



**EMOTIONAL INTELLIGENCE AND PERCEPTION OF ARTIFICIAL INTELLIGENCE
AS PREDICTORS OF ACADEMIC PERFORMANCE AMONG PRESERVICE BIOLOGY
TEACHERS IN FCE**

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Abstract

The study investigated emotional intelligence and perception of artificial intelligence as predictors of academic performance among preservice Biology teachers in north-central Federal Colleges of Education, Nigeria. A sample of two hundred and sixty-three (263) 200L NCE Biology students were selected for the study. Study subjects were selected using simple random sampling (draw from the hat method). A cross-sectional design was adopted for the study. Two instruments used for data collection were the Trait Emotional Intelligence Questionnaire (TEIQ) and Perceived Artificial Intelligence Literacy Questionnaire (PAILQ) with reliability coefficient obtained at 0.82 and 0.89 respectively, while, the subjects' Cumulative Grade Point Average (CGPA) was used to measure their academic performance. Three research questions were stated for this study. The research questions were analyzed using correlation and multiple regression analysis. Major findings of the study show that there was a positive relationship between emotional intelligence; perception of artificial intelligence and academic performance and that the two independent variables are good predictors of academic performance but at different rates. Based on this, it was concluded that emotional intelligence and perception of artificial intelligence are good predictors of academic performance in biology and that perception of artificial intelligence is a better predictor of academic performance than emotional intelligence. It is therefore recommended that students of all levels should be exposed to emotional intelligence and artificial intelligence skills in addressing students with academic problems.

Keywords: *Emotional Intelligence, Perception, Artificial Intelligence, and Academic Performance.*

INTRODUCTION

Emotional intelligence (EI) has been an inspiring word in the academic domain for personal and research success. Emotional intelligence is a crucial component of once personal and interpersonal relationships with other students likewise; it paves the way for allowing each student to fit in and overcome academic hurdles. Goleman (1998) sees emotional intelligence as the ability to monitor one and others' emotions, discriminate among them, and use this information to guide one's thinking and actions. From Goleman's (1998) definition of emotional intelligence, one can deduce that emotional intelligence is the ability to identify, assess, and control the emotions of oneself, of others, and of groups. To identify, assess, and control emotion, one needs to understand the four attributes of emotional intelligence: 1-Self-Awareness: which allows us to recognize and understand our own emotions, strengths, and weaknesses, 2-self-management: which involves controlling our emotions and responses to different situations, making us more adaptable and flexible as students and teachers, 3-Social Awareness: is the ability to empathize with others, understand their emotions, and respond accordingly, and 4-Relationship Management: refers to the ability to build strong relationships with others. Teachers with strong emotional intelligence skills can communicate effectively, navigate different personalities, and maintain productive relationships with students. These attributes emanate from the emotional intelligence components of self-awareness, self-regulation, motivation, empathy, and social skills.

Since intelligence is the capability to use experience for learning and to be able to form and choose environments, as well as an individual's adaptability and relationship to these environments, any individual that possesses these features must be an intelligent person likewise when an individual's is low in emotional intelligence, it affects the level of learning outcome irrespective of

how brilliant he may be. From his assertion, are those intelligent always emotionally stable? If not, then emotional intelligence may not correlate with high intelligence. This shows that variables could be present as partly exclusive and may call for consideration for each in the character of learners. Emotional intelligence is a confluence of developed abilities to: know and value self; build and maintain a variety of strong, productive, and healthy relationships; get along and work well with others in achieving positive results; and effectively deal with the pressures and demands of daily life and work (Maraichelvi& Rajan, 2013; Nelson & Low, 2003).

Our intelligence makes us human, and AI is an extension of human intelligence. AI is a manmade machine intelligence that can observe their surroundings and use that information to achieve their goals. Individuals' perception of AI differs and as we all know AI plays a vital role in the academic environment because it facilitates decision-making as a primary driver of innovation in today's society, therefore, AI tools must comply with 3 basic principles: Learning: Acquiring and processing the new experience, creating new behavior models, while Self-correction: Refining the algorithms to ensure the most accurate results, and Reasoning: Picking up the specific algorithms to resolve a particular task (Harry, 2023). Artificial Intelligence (AI) is important in education and a significant factor in academic success. For instance: in personalized education Artificial Intelligence helps find out what a student does and does not know, building a specific study schedule for each learner considering the knowledge gaps. In such a way, AI tailors studies according to students' personal needs, increasing their efficiency; AI helps produce smart content like Digital learning interfaces with customization options, digital textbooks, study guides, bite-sized lessons, and much more can be generated with the help of AI(Harry, 2023).However, as students' perceptions are crucial for successful implementation, positive perceptions can bring about intensive

engagement while negative perceptions can affect acceptance and performance. AI helps in information visualization which is a new way of perceiving information, such as visualization, simulation, and web-based study environments, can be powered by AI and learning content updates which generate and update the content of the lessons, keeping the information up-to-date and customizing it for different learning curves. It is also perceived that AI contributed to task automation as administrative tasks simplification: grading, assessing, and replying to students is a time-consuming activity that could be optimized by the teacher using AI. It also assists in personal tutoring and support for the students outside of the classroom which helps learners keep up with the course and keep their parents from struggling to explain some concepts to their kids. AI tutors are great time-savers for teachers, as they do not need extra time explaining challenging topics to students (Luckin et al.2016).

Study of Selwyn (2019) specifically explored how students think about AI which includes its potential benefits and drawbacks in the education sector such as personalized learning (by adapting to students' needs, pace, and learning styles), enhancing understanding (by helping students understand complex concepts and reinforce their knowledge), and self-directed learning (by providing tailored content and recommendations). However, the concerns of AI in education may include: displacement of human roles (teachers and students are concerned that AI will replace human roles), Unreliable information (students are concerned about the quality of knowledge provided by AI), and plagiarism (Harry, 2019).

The two themes are gaining more and more popularity that is Emotional Intelligence (EI) and Perception of Artificial Intelligence (PAI). But the question arises is there any relation between the

two or are they of opposing tendencies and how do they improve academic performance? Perception of Artificial Intelligence as an individual factor in academic performance plays a vital role in teaching and learning environment from the literature, it is glaring that EI and AI were investigated separately and no study has investigated the two variables combined as to which impact the academic performance of students. Some researchers examine the two variables in combination under their influence on work success.

Literature Review

Theoretical Framework

The theoretical framework of this study was based on Albert Bandura's (1977) Social Learning Theory using the Triadic Model of Reciprocal Determinism. Many behavioral theories have been established to explain and predict behavioral changes such as the theory of planned behaviour (TPB) but the most extensively used was Social Learning Theory (SLT) which is the most relevant to this study as it highlights the dynamic and consistent interaction between a person's behaviour, the environment in which the behaviour occurs and the characteristics of the individual performing that behaviour.

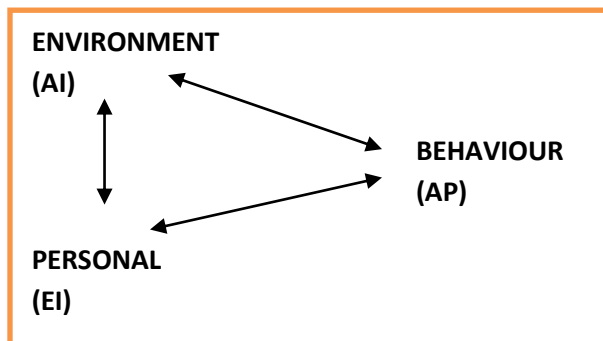


Fig 1: Bandura's Triadic Model of Reciprocal Determinism

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The model above explained that Environmental factors (Artificial Intelligence AI), Personal factors (Emotional Intelligence EI), and Behavioral factors (Academic Performance AP) are interdependent and jointly shape changes in an individual's behavior (Siow et al, 2023). Perhaps, the relationship among the factors regulates itself and overall, this model is used to predict behavioral changes and identify gaps in actual behavioral performance. In summary, TEIQue and PAILQ can influence each other through the lens of Bandura's model. Higher emotional intelligence may lead to more constructive perceptions of AI, while positive experiences with AI can further develop emotional skills. Both illustrate a reciprocal relationship among personal traits, perceptions, and behaviors in technology-mediated environments.

Empirically, research has found that humans are still better than robots in identifying new patterns, logical reasoning, creativity, conscientiousness, as well as identifying, responding and displaying emotions. From a perceptual point of view in AI human touch and empathy is missing. Together AI and EI give a full picture of Human Intelligence. Choudhury (2023) opined that many people are disconnected from their emotions especially strong core emotions such as anger, sadness, fear, and joy. This is a result of negative childhood experiences that taught you to try to shut off your feelings. But although we can misrepresent, refuse, or numb our feelings, we can't eliminate them. So, the biggest question is that, are students aware of their emotions or not. Unfortunately, without emotional awareness, we will be unable to understand our personal motivations and needs, or communicate effectively with others. With the inception of AI, information technology and Computers artificial intelligence is becoming part and parcel of day-to-day life how machines have completely changed human lives, helping them in daily chores and organizational work which is serving in mounting high level of imagination, master creative analysis and practice the decisive

thinking that only human being possess and trying to innovate and evolve in schools through Machine learning.

Several studies such as Dangana et al (2021)Conducted research on emotional intelligence as a predictor of academic achievement in university biology education students and revealed that EI is a good predictor of academic achievement (N=327, r value=.388**). Amalu (2018) also investigated EI as a predictor of the academic performance of SS 2 students in mathematics (N=375, r-value=2.074**) and found a positive correlation between EI and Academic performance (AP). However, on the perception of Artificial intelligence as a predictor of academic performance studies such as that of Jeffrey (2020) revealed that students' level of understanding of AI remains moderately high (n=127, 77%), students' perceptions of how AI is being developed (n=127, 79%) and whether it will have a positive impact on their behavior (n=127, 64%) remain moderately low.

Objectives of the Study

1. To examine the relationship between emotional intelligence and academic performance among preservice biology teachers in North-Central Federal Colleges of Education, Nigeria.
2. To investigate the relationship between the perception of artificial intelligence and academic performance among preservice biology teachers in North-Central Colleges of Education, Nigeria.
3. To identify which components of emotional intelligence and perception of artificial intelligence are significant predictors of academic performance among preservice biology teachers in North-Central Colleges of Education, Nigeria.

Research Questions

1. What is the relationship between emotional intelligence and academic performance among preservice biology teachers in North-Central Federal Colleges of Education, Nigeria?
2. What is the relationship between the perception of artificial intelligence and academic performance among preservice biology teachers in North-Central Colleges of Education, Nigeria?
3. Which emotional intelligence and perception of artificial intelligence will be a good predictor of academic performance among preservice biology teachers in North-Central Colleges of Education, Nigeria?

Statement of the Problem

The persistent poor academic performance of students in science particularly in biology has called for many investigations into the factors responsible for the problems. Many researchers have reported that emotional intelligence and artificial intelligence have a better impact on students' academic performance. Also, very scanty literature is available on the relationship between NCE biology students' emotional intelligence and perception of artificial intelligence and their academic performance in Nigeria, likewise no literature available revealed which EI and Perception of AI predict academic performance of students at NCE level in Nigeria. Therefore, the main purpose of this study is to find out: the relationship among emotional intelligence, perception of artificial intelligence, and academic performance of NCE biology students in North-Central Colleges of Education, Nigeria.

Significance of the Study

This study was able to establish that emotional intelligence and perception of artificial intelligence play a crucial role in the academic performance of students as it implies that students with high levels of emotional intelligence and positive perceptions of artificial intelligence perform better academically and it is important to know that high positive perception of artificial intelligence is the playing card to a successful academic performance.

METHODOLOGY

The study employed cross-sectional research design. It is cross-sectional because data was collected from the sampled subjects at a single point in time to establish the type of relationship that exists among the variables and determined which of them a more reliable predictor of performance. In this design, the instruments used for data collection were Trait Emotional Intelligence Questionnaire (TEIQue) developed and adopted from Petrides and Furnham, (2001), contain 30 item questions for the short version that reflects on four broad emotional intelligence factors: well-being, self-control, emotionality and sociability validated and with reliability coefficient of 0.80 using Cronbach's alpha and rated on 7 point Linkert scale, ranging from "Disagree completely" to "Agree completely" and Perceived Artificial Intelligence Literacy Questionnaire (PAILQ) was developed and adopted from Grassini (2024) which was designed to assess individuals' self-perceived understanding and awareness of artificial intelligence concepts and applications. The instrument has the ability to gauge AI literacy levels and contained 31 items each targeting different aspects of AI literacy such as knowledge of AI concepts, awareness of AI applications and understanding of AI's societal implications and has a reliability coefficient of 0.89 using Cronbach's alpha answered in 4-point

Linkert scale. While students CGPA was used as their performance which was gotten from their various departmental exam officers. The population for the study comprised of all the 200 levels NCE biology students of the Federal Colleges of Education in North-Central, Nigeria. The colleges are located in Abuja, Kogi, Niger and Plateau states. There are four federal colleges of education with population of 263 students with average age of 20 to 22 years. Purposive sampling technique was used in selecting the colleges. The four federal colleges of education within North-Central Nigeria were selected with intact class sample size of 263. Since the research is correlation in nature, the population is manageable.

The data for the study was collected by administering the two instruments and the data were analyzed using SPSS 20.0V. The research questions were answered using Correlation analysis and multiple regression analysis. The results of the analysis are presented below:

Research Question One: What is the relationship between emotional intelligence and academic achievement among preservice biology teachers in North-Centrale, Nigeria?

The data collected to answer research question one was analyzed using Mean, Standard Deviation, and Pearson Product-Moment Correlation Coefficient Statistic (PPMCC) as shown in Table 1.

Table 1: Pearson Product-Moment Correlation Coefficient (PPMCC) Statistics on Relationship between Emotional Intelligence and Academic Performance among Preservice Biology Teachers in North-Central FCE, Nigeria

Variable	n	Mean	STD	r-value	Remark
Academic Performance	263	2.31	0.72	0.68**	There exists a significant positive relationship
Emotional Intelligence	263	101.39	21.73		

Table 1 revealed a strong positive correlation ($r=0.68$) between emotional intelligence and the academic performance of preservice biology teachers. This is so because the r - value is not carry negative sign and it is more than 0.29 according to Cohen, (1988) who stated that the r - value from 0.10 to 0.29 for low correlation, 0.30 to 0.49 for moderate correlation and 0.50 to 1 for high correlation.

Research Question Two: What is the relationship between the perception of artificial intelligence and academic performance among preservice biology teachers in North-Central FCE, Nigeria?

The data collected to answer research question one was analyzed using Mean, Standard Deviation, and Pearson Product-Moment Correlation Coefficient Statistic (PPMCC) as shown in Table 2.

Table 2: Pearson Product-Moment Correlation Coefficient (PPMCC) Statistics on the Relationship between Perception of Artificial Intelligence and Academic Performance among preservice biology teachers in North-Central FCE, Nigeria

Variable	n	Mean	STD	r-value	Remark
Academic Performance	263	2.29	0.74	0.64**	There exists a significant positive relationship
Artificial-Intelligence	263	110.63	24.31		

Table 2 shows a high positive correlation ($r= 0.64$) between the perception of artificial intelligence and academic performance in preservice biology teachers in North-Central Federal Colleges of Education (FCE), Nigeria. The table revealed a high relationship between the two variables; perception of artificial intelligence and academic performance since the r -value did not carry a negative sign and had a value higher than 0.50.

Research Question Three: Which emotional intelligence and perception of artificial intelligence is a good predictor of academic performance among preservice biology teachers in North-Central Federal Colleges of Education, Nigeria?

The data collected to answer research question three, was analyzed using multiple regression analysis as shown in Table 3

Table 3: Multiple Regression Analysis on Effect of Emotional Intelligence and Perception of Artificial Intelligence as Predictors of Academic Performance among Preservice Biology Teachers in North-Central FCE, Nigeria

Variable	1	R	R ²	R ² Adjusted	Coefficient Beta	F-cal	ig.	1
Emotional Intelligence	63	0.61	.572	.581	.482	231.624	000	*
Artificial Intelligence	63	0.46	.572	.581	.110			

Significant at P < .005

From Table 3 the R square shows how much of the variance in the dependent variable (academic performance) is explained by the model. The R square value is .572 is expressed in percentage, which means that the model (which includes emotional intelligence and perception of artificial intelligence) explains 57.2% of the variance in academic performance, which is arrived at by multiplying R square by 100. In the standardized coefficient (Beta) column, the independent variable with a larger Beta value predicts better academic performance. Therefore, the coefficient beta value revealed that emotional intelligence and artificial intelligence have Beta= .482 and .110 respectively. This means that emotional intelligence with a Beta value of .482 predicts the academic performance of students better than the perception of artificial intelligence with a Beta value of .110.

Summary of Findings

1. Research question one revealed a strong positive correlation ($r=0.68$) between emotional intelligence and the academic performance of preservice biology teachers.
2. Research question two shows a high positive correlation ($r= 0.64$) between the perception of artificial intelligence and academic performance in preservice biology teachers in North-Central Federal Colleges of Education (FCE), Nigeria.
3. Research question two revealed that emotional intelligence with a Beta value of .482 predicts the academic performance of students better than the perception of artificial intelligence with a Beta value of .110.

DISCUSSION OF THE FINDINGS

Results in Table 1 show a strong positive significant relationship between emotional intelligence and academic performance of biology NCE students in North-Central FCE, Nigeria. The positive relationship shows that emotional intelligence is a predictor of the academic performance of biology students. The finding of this study is in agreement with that of Aziz et al. (2012); & Mohzan et al. (2012) and Elias (2014); who reported a positive significant relationship between emotional intelligence and GPA with a mean of 3.460 and 5.268 postulated that students with high emotional intelligence did well in almost all of their courses compared to students with low emotional intelligence skills. The differences between the researchers' mean and the current study's mean may be due to the fact that the NCE students have acquired enough emotional intelligence skills from their secondary school levels, and homes which have helped them to be able to solve problems during pressures. The finding of this study disagrees with that of Johnson (2018) who reported no

significant correlation between emotional intelligence and academic performance on the basis of the GPA.

The result in Table 2 shows that a highly positive significant relationship exists between the perception of artificial intelligence and the academic performance of biology NCE students in North-Central FCE, Nigeria. The table revealed that artificial intelligence is a good predictor of the academic performance of NCE biology students. The finding of this study is in line with that of Eriksson et al. (2020), Amalu (2018) and Choudhury (2023) who revealed that students with a high potential of using artificial intelligence have the advantage of performing better than students with low potential of using artificial intelligence. The finding of this study disagreed with that of Jarrahi, (2018) and Archana,(2012)who revealed no significant correlation between artificial intelligence and academic performance of students. The result in table 3 revealed a positive significant correlation between emotional intelligence and artificial intelligence as predictors of academic performance of biology NCE students in North-Central FCE, Nigeria. The finding of this study revealed that the two independent variables (emotional intelligence and perception of artificial intelligence) are good predictors of the dependent variable (academic performance) that each of the independent variable predict the academic performance of biology students at different rates and that the better predictor to academic performance between the two independent variables was the emotional intelligence and the least was the perception of artificial intelligence. This may be because most students are more emotionally brought up and not familiar or acquainted with using artificial intelligence in their studies.

Conclusion

Based on the findings of the study the following conclusions were drawn: the two independent variables emotional intelligence and perception of artificial intelligence have a positive relationship with the academic performance of students. There was a strong positive relationship between emotional intelligence and academic performance and a highly positive relationship between the perception of artificial intelligence and academic performance. Perhaps the two independent variables (emotional intelligence and perception of artificial intelligence) are good predictors of the academic performance of biology students, but on the scale of their predicting power the students with high emotional intelligence always have better academic performance than students who have perception of artificial intelligence skills in biology among NCE students in North-Central federal colleges of education, Nigeria. This may be due to their negative perception of artificial intelligence. Therefore, the need for emotional intelligence and a positive perception of artificial intelligence skills gives students more potential for enhancing their academic performance.

Recommendations

From the findings and conclusion of this study, the following recommendations are hereby made:

Students of all levels should be exposed to emotional intelligence and artificial intelligence skills in re-addressing students with academic problems.

Acquiring emotional intelligence skills should be the priority of students of biology at NCE level since they operate at formal operational level. This could improve their academic performance.

Research evidence and benefits of artificial intelligence and emotional intelligence could be made available to science educators and publishers so that learning materials could be modified to accommodate emotional intelligence and memory-capacity skills where necessary.

Science education departments in federal colleges of education could be sensitized through workshops, conferences and symposia in the need for acquisition of artificial intelligence and Emotional intelligence skills since they are good predictors to academic achievement.

References

- Amalu N. M. (2018). Emotional intelligence as predictor of academic performance among secondary school students, *International Journal of Scientific Research in Education*. 11 (1). 63-70
- Archana, A. (2012). Some correlates of academic achievement. *Indian Journal of Educational Research*, 21 (2), 75-76
- Azizi Y., Daing J, Noordin Y, Yusof B, Shahrin H., & Goh M, (2012). The impact of emotional intelligence element on academic achievement. *Archives Des Sciences*, 65(4) 67-74
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bhadouria, P. (2013). Role of emotional intelligence for academic achievement for students. *Research Journal of Education Science*, 1 (2), 8-11
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.) Lawrence Erlbaum associates
- Chaudhary, T., (2023). Connect between artificial intelligence and emotional intelligence at workplace. *Mukt Shabd Journal*, 8(3)309-315
- Dangana, M., Usman, I. A., Lawal, T. E., and Mari, J. S. (2021) Emotional intelligence, reasoning ability, memory capacity and intelligence as predictors to academic achievement in biology among undergraduates' education students in North-Central Universities, Nigeria. *International Journal of Education Research and Library Science* 6(8) 41-58

- Eriksson, T., Bigi, A. & Bonera, M. (2020). "Think with me, or think for me? on the future role of artificial intelligence in marketing strategy formulation", *The TQM Journal*, 32(4) 795-814, doi: 10.1108/TQM-12-2019-0303.
- Elias, M.J. (2014). The connection between social-emotional learning and learning disabilities: *Implications for intervention*. 27, 53-63.
- Goleman, D. (1998). Working with emotional intelligence. *New York: Bantam Books*.
- Grassini, S. (2024). A psychometric validation of the Perceived artificial Intelligence Literacy Questionnaire. In Proceedings of the 13th Nordic Conference on Human-Computer Interaction. <https://doi.org/10.1145/3679318.3685359>
- Habibollah., N., Rohani., A., Tengku A. H., Jamaluddin, S. V., & Mallan, K. (2017). Gender differences in creative perceptions of undergraduate students. *Journal of Applied Sciences*, 9(1)167-172. <http://dx.doi.org/10.3923/jas.2009.167.172>
- Hala M.M.B., Samer M.A., Basem S.A. & Samy S.A. (2023). Students' perceptions of artificial intelligence in education. *International Journal of Academic Management Science Research*, 7(5) 105-116
- Harry, J. (2023). Contemporary issues on innovation focus on artificial intelligence for efficiency in Nigerian health and educational system. *Journal of Health, Applied sciences and Management*, 7 (1) 56-65
- Jarrahi, M.H. (2018). Artificial intelligence and the future of work: human-AI symbiosis in organizational decision making", *Business Horizons*, 61(4)577-586, doi: 10.1016/j.bushor.2018.03.007.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence Unleashed: An Argument for AI in Education. *Pearson Education*.
- Maraichelvi, A. & Rajan, S. (2013). Relationship between emotional intelligence and academic performance among final year undergraduates. *Universal Journal of Psychology*. 1 (2) 41-45
- Mohzan M., Hassan N., & Norhafizah A., (2012). The influence of emotional intelligence on academic achievement. 6th international conference on university learning and teaching. *Procedia - Social and Behavioral Sciences* 90 303 – 312
- Nelson, D. & Low, G. (2003). Emotional intelligence: Achieving academic and career excellence. *Prentice Hall*
- Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Personality*, 15, 425-448. doi: 10.1002/per.416

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- Salami, S. O. (2016). Emotional intelligence, self-efficacy, psychological well-being and students' attitudes: Implications for quality education. *European Journal of Education Studies* 2 (3) 54-59
- Selwyn, N. (2019). Should Robots Replace Teachers? AI and the Future of Education. In *What Matters in Teaching?* (pp. 151-162). Routledge.
- Siow M.L., Ramachandran S., Tahir O.M., & Shuib A. (2023). Sustainable development goal 2: exploring bandura's triadic model for behavioural change among urban primary school students. *International Journal of Business and Society*.24(3) 1030-1045