom, students deal with variety of issues such as coping with stress, communication difficulties, problem of concentration, financial constraint, stigma, lack of time, among others (Eisenberg, et al., 2009). These issues overtime may put them at significant risks for future problems like criminality, dropping out of school, and maladjusted behaviour later in life.

Notably, there have been an increased demand for counselling services in universities (Kitzrow, 2003) due to national surveys among university counselling centres which reveal the prevalence and severity of mental health issues among university students (Gallagher, 2007). While it is unclear whether there have been increases in mental health issues and help seeking behaviour among University students, multiple studies indicate that untreated mental health disorders are prevalent among Universities students (Aluh, 2019, Israel & Akinboye, 2021; Nkomo, 2020). This is evident in Nigeria in recent time when the University of Ilorin expelled a final year student who reacted violently due to his inability to complete the Student Industrial Work Experience Scheme (SIWES) by beating a female lecturer to coma (Akinyemi, 2021). Given the importance of school climate and interpersonal relationship to students' physical, mental, emotional, and intellectual well-being, it is necessary to help students develop and maintain a good climate in school. This study therefore examined the relationship between interpersonal climate and students' academic engagement in Nigeria university.

Purpose of the Study

Many field of education recognize the importance of the relationships that lecturer develop with their students that result in positive academic outcomes. The purpose of this study is therefore, to evaluate the relationship between interpersonal climate and students' academic engagement in Nigeria university. Specifically, the study will examine

1. If the constructs under study are true of measure of interpersonal climate and student engagement.
2. The relationship between interpersonal climate and students' academic engagement.

Research Hypothesis

There is no significant relationship between interpersonal climate and students' academic engagement in Nigerian University.

Methodology

The research design suitable for this study is the descriptive research of the survey type where a portion of the population is examined using questionnaire to measure students opinion on the relationship between interpersonal climate and students' academic engagement in Nigeria universities using University of Ilorin as a case study. This area was purposely selected to explore the engagements of students due to the uniqueness of the university considering its interpersonal climate. According to the statistics given by the Academic Support Services of the University, (2022), there are 49,153 students across 16 faculties in the University. 381 students were selected using Krejcie & Morgan Table while convenient sampling technique was used to select University of Ilorin students as respondents for the study. The choice of these participants is that the students are found worthy in providing objective responses and information about the research study under investigation.

Instruments

The survey instrument titled "Interpersonal Climate and Students' Engagement Survey" (ICSES) was constructed based on the focus of the study to gather primary data by means of empirical survey-based research methods which allows for the test of research hypotheses formulated for the study. The ICSES consists of two sections. Section A contains questions on demographic information items while section B contains twenty-five question items in scoring the Interpersonal Climate and Academic Engagement Survey in University. The questionnaire was structured on a 5-point rating scale ranging from never¹ point to always⁵ points.

The instrument (ICSES) was subjected to face validity and content validity. To ascertain this, the researcher presented the title, purpose of study and research questions with a copy of the questionnaire to three research experts who are lecturers; two in measurement and evaluation in the department of educational management all in University of Ilorin. Double barrel items were restructured and some items were recast.

Cronbach Alpha computerized reliability analysis scale (coefficient Alpha) was used to determine the reliability of the instrument. A Cronbach Alpha of 0.89 was obtained. The instrument was therefore considered to be reliable.

Procedures

Necessary instructions were provided to participants with regards to the exercise and the completed questionnaires were retrieved 100%. The data collected from the survey was first exported from Google Forms to Microsoft Excel and then analyzed using IBM SPSS statistics software and Structural Equation Modeling (AMOS22)

Results

Data Preparation and Descriptive Analysis

In carrying out this research study, University of Ilorin undergraduate students in all the 16 faculties were recruited to participate in a survey investigation. A total of 49,153 male and female students enrolled in all the undergraduate programmes in the year 2021/2022 academic session formed the population for the study. Primary data were gathered by means of an empirical survey-based research methodology allowing the testing of the research hypotheses. On the basis of a total sample population of 49,153 students, 381 of student respondents completed the questionnaire (N=381). 197 participants were females (51.7 percent) and 184 were males (48.3%). The majority of the respondents were between the ages of twenty-one and thirty (72.2 percent). The number and percentage of responses from participants in each faculty show that fifty-eight respondents were from Faculty of Education (14.9 percent), thirty-nine from Faculty of Law (10 percent), thirty-eight from Faculty of Art (9.7 percent), twenty-three each from Faculties of Social Sciences , Environmental Sciences, and Management Sciences which make up (5.9 percent) each of the participants from the last three faculties among others.

Factor Analysis

Factor analysis is well-thought-out to eliminate those items having low factor loading and have a realistic smaller number of factors. It necessary to consider factor analyses on this study since the study sample size is considerably large and to also determine if the scales of interpersonal climate and student engagement were independent of each other. This study estimate will probably give more accurate values as statistical values is sensitive to sample size and small sample size may not be sufficiently reliable. In order to confirm the dimensions, reduce data having high correlations, and indeed check if the proposed factor structures are consistent with the data; principal component analyses with varimax rotation was performed on all questionnaire items using SPSS 23.0. Data included responses from questionnaires dully completed by students of University of Ilorin, Nigeria who have earlier agreed to participate in the study. Except for 5 items with low factor loading, all items were loaded well on the appropriate factor, as few items of absolute value of less than .50

Table 1

Factor Loading for Interpersonal Climate and Student Engagement

Construct		Components				
Items		1	2	3	4	5
<i>Shared Vision</i>	SV2	.686				
	SV3	.536				
	SV4	.778				
	SV5	.701				
<i>Compassion</i>	CO1		.805			
	CO2		.749			
	CO3		.520			
	CO4		.772			
	CO5		.686			
<i>Leadership Pattern</i>	LP1			.682		
	LP2			.630		
	LP3			.536		
<i>Empathy</i>	EP1				.683	
	EP2				.707	
	EP4				.649	
	EP5				.677	
<i>Academic Engagement</i>	AE1					.744
	AE2					.652
	AE4					.593
	AE5					.581

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 Cronbach's Alpha = .89, cumulative variance = 62.39%

The value was therefore increased and all items having higher loading up to .50 were incorporated in the model. Components of interpersonal climate and student engagement accounted for 62.39% of total variance extracted having an eigenvalue >1 (see table 2). This decision is in line with the criteria of Manning and Munro (2007); Straub, Boudreau and Gefen (2004) which suggested the need to choose a high value up to .50 and get rid of likely insignificant ones.

Confirmatory Factor Analysis

The purpose of this study is to examine the relationship between the components of interpersonal climate and students engagement in Nigerian universities, thus, it is necessary to define the construct based on the theoretical framework to help indicate the direction of the measure and identify the greatest variance in scores with the number of factors. This is to further substantiates the extent to which the underlying variables measures the constructs and also allows for verifying the underlying factors extracted from the PCA and allow items loaded freely on the factor to determine the adequacy of its goodness-of-fit to the data sampled. For this reason, CFA was computed in order to verify items extracted from PCA test and verify that all fitness indexes achieve the required level in this study.

In SEM, it is recommended that, having developed a measurement model, a confirmatory factor analysis be conducted to show the hypothesized relationships. In this regard, the confirmatory factor analysis of all constructs extracted from the initial principal component analysis in table 1 above was conducted. The CFA in this study therefore focus on five constructs of lecturer shared vision, compassion, leadership pattern, empathy, and academic engagement by ascertaining the squared loading factor greater than 0.50

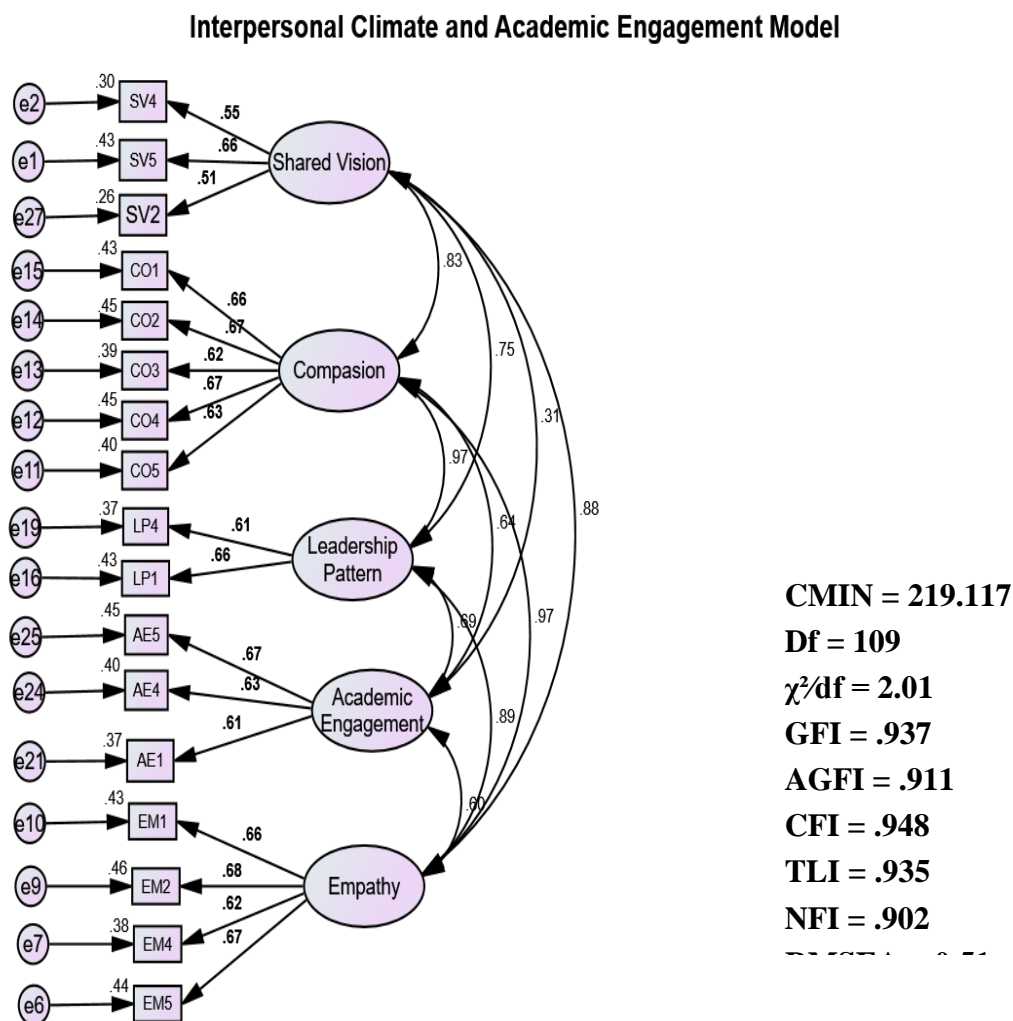


Figure 1. Measurement Model of Interpersonal Climate and Academic Engagement

The first modification was done by reducing the items from the initial measurement model, hence, four items were expunged. The results however yielded a good fit of the model and the data with a chi-square of 219.1 with 109 degrees of freedom was statistically significant at $p < 0.05$. Other fit indexes

indicated that model was acceptable ($\chi^2/df = 2.01$, GFI=0.937; AGFI= 0.911; CFI= 0.948; TLI=0.935; NFI = .9024) except for RMSEA = 0.51 which is moderately acceptable. There was no need for further modification of items since all items loading are up to 0.50. The values are in line with the thresholds of Hu and Bentler (1999) and Hair et al. (2010). The final model of interpersonal climate and student engagement has 17 observed variables with factor loading ranging from 0.51 - 0.68. The results yielded a good fit between the model and the data. Of all the constructs under studied, only shared vision has a very weak relationship with student engagement with a coefficient value of .30

Hypothesis Testing

Ho: There is no significant relationship between interpersonal climate and students' academic engagement in Nigeria University.

Table 2

Interpersonal climate and Students' engagement

Variable	N	\bar{X}	SD	Cal r-value	P-value	Decision
Interpersonal Climate	381	3.43	.77	.945	.000	Ho Rejected
Academic Engagement	381	2.67	.85			

Table 2 above shows the calculated r-value of .945 while the P-value .000 is less than the significance level of .05, hence the null hypothesis which stated that there is no significant relationship between interpersonal climate and students' engagement in the university was rejected. This implies that, if there is a supportive climate to learning, it will enhance students' engagement in school. The findings is in agreement to that of Maulana (2013) where it was stated that, interpersonal climate in an institution plays a significant role in stimulating students' motivation and further sustain their interest and engagement in learning. Lecturer-student relationships through shared-vision, compassion, and empathy can positively impact student behavior in the classroom as well as their effective engagement in learning. All these could provide students ample opportunities for active participation and engagement in classroom with high level of zeal and motivation to learn. Similarly, Marks and Printy (2003) affirms that lecturer leadership pattern influence students' engagement and performance in school. Lecturers who exhibit good leadership pattern are likely to stimulate students' engagement in learning than those who are hostile.

Conclusion and Recommendations

Based on the findings, it is clear that the constructs of interpersonal climate and students' engagement are true measure of the concept as all items loading are above .50 and observed variables met the threshold for model goodness of fit. Based on this, the constructs of empathy, leadership pattern, lecturer shared-vision, and compassion can best describe interpersonal climate. Similar findings on the relationship between interpersonal climate and students' academic engagement have revealed that, if lecturers have good shared vision, compassion and empathy with good leadership attributes, it will enhance the students' engagement in classroom as it is established in this study to be significantly related.

Based on the findings of this study, it is recommended that lecturers should maintain a good interpersonal climate with their students through shared vision, empathy, compassion, and effective leadership to persistently enhance the students' engagement in the classroom. They should encourage their students to share their experiences during the process of teaching and learning by linking relevant societal happenings to their teaching to boost students' academic engagement. They should be committed to providing effective guidance to students and always giving them words of encouragement, as a way of being compassionate about the success of the students, to persistently improve their academic engagement.

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