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INFLUENCE OF STRESSFUL LIFE EVENTS AND COGNITIVE STYLES ON ACADEMIC ACHIEVEMENTS OF UNDERGRADUATES OF SCHOOL OF CONTINUING EDUCATION, BAYERO UNIVERSITY KANO

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Abstract

Academic achievement among university students is influenced by numerous psychological, cognitive, and demographic factors. This study investigated the influence of stressful life events and cognitive styles on academic achievement among undergraduates of the School of Continuing Education, Bayero University Kano, Nigeria. The study adopted an ex-post facto research design. The population comprised 975 Level 400 undergraduates, while a sample of 278 students was selected using a multistage sampling procedure. Data were collected using the Group Embedded Figures Test (GEFT) for cognitive styles, the Kanjiga Stressful Life Events Inventory (KSLEI) for

stressful life events, and students' cumulative grade point averages (CGPA) as indicators of academic achievement. Frequency counts and independent samples t-test were employed for data analysis at the 0.05 level of significance. The findings show that most students (60.4%) experienced high stressful life events, compared to 39.6% who reported low stress, no significant difference in academic achievement between field dependent and field independent students, no significant difference in academic achievement between students with high and low stressful life events, even though the high-stress group recorded a slightly higher mean CGPA. The study recommends the provision of effective counselling services, stress-management programmes, and learner-centred instructional approaches that accommodate diverse cognitive styles among adult learners.

Keywords: *Academic achievement, cognitive styles, continuing education, stressful life events and undergraduate students.*

Introduction

Academic achievement remains one of the most important indicators of educational success and institutional effectiveness. Universities across the world continuously seek to understand the factors that contribute to students' academic performance in order to improve learning outcomes and reduce academic failure. Among the numerous factors associated with academic achievement are stressful life events and cognitive styles.

Academic achievement refers to the level of success attained by students in their educational pursuits, usually measured through examinations, grades, and cumulative grade point averages (CGPA). According to Zheng (2022), academic achievement represents learners' performance in educational assessments and reflects the extent to which educational objectives have been attained. It is a critical determinant of future educational and occupational opportunities.

Students enrolled in continuing education programmes often encounter unique challenges that distinguish them from conventional university students. Many combine academic activities with employment responsibilities, family obligations, financial commitments, and community

engagements. These multiple responsibilities expose them to stressful life events capable of affecting concentration, motivation, and academic engagement.

Stressful life events refer to significant experiences or circumstances that require substantial psychological adjustment and may threaten an individual's wellbeing. Such events may include financial difficulties, family responsibilities, work pressures, health challenges, and academic demands. According to Lazarus and Folkman (1984), the impact of stress depends largely on how individuals perceive and cope with environmental demands. Excessive stress may negatively affect cognitive functioning, emotional wellbeing, and learning outcomes.

Another factor associated with academic achievement is cognitive style. Cognitive style refers to an individual's preferred method of perceiving, organising, processing, and utilising information. Among the most widely studied cognitive styles is the field dependence dimension developed by Witkin and his associates. Field-independent learners tend to process information analytically and independently, whereas field-dependent learners often rely on external cues and social contexts when learning.

The intersection of stress and cognition in adult learning is not unique in Nigeria. Research from the United States has found that 45% of adult learner's report stress as a major barrier to degree completion (National Center for Education Statistics, 2021), while studies in the UK and south Africa highlight how globally, the expansion of continuing and adult education has become a central feature of higher education systems, driven by lifelong learning agendas, labour market demands and the need for workforce upskilling.

Despite extensive research on academic achievement, limited studies have simultaneously examined stressful life events and cognitive styles among part-time undergraduates in Nigeria. This study

therefore investigates the influence of these variables on academic achievement among students of the School of Continuing Education, Bayero University Kano, Nigeria.

Statement of the Problem

The increasing diversity of students enrolled in continuing education programmes has introduced new challenges for higher education institutions. Students often combine academic studies with occupational responsibilities, family commitments, and social obligations. These circumstances expose them to stressful life events that may interfere with learning and academic performance.

Additionally, students differ in their cognitive styles, which influence how they perceive, process, and respond to instructional materials. Differences in age may also affect students' academic engagement and achievement. While some studies suggest that stress negatively affects academic performance and that cognitive style influences learning outcomes, empirical findings remain inconsistent.

The extent to which stressful life events and cognitive styles influence academic achievement among undergraduates of the School of Continuing Education, Bayero University Kano remains unclear. This uncertainty necessitated the present study.

Objectives of the Study

The study sought to:

1. Determine the level of stressful life events experienced by undergraduates of the School of Continuing Education.

2. To Examine the Influence of Cognitive styles on academic achievement between students with field dependence and field independent cognitive style among undergraduates of School of Continuing Education, Bayero University Kano.
3. To Examine the influence of stressful life events on academic achievement among undergraduates of school of continuing education, Bayero University Kano.

Research Questions

1. What levels of stressful life events are experienced by students of the School of Continuing Education?

Hypothesis

H01 Is there a significant difference in academic achievement between field-dependent and field independent students?

H02 Is there a significant difference in academic achievement between students experiencing high and low stressful life events?

Conceptual Clarifications

Academic Achievement

The construct academic achievement has been defined in different ways by different researchers. Some have used it interchangeably with academic performance and learning outcomes thereby see the terms as similar; while others have tried to differentiate the three from each other. However, this study considers the construct of Academic achievement. Muhammad (2024) defined the term Academic as the performance of learning that is ultimately achieved through teaching, development

and learning. While Achievement is explained as victory or establishment obtained through study. Therefore, Zheng (2022) defined Academic Achievement as the learner's performance of teaching and learning assessments, such as final examination results, achieved by the person in school.

Academic achievement according to Musya (2015) referred to the observed and measured aspect of a student's mastery of skills and subject contents as measured with valid and reliable tests. Thus, academic achievement may be seen as the overall performance of how well and how low the student has performed, it is the level of mastery, proficiency and knowledge shown by individual after learning has taken place. Accordingly, Academic Achievement according to Ubale (2019) is a fundamental aspect of everyday life, affecting people's work, interpersonal relationships, sense of being, and leisure particularly for college students which includes: high performance on tests, passing courses, and completing degrees.

According to Kasworm (2018), Academic Achievement is the outcome of education and the extent to which a student, teacher and institution have achieved their educational goal. While Dauda (2021) regards Academic Achievement as a change in behavior exhibited at the end of a given period of time and also as the level of mastery, proficiency and knowledge shown by individuals after learning has taken place. As such, Academic Achievement refers to the excellence in all academic discipline and considered as a criterion to judge an individual's total potentiality and capability related to various types of knowledge and skills which may include experiences, age, prior learning and capacity of students with regards to education, socialization and qualification.

In relation to educational research, academic achievement is measured in relation to what is attained at the end of a course, subject or area of study by students after a learning experience. In other words, Academic achievement is the result of what a student can achieve at the end of a learning period. With regards to this, Ali (2013) defines academic achievement as a measure of degree of success in

performing specific task in a subject or area of study by student after a learning experience, it indicates how well a student or class of students achieve academically, therefore measuring academic achievement is a significant part of educational process.

Cognitive Styles and Academic Achievement

Broadly defined, cognition refers to mental operations involving information processing. In other words, it is a collection of mental processes that include awareness, perception, reasoning and judgment. Cognition is the process of knowing, perception or insight. Style on the other hand is discovered as the distinguished way in which something is done, said, written, made and accepted. Therefore, the term Cognitive style can be defined as the individual variation in modes of attending, perceiving, remembering and thinking patterns that govern our ways of processing information (Muhammad, 2024).

Cognitive styles have been identified to influence students' academic achievement. Jantan (2014) explained that the diversity of students can be found in the level of performance, rate of learning, cognitive style and culture. Similarly, Zhang & Sternberg (2019) defined cognitive styles as consistent individual differences in how people organize and process information. In their view, cognitive style can be a better predictor of an individuals' success in a particular situation, i.e., academic achievement. In the world of Education and Psychology, the concept of cognitive style refers to the unique ways individual perceive, process and organize information. These styles can vary greatly from person to person, shaping how they learn, think and solve problems.

Accordingly, Bendell *et al*. (2016) postulated that Cognitive style is a bridge between cognition/intelligence measures and personality measures. In other words, it is the preferred means of approaching cognitive tasks; the trait-like pattern of behavior an individual use when approaching

a problem-solving situation. Further defined, Moreover, Muhammad (2024) defined cognitive style as the fundamental aspect of cognitive psychology that influences how people perceive and interact with the world around them. Therefore, it is the individual preferred way of processing information, solving problems and making decisions.

Stressful Life Events and Academic Achievement

According to Rabe (2023) Psychological stressors are events, experiences, or environmental factors that trigger the body's stress response. This response is a complex physiological reaction designed to help us cope with threats or demands. Additionally, Bello (2024) defined psychological stressors as the bodies and brain's response to any requirement or demand perceived as a challenge or barrier. (Bello 2024) further distinguished between stressors and stress as "Psychological Stressors are the external factors or events that trigger a stress response, while stress is the bodies and brain's reactions to these triggers. For instance, a looming exam is a stressor, whereas the anxiety and tension felt while preparing for the exam represents the stress response".

According to Selye (as cited in Bello, 2024), demands with physical response are called stressors which he defined as threatening, unpleasant and harmful experiences. In other words, Stressors are external and internal situations or events that trigger the body to respond. These stressors can be physical, emotional, social, psychological and environmental and can vary in intensity, duration and impact. Common examples of stressors according to (Bello 2024) include:

1) Physical stressors: Pain or discomfort, illness or injury, sleep deprivation, hunger or thirst and extreme temperatures.

2) Emotional stressors: Relationship issues, grief or lost, trauma, anxiety or fear, depression.

3) Psychological stressors: Work loaded pressures, financial concerns, life hassles, academic demands, uncertainty or unpredictability.

4) Social stressors: Social conflicts, social isolation, social media pressures, discrimination, family and societal expectations.

5) Environmental stressors: Noise pollution, crowding, natural disasters, climate change and technological disruptions.

However, Sara (2018) was of the opinion that, Life is filled with potential stressors, that is experiences or events that produce stress. Stressful events are negative psychological state occurring in response to events that are perceived as exceeding a person's resources or ability to cope. According to him (Sara 2018) events are not stressful in and of themselves; instead, the experience of stress is determined by the subjective response to external events or circumstances. Some stressors can motivate and lead to positive growth while chronic or overwhelming stress can have a detrimental impact on our mental and physical health. If we think that we have adequate resources to deal with a situation, it will probably create little or no stress in our lives. But if we perceive our resources as being inadequate to deal with a situation, we see as threatening, challenging, or even harmful, we'll experience the effects of stress.

All the above definition explains that life is full of stressful experiences: however, only that, individuals differ in handling the stressing events or situations. Due to this, Bello (2024) differentiated between stress and stressors by indicating stress as the negative, emotional, cognitive, behavioral and psychological process that occurs as individuals try to adjust or deal with stressors. While stressors are circumstances that disrupt or threaten to disrupt individuals daily functioning and cause people to make adjustments.

Methodology

The study adopted an ex-post facto research design. It is a research design that involves the collection of data after the fact, without manipulating the independent variable, and without randomizing subjects to groups. This type of design is used to study the relationship between variables after the event has occurred, and is often used in situations where it is not possible to manipulate the independent variable or to randomly assign subjects to groups. Ex-post-facto research design is appropriate for this study based on the assumption that both variables of the study are already in existence and cannot be manipulated, and is concern with identifying the antecedent of a present conditions (academic achievement) through collection of two sets of data, one that is active (academic achievement) and the other which will be retrospective (Cognitive Styles and Stressful Life Events). In addition, the fact that the study also investigates differences further justifies the utilization of an expost facto design. The population consisted of 975 Level IV undergraduates from four departments in which a sample of 278 students was selected through multistage sampling procedures from each department a number was considered and also gender. The Instruments GEFT the Group Embedded Figure Test was adopted from the work of (Dauda, 2020). The original version of the instrument was developed by Witkin, Raskin and Oltman (1971). Witkin, Raskin and Oltman (1971) developed a series of standardized psychological tests, the best used and substantiated of which is the Group Embedded Figure Test (GEFT) which is based on what they termed "psychological differentiation". The GEFT is a cognitive style test that measures a person's ability to separate embedded figures from the background (field-independent vs. field-dependent cognitive style). The GEFT is a paper and pencil test which consists of 20(chromatic) test items in which simple Geometric forms are hidden within progressively more complex geometric design. In the scoring procedure, the group embedded figure tests consist of 20 test items, each question was

measured five (5) points. Correct answer 5 point while incorrect answer is 0. The total highest score is therefore 100 and the lowest score is 0. The minimum score is 0x20=0, while maximum score is 5x20=100, the time duration is 20 minutes. Students with score of 59 and below are described as field-dependent, while students with score of 60 and above are described as field-independent. While Kanjiga Stressful Life Events Inventory was developed by Sara (2018) and was adapted for this study. It consists of 20 items adapting some items from Cooper's Life Stress Inventory. The instrument was relevant to this study because it includes events that have to do with valence (positive or negative, desirable or undesirable, involving gain or loss), unpredictability (the extent to which most people who experience it would not foresee the events), source (occurrence caused by factors in the external environment) and magnitude (in terms of a likely change in the usual activities of most people who experience the events). In terms of scoring, the instrument is a polytomous instrument, where the higher the SLE the higher the score. Total scores are 100, as such, the higher the scores the higher the exposure to SLE. In other words, the magnitude of certain stressful life event taxes an individual much higher than another stressful life event. Numeric value was assigned to response categories where Always is 5, often is 4, sometimes is 3, rarely is 2 and never is 1. The total highest score is therefore 100 and the lowest score is 20. The minimum score is 1x20=20, while maximum score is 5x20=100. Students CGPA records is an academic result of the students for the 2024/2025 academic session which was obtained using a structured pro forma sheet. These results serve as a measure of the students' academic achievement and was recorded exactly as officially issued by School of Continuing Education, without any alterations, adjustments, or modifications. The GEFT recorded reliability coefficients of 0.978 and 0.871 using Spearman-Brown and Guttman Split-Half methods respectively. The KSLEI obtained a Cronbach Alpha coefficient of 0.894. Data were analyzed using frequencies, percentages, means, standard deviations, and independent samples t-test at 0.05 significance level.

Results

Research Question One: *What are the levels of stressful life events among undergraduates of SCE-BUK?*

Table 1: Frequency Distribution of Academic Achievement (N = 278)

Class Interval	Frequency	Cumulative Frequency
4.50 – 5.00	5	5
3.50 – 4.49	65	70
2.50 – 3.49	118	188
1.50 – 2.49	80	268
1.00 – 1.49	10	278
Total	278	—

Table 1. presents the frequency distribution of Academic Achievement shows a clear concentration of students within the middle range of performance. The majority of respondents fall in the 2.50–3.49 interval, with 118 students represented, indicating that a large portion of the sample achieved an average level of academic performance. This group forms the central cluster of achievement, suggesting that many students perform around a moderate level.

Table 2: Frequency Distribution of *levels of stressful life events among undergraduates*

Variable	Category	Frequency	Percentage (%)
Stressful Life Events	High Stress	168	60.4
	Low Stress	110	39.6

Table 2 shows that 60.4% of students reported high stressful life events, while 39.6% indicated low stress. This suggests that a majority of the students juggle multiple responsibilities such as work, family, and studies, exposing them to considerable stress.

Hypothesis One ($H0_1$): **There is no significant difference in academic achievement between students with field dependent and field independent cognitive styles.**

Table 3: Independent Samples t-test on Cognitive Style and Academic Achievement

Cognitive Style	N	Mean	Std. Dev.	T	Df	Sig. (2-tailed)
Field Dependent	100	3.01	0.74	1.03	276	0.303

Cognitive Style	N	Mean	Std. Dev.	T	Df	Sig. (2-tailed)
Field Independent	178	2.90	0.86			

The result of the independent samples t-test presented in Table 3 reveals that field dependent students recorded a slightly higher mean CGPA (M = 3.01, SD = 0.74) compared to their field independent counterparts (M = 2.90, SD = 0.86). This implies that, on the surface, field dependent learners may appear to perform better academically than those who prefer a more analytical and autonomous learning style. However, the difference in mean scores was not statistically significant (t = 1.03, df = 276, p = 0.303), indicating that the observed variation could be due to chance rather than a genuine difference in academic performance. In practical terms, this finding suggests that cognitive style, whether field dependent or field independent does not exert a strong influence on academic achievement among undergraduates of SCE, BUK. The implication is that both categories of students are capable of attaining comparable academic outcomes regardless of their preferred mode of learning. This reinforces the view that factors beyond cognitive style, such as motivation, study habits, institutional support, and stress management, may play more critical roles in determining academic success. Therefore, HO_1 which stated that there is no significant difference in academic achievement between field dependent and field independent students, is upheld.

Hypothesis two (HO2**):** There is no significant difference in academic achievement between undergraduates with high and low stressful life events.

Table 4: Independent Samples t-test on Stressful Life Events and Academic Achievement

Stress Level	N	Mean	Std. Dev.	T	Df	Sig. (2-tailed)
High Stress	168	3.01	0.78	1.71	276	0.088
Low Stress	110	2.84	0.87			

The results in Table 4 present the comparison between students experiencing high stressful life events and those with low stressful life events in relation to their academic achievement.

Interestingly, students who reported high levels of stress achieved a slightly higher mean CGPA (M = 3.01, SD = 0.78) compared to their peers with low stress levels (M = 2.84, SD = 0.87). This finding may appear counterintuitive, as one might expect higher stress to hinder academic performance. However, in the context of undergraduates, stress could act as a motivating factor, pushing students to remain focused, disciplined, and determined in balancing their multiple responsibilities of work, family, and academics. Conversely, students with low stress levels may feel less pressure to perform, potentially leading to a more relaxed approach toward their studies. Despite this observed difference, the independent samples t-test result ($t = 1.71$, $df = 276$, $p = 0.088$) reveals that the gap is not statistically significant. This implies that the difference in mean CGPA between the two groups is likely due to random variation rather than a genuine effect of stress level on academic performance. The result underscores that while stress may play a role in shaping students' study behaviors, it does not independently determine academic achievement. Instead, other factors such as coping strategies, resilience, support networks, and individual learning styles may influence how students manage stress and translate it into academic outcomes. Therefore, HO_2, which states that there is no significant difference in academic achievement between students with high and low stressful life events, is retained.

Summary of Findings

The following are the findings from the analysis carried out:

1. Most students (60.4%) experienced high stressful life events, compared to 39.6% who reported low stress.
2. No significant difference in academic achievement between field dependent and field independent students ($t = 1.03$, $df = 276$, $p = 0.303$).

3. No significant difference in academic achievement between students with high and low stressful life events, even though the high-stress group recorded a slightly higher mean CGPA ($t = 1.71$, $df = 276$, $p = 0.088$).

Discussion

The findings of research question one indicate that most students (60.4%) experienced high stressful life events, while 39.6% reported low stress. These findings reflect the reality that part-time students often juggle work, family, and academic commitments simultaneously, which heightens stress levels. Goodyer (2012) defined stressful life experiences as significant events that alter an individual's well-being, such as financial strain or family obligations. The high proportion of students under stress is consistent with Bello (2024), who observed that non-traditional learners face unique stressors that can hinder academic focus. However, stress is not always entirely negative; moderate stress can act as a motivator. The implication is that while stress levels are high, proper coping mechanisms and institutional support can help students manage pressure and sustain achievement.

The findings of research hypothesis one revealed that there was no significant difference in academic achievement between students with field dependent and field independent cognitive styles. Although field dependent students recorded a slightly higher mean CGPA, the difference was not statistically significant. This suggests that both categories of learners were able to adapt successfully to the academic environment at SCE, BUK. This finding agreed with Kasworm (2018), who noted that learning environments tailored to adult learners may neutralize differences in cognitive styles. It also aligns with Murphy (2023), who emphasized that external support systems, teaching strategies, and resource availability often outweigh the role of cognitive style in determining achievement. The

implication is that instructors should not assume one cognitive style guarantees higher performance; rather, instructional diversity should be emphasized.

The finding of research hypothesis two indicated that there was no significant difference in academic achievement between students with high and low stressful life events. Interestingly, students experiencing high stress had slightly higher mean CGPAs than those with low stress, though the difference was not significant. This suggests that while stress can be detrimental, some students transform stressful conditions into motivation to succeed. This is in line with Lazarus and Folkman's (1984) Stress and Coping Theory, which emphasizes individual appraisal and coping strategies. Students who reframe stress as a challenge rather than a burden may perform better academically. The implication is that support services should focus on equipping students with adaptive coping strategies rather than attempting to eliminate stress entirely.

Conclusion

The study concluded that the dominance of field independent learners indicates that many part-time students prefer analytical and autonomous learning approaches. Also, the study concludes that a significant proportion of students face high levels of stress, confirming that balancing multiple responsibilities is a defining challenge for part-time learners. The study concluded that academic achievement does not significantly differ between field dependent and field independent students, suggesting that both styles can succeed when supported. Furthermore, the study concludes that both younger and older students perform comparably, showing that age does not constitute a barrier to achievement. This means that the findings imply that age does not constitute a decisive factor in determining academic achievement among undergraduates of SCE, BUK. Both younger and older students demonstrate relatively similar levels of academic performance, highlighting that other variable such as motivation, support systems, study strategies, and stress management may play

more crucial roles. The study equally concluded that stressful life events do not significantly hinder academic achievement; in some cases, high stress may even act as a motivator.

Recommendations

In line with the findings and conclusions, the following recommendations are made:

1. The university should establish structured counselling and psychological support services specifically for part-time students.
2. Stress management workshops should be organized periodically to help students develop coping strategies.
3. Lecturers should adopt learner-centred instructional approaches that accommodate both field-dependent and field-independent learners.
4. Flexible academic support systems should be introduced to assist students balancing employment, family responsibilities and studies.

References

Ali, S. (2013). Factors affecting academic achievement of students. American Journal of Educational Research, 1(8), 283–289.

Bello, A. A. (2024). *Psychological stressors and mental health among university students*. Kano Educational Research Publishers.

Bendell, T. A. (2022). Cognitive styles and secondary school students' academic performance in chemistry in Akwa Ibom State. Papers in Education and Development, 40(2), 30–33.

Dauda, H. (2021). Cognitive styles, moral reasoning and pro-social behavior as correlates of academic achievement among senior secondary school students in Jigawa State (Unpublished M.Ed. dissertation). Bayero University, Kano.

Goodyer, I. (2012). Stressful life events and adolescent mental health. *Journal of Child Psychology,45(3), 201–215.*

Jantan, M. (2014). Cognitive styles and students' academic performance in higher education. *Journal of Educational Psychology Studies, 6*(2), 45–58.

Kasworm, C. E. (2018). Adult learners in higher education. Journal of Continuing Education, 45(2), 56–67.

Kofar Sauri, A. U. (2022). *Educational psychology and human development*. Ahmadu Bello University Press.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

Muhammad, A. I. (2024). *Cognitive styles, learning processes and academic achievement*. Bayero University Press.

Musya, F. M. (2015). Academic achievement and factors influencing students' performance in higher institutions. *International Journal of Educational Research, 3*(1), 22–31.

Rabe, R. (2023). Influence of stress and responsibilities on female lecturers' effectiveness (Unpublished Masters Dissertation). Bayero University, Kano, Nigeria

Sara, Y. A. (2018). Influence of stressful life events on academic performance (Unpublished Ph.D thesis). Bayero University, Kano, Nigeria

Ubale, A. Z. (2019). Academic achievement and educational success among university students. *Nigerian Journal of Educational Studies, 15*(2), 89–102.

Wicklund, E., & Kowalczyk, N. (2023). Age and developmental characteristics in educational psychology. In *Educational psychology for contemporary learners* (pp. 112–128). Academic Press.

Witkin, H.A., Moore, C.A., Goodenough, D.R., & Cox, P.W. (1977). Field-dependent and field-independent cognitive styles and their educational implications. *Review of Educational Research, 47*(1), 1–64. https://doi.org/10.3102/00346543047001001

Zhang, L. F., & Sternberg, R. J. (2019). *Perspectives on the nature of intellectual styles*. Springer.

Zheng, C. (2022). Academic achievement and student learning outcomes in higher education. *Journal of Educational Development, 14*(2), 55–70.