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ASSESSMENT OF THE PSYCHOSOCIAL LEARNING ENVIRONMENT FOR BIOLOGY LEARNING IN ONDO STATE, NIGERIA

Grace Titilope Babafemi[1]

[1*]Adekunle Ajasin University, Akungba, Nigeria
grace.babafemi@aaua.edu.ng

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ABSTRACT

The role of psychosocial factors in improving students learning is well documented in literature, as well as its prospects and benefits in addressing educational problems. Hence the need to assess the psychosocial learning environment for biology learning. This study revealed biology students' anxiety level, their sense of belonging and the classroom climate as perceived by the students. The descriptive survey research was conducted with 391 biology students selected randomly from a population of all senior secondary school biology students in Akoko South West, Ondo State, Nigeria. A four-sectioned validated questionnaire, with reliability index of 0.72, 0.82, and 0.77, served data collection purpose. Findings revealed that students' anxiety level is moderate (mean score=1.49). Although, students often get depressed if they don't perform up to expectation (1.27), they are not anxious whenever test is approaching (1.54), and they are unsure of their anxiety level with respect to failing (1.50). Also, students exhibit a moderately high sense of belongingness in school (mean=1.68) but students feel ignored in most extra-curricular activities (1.31) and believe that their teachers are often too busy to attend to their personal needs (1.28). Students accepts their classroom climate as conducive for learning (1.76), organized (1.74), and not disoriented (1.59). The result also reveals that the classroom atmosphere is moderately positive (mean=1.66). It was recommended that educational stakeholder and curriculum implementers should employ techniques that will further decrease students' anxiety and boost their sense of belonging. The classroom climate should be supplemented with psychosocial enrichment.

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INTRODUCTION

Globally, development stems from rigorous and productive scientific activities which are driven by research and technological application of reported ideas, facts and findings. Science, an intellectual and strategic attempt to explain and control the natural world[1], continues to shape the world because science processed skills are utilization by scientist to construct knowledge in order to solve problems and formulate results[2], especially during research activities. Majorly the aim of science is to develop students' interest in science and technology[3] in order to boost human development and utilize scientific information appropriately. A functional and sustainable science education then become essential to achieve societal goals and maintain scientific development. It is worthwhile to mention the cross-cutting role of science as a fundamental part of everyday life, essential to understand the world and reveal a new way of exploring the world.[3]

As a bedrock of modern day technological breakthrough[4], science has transformed the world into a global community where things are done easily, communication made faster and people reached without much stress. For instance, [5]identified the relevance of science and technology as instruments of economic growth in advanced industrialized nations while it was also commented that science is the reason for the ever increasing understanding that people have about the world around them.[6] The above submission provides a

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[1] Kehinde. A. Alebiosu and Micheal Emmanuel, "Towards optional enhancement of practical work and activities in school science," *Journal of Research in science Education*, 2, no. 1 (2018): 1-10.

[2] Sinan, Ozgelen, "Scientist' science process skills within a cognitive domain framework," *Eurasian Journal of Mathematics, Science & Technology Education* 8, no. 2 (2012): 283-292.

[3] Y. Ayoola. and O.T. Owolabi, "Effects of Inquiry Based Methods and Computer-Assisted Instructions on Students' performance in Physics in Nigeria Federal Government Colleges." *Journal of Research in science Education* 2, no.1 (2018): 66-71.

[4] R. Mohammed, "Effects of Target task model in Senior Secondary School Students' Performance in physics in Ilorin, Kwara State," *Journal of Research in science Education,* 2, no.1 (2018):72-80.

[5]K. Boyler, "Convey the importance of science," accessed April, 22, 2016, *www.tunesunion.com/tuplusopinion/article/convey-the-importance-of-science0638828.php*.

[6] E. Ugwumaduka, and B.O. Adekunle, "Predicting science achievements in senior secondary school in Ijebu north LGA, Ogun State: Role of Emotional

rationale behind the teaching and learning of scientific concepts, processes and attitudes in schools. Furthermore, science education is projected to help individuals cope with the numerous changes incited by science and sustain the development triggered by science.[7] Another leading reason for science learning is to produce citizens that are scientifically prepared to conduct research which will in turn drive the society towards the desired destination.

Biology, a vital science subject[8], is an aspect of science that deals with life and a prerequisite for building career in life-related discipline including Nursing, Psychology, medicine, agriculture, botany, zoology, fisheries and even some aspects of Science Education, specifically biology. Occupying a unique position in the Nigerian senior secondary school curriculum[9], Biology learning is central to human health and development. For instance, students are exposed to the human body system with particular reference to digestive, excretory, respiratory, circulatory and skeletal system while the components and functions of cell and plants are not ignored. The objectives and rationale for biology learning as proposed by the National Policy on Education in 2004 are presented below: 1) To develop an awareness of the environment; 2) To understand certain key biological concepts necessary for successful living in a scientific and technological world; 3) To make room for technological advancement; 4) To inculcate the habit of initial observation and drawing conclusions only on available data; 5) To illuminate the problem of sex, reproduction, growth, pollution, health for the benefit of the society; 6) To acquire ability to apply scientific knowledge to everyday life in matters of personal and community health and agriculture and; and 7) To dispose superstitious beliefs in a technological method.

The objectives stated above indicates that the aim of biology learning in Nigeria, and possibly globally, is targeted towards improving the world's condition and global development. Hence the need for an effective and quality biology education.

Intelligence and Self Efficacy," *Journal of Research in science Education* 2, no-1 (2018): 81-90.

[7] Grace. T. Babafemi and Adekemi.O. Adewumi, "Effect of Individualised Creative Mapping on Students' Conceptual Understanding and Sustained Knowledge in Biology," *Journal of Education Research and Rural Community Development* 1, no.1 (2019): 14-24.

[8] Abiola. A. Akingbemisilu and Grace. T. Babafemi, "Implications of Flipped Instructional Strategies and grade on Predegree Students' Attitude to biology," *Journal of Research in science Education* 2, no. 1 (2018): 28-34.

[9] M. Yusuf and A.O. Afolabi, "Effects of Computer assisted instruction on secondary school students' performance in Biology," *The Turkish Online Journal of Educational Technology* 9, no.1 (2010): 62-69.

Quality education, a key to national development and advancement[10], is not dissociated from a good learning environment. In a similar view, it could be expressed that effective learning is only possible if the learning climate is arranged to trigger learning while [11]reported that the quality of the learning environment is connected to the outcome of students' achievement and success. Consequently, [12]stated that before students can succeed academically, they must feel safe, both physically and mentally. Learning environment, according to[13], is a major factor in shaping the quality of academic achievement. This learning environment is not delimited to the physical school building and facilities only, but extended to the emotional atmosphere and affective aspects of learning. Psychological environment, an aspect of learning environment, means the interaction in the classroom.[14] It is the interpersonal relationship among students, within students, between students and their teachers, between students and subject matters and the method of learning.[15] Psychosocial environment connotes the classroom atmosphere, teachers' support, students' sense of belongings, feeling of safety, students' anxiety level among others. Psychosocial functioning plays key role in students' wellbeing and performance within and out of the school premises.[16] Since the available data in literature established that psychosocial factors affects students' performance[17], students' interest[18],

[10] P. Olugbuyi et al. "Digitalizing science education: The panacea for Apathy of the Present Nigeria youth," *Journal of Research in science Education* 2, no.1 (2018): 52-57.

[11] N. Nettasinghe and K. Samarasinghe, "Psycho-social Learning Environment from Nurse Students' Perspective," *Universal Journal of Educational Research* 6, no.12 (2018): 2707-2714, *http://www.hrpub.orgdoi:10.13189/ujer.2018.061202*

[12] C. Waldman, "Four Elements for Creating a Positive Learning Environment," September 9 2016, https://all4ed.org/four-elements-for-creating-a-positive-learning-environment/.

[13] Adedeji Tella, "Teacher Variables as Predictors of Academic Achievement of Primary School Pupils Mathematics," *International Electronic Journal of Elementary Education* 1, no.1 (2008): 12-23.

[14] G. Haertal and Walberg, "Socio psychological environment and learning: A quantities synthesis," *British Educational Research Journal* 7, no. 27 (2007):36

[15] L. Anderson, "An examination of classroom context; effects of lesson format and teacher training in patterns of teacher-contact during small group instruction," *Journal of Classroom Interaction* 45, no.1 (2007): 25-31.

[16] C. Reynolds et al., "Measurement and assessment in education" (Upper Saddle River, NJ: Pearson, 2006), p 12.

[17] T. Shamaki, "Influence of Learning Environment on Students' Academic Achievement in Mathematics: A Case Study of Some Selected Secondary Schools in Yobe State, Nigeria," *Journal of Education and Practice* 6, no.34 (2015):40-44, *https://files.eric.ed.gov/fulltext/EJ1086080.pdf*

[18] B. Ezike, "Classroom Environment And Academic Interest as Correlates of Achievement in Senior Secondary School Chemistry in Ibadan South West Local Government Area, Oyo State, Nigeria," *Global Journal Of Educational Research* 17, (2018): 61-71, *https://academicjournals.org/journal/ERR/article-references/B4E1C7162538*

students' motivation[19]and attitude to science[20], there is therefore a need to assess the psychosocial situation of the present biology learning environment.

Anxiety, a psychological feeling[21] is an effective factor likely to affect students' performance. For instance, [22]investigated the level of anxiety among tertiary level of students in Bangladesh through an exploration study and reported that around half of the students (46.3%) suffer from a high level of anxiety while another 28.8% suffer from moderately high anxiety. In a different study, [23]correlated students' reading anxiety and their reading comprehension in ESP context and revealed that students exhibited increased anxiety with score of 104 to 127 in the EFLRAI questionnaire at the conclusion of the study with 50 participants. Their study further reveal a moderate anxiety level for 44% of the participants. The above result is similar to that of [24]. These studies are conducted at the tertiary level of Education, the current study is done within the secondary level so as to reveal the classroom anxiety level of students before they proceed with more engaging activities of life. Furthermore, [25] analyzed the anxiety level in classroom English presentations with Korean tertiary educational context using classroom observation and semi-structured interview. The qualitative work revealed that all the twenty participants suffered nervousness to different degrees in their presentations in classroom. Tian' study was conducted with English students and not biology students. Also, [26] reported

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[19] S. Velayutham and J. M. Aldridge, "Influence of psychosocial classroom environment on students' motivation and self-regulation in science learning: A structural equation modelling approach," *Research in Science Education* 1, (2012): 1-21. http//doi 10.1007/s11165-011-9273-y

[20] S. Telli et al., "The importance of teacher-student interpersonal relationships for Turkish students' attitudes towards science," *Research in Science and Technological Education* 28, (2010): 261-276.

[21] C. Spielberger, "Manual or the State-Trait Anxiety Inventory" (Palo Alto, CA: Consulting Psychologists Press, 1983) 20, *https://doi.org/10.1037/t06496-000*

[22] M. Mamun, "English Language Anxiety of Tertiary Level Learners in Bangladesh: Level and Sources," *English Language Teaching* 14, no.11 (2021): 49-60. *https://doi.org/10.5539/elt.v14n11p49-60*

[23] N. Mardianti, et al. "The Correlation between Students' Reading Anxiety and Their Reading Comprehension in ESP Context," *International Journal of Language Education* 5, no.2 (2021): 15-29. https://doi.org/10.26858/ijole.v5i2.15440

[24] A. Muhlis, "Foreign Language Reading Anxiety among Indonesian EFL Senior High School Students," *English Franca* 1, no.1 (2017): 19–44.

[25] C. Tian, "Anxiety in classroom English Presentations: A Case Study in Korean Tertiary Educational Context," *Higher Education Studies* 9, no.1 (2019): 132-143. *https://doi.org/10.5539/hes.v9n1p132*

[26] B. Caymaz and A. Aydın, "An investigation of secondary school students' anxiety and motivation levels towards science course in terms of some variables," *International Journal of Psychology and Educational Studies* 8, no.3 (2021): 13-27. *https://dx.doi.org/10.52380/ijpes.2021.8.3.189*

an incredible low anxiety level among secondary school science students after investigating students' anxiety and motivation level towards science course in terms of some variables. This study is worth to be conducted because of the prospects and benefits of science education and more importantly biology education. The study will assess the level of anxiety among biology students in biology classrooms in Akoko South West, Ondo State, Nigeria. It will also examine the classroom atmosphere as perceived by biology students.

Finally, the study will reveal students' sense of belongings in biology classrooms in Akoko South West, Ondo State, Nigeria. As a fundamental human experience[27], Sense of Belonging refers to a students' psychological sense of connectedness to the campus community.[28] It is characterized as the subjective sense of being a valued and legitimate member of a particular environment and being incorporated into it.[29] It is importance for educational practitioners to be abreast of students' sense of involvement as this may influence their approach and commitment to educational objectives. In a sole-authored study, [30] examined the sense of belonging among first year students during covid-19 pandemic and reported a sense of loss among participants after a focus group discussion. Similarly, this study will establish students' sense of belonging in the biology classroom but at the secondary level of Education and locally in Nigeria. This study will also examine the classroom atmosphere as perceived by biology students, which is another psychosocial construct likely affect students' progress and performance.

The place of the affective classroom atmosphere as an incubator in attaining educational goals is well established in literature. This is seen in the empirical influence of the psychosocial environment on students' interest, performance, motivation and attitude, making it a key factor of great concern during teaching. Also, the benefits associated with prioritizing the psychosocial learning environment during instruction are innumerable. However, despite the empirical facts on its impacts in education, the status of the psychosocial learning environment in science classrooms in Nigeria have not enjoyed much attention and research. Hence, the current study is an attempt to assess the psychosocial learning environment available for biology learning in Akoko

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[27] J. Hirsch, and M. S. Clark, "Multiple paths to belonging that we should study together," *Perspectives on Psychological Science*, 14, no.2 (2021): 238-255. *https://clarkrelationshiplab.yale.edu/sites/default/files/files/HirschClark(2019).pdf.*

[28] T. Strayhorn, "College students' sense of belonging: A key to educational success for all students." (Routledge, 2012)

[29] G. Walton, and G. L. Cohen, "A question of belonging: Race, social fit, and achievement," *Journal of Personality and Social Psychology* 92, (2012): 82–96.

[30] C. Potts, "Seen and unseen: First-year college students' sense of belonging during the covid-19 pandemic," *College Student Affairs Journal.* 39, no.2 (2021): 214 – 224.

South West local study

The following research questions were raised for the

1. What is the level of biology students' anxiety towards their learning?
2. Do biology students display high sense of belonging in school?
3. How do biology students perceive the classroom atmosphere?

Methods

The study employed the descriptive research design of the survey type. The population consist of all senior secondary school two biology students in Akoko South West, Ondo State, Nigeria, out of which, 391 biology students were randomly selected as sample. Data was generated through the use of a questionnaire, with four sections, which sought information on the psychosocial learning environment. Section A elicit personal information of students, Section B assessed students' anxiety level, Section C sought information on students' sense of belonging while section D elicit data on classroom atmosphere as perceived by the students. The four-sectioned validated questionnaire, with reliability index of 0.72 for section B, 0.82 for section C and 0.77 for section C, which made the instrument reliable for use. The questionnaires were administered within five weeks, which required the participants to complete the instruments in their various classrooms. Completed questionnaires were subjected to statistical analysis using frequency counts, simple percentage, mean and standard deviation as tools for analysis.

RESULT AND DISCUSSION

Research Question One: What is the level of students' anxiety towards their learning?

Table 1: A descriptive table showing frequency, percentage and mean scores of the level of students' anxiety towards their learning

S/N	**Items on students' anxiety**	**Agreed**	**Disagreed**	**Mean**
1	I am often anxious of my grade	63 16.1%	328 83.9%	1.84
2	I get depressed whenever test is approaching	179 45.8%	212 54.2%	1.54
3	I am always conscious of failure when it comes to test or exams	197 50.4%	194 49.6%	1.50
4	I have fear of failing exams	141 36.1%	250 52.4%	1.64
5	I get nervous and fidget when I have test	186 47.6%	205 52.4%	1.52
6	I don't have any kind of fear of failing	196 50.1%	195 49.9%	1.50
7	I am not worried about my grades	294 75.2%	97 24.8%	1.75

8	I am scared of my parent so I concentrate on having a good grade	303 77.5%	88 22.5%	1.23
9	I am always depressed whenever I don't perform up to expectation	284 72.6%	107 27.4%	1.27
10	1 get over joyous when I have good grades	338 86.4%	53 13.6%	1.13
	N= 391,	**Average mean score=1.49**		

***Note that the negative items were reversed**

The result in table one indicate that students' anxiety level is moderate as observed in a mean score of 1.49 which is almost below 1.50, standard mean score. Out of the 10 items, students' responses indicated that they are not anxious, as reveal in item 1, 2, 4, 5, 6 and 7 having high percentages and high mean scores which is also above the standard mean of 1.50. Students' responses to items 3, 8, 9, and 10 shows high percentages and low mean for students that are anxious. Although, students often get depressed if they don't perform up to expectation (1.27), they are not anxious whenever test is approaching (1.54), and they are unsure of their anxiety level with respect to failing (1.50). Hence biology students' anxiety level is moderately low.

Research Question Two: Do students display high sense of belongingness in school?

Table 2: A descriptive table showing frequency, percentages and mean score of students' sense of belongingness in school

S/N	Items on Students' Sense of belongingness	Agreed	Disagreed	Mean
1	I feel accepted by my teachers	353 90.3%	38 97%	1.90
2	I am well motivated to study in classroom	340 87%	51 13%	1.87
3	I am accepted by my peers in classroom	327 83.6%	64 16.4%	1.84
4	I feel inferior when I am with my peers	168 43%	223 57%	1.57
5	I am always supported by my teachers when it comes to learning	327 83.6%	64 16.4%	1.84
6	My teacher notices my learning ability in classroom	314 80.3%	77 19.7%	1.80
7	I feel ignored in most extra-curricular classrooms activities	269 68.8%	122 31.2%	1.31
8	My teachers are often too busy to attend to my personal needs	280 71.6%	111 28.4%	1.28
	N= 391, Average mean score=1.68			

***Note that the negative items were reversed**

The result in table two shows that students exhibit a moderately high sense of belongingness in school as revealed in an average mean of 1.68 slightly higher than the standard mean of 1.50. This shows that students moderately feel among and noticed in the school environment. This is further expressed in individual item mean score of 1.90, 1.87, 1.84, 1.57, 1.84, and 1.80, which are all consistently above the mean of 1.50, for items 1 to 6. However, students feel

ignored in most extra-curricular activities (1.31) and they believe that their teachers are often too busy to attend to their personal needs (1.28).

Research Question Three: How do biology students perceive the classroom atmosphere?

Table 3: A descriptive table showing frequency, percentage and mean scores of the classroom atmosphere as perceived by biology students

S/N	Classroom atmosphere as perceived by students	Agreed	Disagreed	Mean
1	My classroom is conducive for learning	297	94	1.76
		76%	24%	
2	My class is always organized	289	102	1.74
		73.9%	26.1%	
3	My class is populated and too clumsy	178	213	1.55
		45.5%	54.5%	
4	My classroom is always disoriented	161	230	1.59
		41.2%	58.8%	
5	My classroom is motivating and inspiring	289	102	1.74
		73.9%	26.1%	
6	My teacher is very enthusiastic	216	175	1.55
		55.2%	44.8%	
7	My teacher is very supportive	264	127	1.68
		67.5%	32.5%	
	N= 391	Average mean Score= 1.66		

***Note that the negative items were reversed**

The result in table three shows that students accepts their classroom climate as conducive for learning (1.76), organized (1.74), not populate and not clumsy(1.55), and not disoriented (1.59). The result also reveals that the classroom atmosphere is moderately positive with an average mean score of 1.66, which is above the 1.5 standard mean score. Hence the classroom is moderately appropriate for biology learning.

Discussion of findings

The result in table one indicate that students' anxiety level is moderate as observed in a mean score of 1.49 which is almost below 1.50, standard mean score. This means that students are not unnecessarily bothered and worried, therefore indicating that they are relaxed in their schools. Hence biology students' anxiety level is moderate. This result is in line with the report of [31] that students exhibit moderate anxiety level with about 44% of the participant obtaining average score on the EFLRAI questionnaire. Similarly,[32] report of moderate anxiety level corroborates the outcome of this current research. Although, students often get depressed if they don't perform up to expectation (1.27), they are not anxious whenever test is approaching (1.54), and they are unsure of their anxiety level with respect to failing (1.50).This uncertainty may

[31] N. Mardianti, et al. "Reading Comprehension in ESP Context," 15

[32] A. Muhlis, "Foreign Language Reading Anxiety," 19.

be rooted in the dual role of students' grades as a motivating factor and an outcome. This result however negates the research findings of [33] who reported that around half of the students (46.3%) suffer from a high level of anxiety.

Furthermore, this result indicated that students do not get nervous and fidget when a test is being conducted (1.52). This shows that irrespective of whether a test is about to take place or not, students remain moderately calm. This findings is buttressed when the research result revealed that all the twenty participants in the study, suffered nervousness to different degrees in their presentation in the classroom.[34] However, being over joyous with good grades may be an indication of attainment of their personal goals. This result negates that of [35] who in their studies reported an incredible low anxiety level among secondary school students after investigating students' anxiety and motivation level towards science course in terms of some variables.

The result also indicated that students display a moderately high sense of belongingness in school as revealed in an average mean of 1.68 slightly higher than the standard mean of 1.50. This shows that students demonstrate a sense of membership and involvement with activities in the biology classroom. They moderately feel among and noticed in the school environment. This is further expressed in individual item mean score of 1.90, 1.87, 1.84, 1.57, 1.84, and 1.80, which are all consistently above the mean of 1.50, for items 1 to 6. This result share in the report of [36] who reported an increased levels of belonging among students. The findings of this current study however opposed that of [37]that most of the students, that is 34.2%, had a low level of sense of belonging. Also, this study negates that of [38] in which first year students expressed a sense of loss after a focus group discussion.

Finally, the result also indicated that students feel ignored in most extra-curricular activities (1.31) and they believe that their teachers are often too busy to attend to their personal needs (1.28). This may be as a result of too many engagement to appropriately interpret and implement the academic curriculum. The teachers may not be able to meet up with the needs of all students in the classroom. The result also indicated a positive classroom climate as shows in an average mean score of 1.66, which is above the 1.5 standard mean score. The result further indicate that students accepts their classroom climate as conducive for learning (1.76), organized (1.74), not populated and not clumsy (1.55), and

[33] M. Mamun, "English Language Anxiety," 49

[34] C. Tian, "Anxiety in classroom English Presentations," 132

[35] B. Caymaz and A. Aydın, "An investigation of secondary school students," 13

[36] M. Murphy et al., "How to help students feel,"

[37] I. Mahama et al., "Attached or not attached,"175

[38] C. Potts, "Seen and unseen," 214

not disoriented (1.59). The result also reveals that the classroom atmosphere is moderately positive and appropriate for biology learning. Also, students believe that their teacher is averagely enthusiastic (1.55) and supportive (1.58).

CONCLUSION

Psychosocial learning environment is still a key factor in attaining educational objectives. This study has shown that biology students' anxiety level is moderate, display high sense of belonging and perceive a moderately positive classroom climate. With the result of this research, it is expected that efforts can be made to reduce the anxiety level of students, strategies employed to boost their sense of involvement and importance and improve the classroom climate to provide an enabling environment for learning.

The presence of students still exhibiting any level of anxiety is not a good stand point for the educational enterprise since anxiety has a potency of affecting students' performance, self-confidence and efficacy. This is also likely to affect curriculum implementation. Also, having students who believe that they are sidelined or too busy to be attended to by their teachers are likely to be affected in their affective domain. It was recommended that educational stakeholder and curriculum implementers should employ techniques that will further decrease students' anxiety and boost their sense of belonging. The classroom climate should also be enriched with psychosocial ingredients so as to further add supplements to the teaching and learning situation and trigger educational objectives attainment.

BIBLIOGRAPHY

Akingbemisilu, Abiola A. and G. T. Babafemi. "Implications of Flipped Instructional Strategies and grade on Predegree Students' Attitude to biology," *Journal of Research in science Education* 2, no. 1 (2018): 28-34.

Alebiosu, Kehinde A. and Micheal Emmanuel. "Towards optional enhancement of practical work and activities in school science," *Journal of Research in science Education*, 2, no. 1 (2018): 1-10.

Anderson, L. "An examination of classroom context; effects of lesson format and teacher training in patterns of teacher-contact during small group instruction," *Journal of Classroom Interaction* 45, no.1 (2007): 25-31.

Ayoola, Y. and O.T. Owolabi. "Effects of Inquiry Based Methods and Computer-Assisted Instructions on Students' performance in Physics in Nigeria Federal Government Colleges." *Journal of Research in science Education* 2, no.1 (2018): 66-71.

Babafemi, Grace T. and A. O. Adewumi. "Effect of Individualised Creative Mapping on Students' Conceptual Understanding and Sustained Knowledge

in Biology," *Journal of Education Research and Rural Community Development* 1, no.1 (2019): 14-24.

Boyler, K. L. "Convey the importance of science," accessed April, 22, 2016, *www.tunesunion.com/tuplusopinion/article/convey-the-importance-of-science0638828.php*.

Caymaz, B. and A. Aydın, "An investigation of secondary school students' anxiety and motivation levels towards science course in terms of some variables," *International Journal of Psychology and Educational Studies* 8, no.3 (2021): 13-27, *https://dx.doi.org/10.52380/ijpes.2021.8.3.189*.

Ezike, B. U. "Classroom Environment And Academic Interest as Correlates of Achievement in Senior Secondary School Chemistry in Ibadan South West Local Government Area, Oyo State, Nigeria," *Global Journal Of Educational Research* 17, (2018): 61-71, *https://academicjournals.org/journal/ERR/article-references/B4E1C7162538*

Haertal, G. and Walberg, G. "Socio psychological environment and learning: A quantities synthesis," *British Educational Research Journal* 7, no. 27 (2007):36

Hirsch, J. L. and M. S. Clark, "Multiple paths to belonging that we should study together," *Perspectives on Psychological Science*, 14, no.2 (2021): 238-255, *https://clarkrelationshiplab.yale.edu/sites/default/files/files/HirschClark(2019).pdf*.

Mahama, I., Asante, L. F., Mensah, K. J., Kwaw, R., Amponsae, A. M., Nartey, P. and Opoku, B. E. "Attached or not attached: Does different learning styles exist among students with or without sense of belonging amidst covid-19?" *Journal of Educational Technology & Online Learning*, 4, no.2 (2021): 175-192.

Mamun, M. "English Language Anxiety of Tertiary Level Learners in Bangladesh: Level and Sources," *English Language Teaching* 14, no.11 (2021): 49-60, *https://doi.org/10.5539/elt.v14n11p49-60*

Mardianti, N., Wijayati, P.H and Murtadho, N. "The Correlation between Students' Reading Anxiety and Their Reading Comprehension in ESP Context," *International Journal of Language Education* 5, no.2 (2021): 15-29, https://doi.org/10.26858/ijole.v5i2.15440

Mohammed, R. E. "Effects of Target task model in Senior Secondary School Students' Performance in physics in Ilorin, Kwara State," *Journal of Research in science Education,* 2, no.1 (2018):72-80.

Muhlis, A. "Foreign Language Reading Anxiety among Indonesian EFL Senior High School Students," *English Franca* 1, no.1 (2017): 19–44.

Murphy, M. C., Boucher, K. and Logel, C. "How to help students feel a sense of belonging during the pandemic," accessed February, 02,2021, *https://greatergood.berkeley.edu/article/item/how_to_help_students_feel_a_sense_of_belonging_during_the_pandemic*

Nettasinghe, N. A. R. and K. Samarasinghe, "Psycho-social Learning Environment from Nurse Students' Perspective," *Universal Journal of Educational Research* 6, no.12 (2018): 2707-2714, http://www.hrpub.orgdoi: 10.13189/ujer.2018.061202

Olugbuyi, P.O., Oginni, O.I., Ayeni, M.F. and Fatoba, J.O. "Digitalizing science education: The panacea for Apathy of the Present Nigeria youth," *Journal of Research in science Education* 2, no.1 (2018): 52-57.

Ozgelen, Sinan. "Scientist' science process skills within a cognitive domain framework," *Eurasian Journal of Mathematics, Science & Technology Education* 8, no. 2 (2012): 283-292.

Potts, C. "Seen and unseen: First-year college students' sense of belonging during the covid-19 pandemic," *College Student Affairs Journal.* 39, no.2 (2021): 214 – 224.

Reynolds, C.R., Livingston, R.B., and Willson, V. "Measurement and assessment in education" (Upper Saddle River, NJ: Pearson, 2006), p.12

Shamaki, T. A. "Influence of Learning Environment on Students' Academic Achievement in Mathematics: A Case Study of Some Selected Secondary Schools in Yobe State, Nigeria," *Journal of Education and Practice* 6, no.34 (2015):40-44, *https://files.eric.ed.gov/fulltext/EJ1086080.pdf*

Spielberger, C. "Manual or the State-Trait Anxiety Inventory" (Palo Alto, CA: Consulting Psychologists Press, 1983), p. 20, *https://doi.org/10.1037/t06496-000.*

Strayhorn, T. L. "College students' sense of belonging: A key to educational success for all students." (Routledge, 2012), p. 10

Tella, Adedeji. "Teacher Variables as Predictors of Academic Achievement of Primary School Pupils Mathematics," *International Electronic Journal of Elementary Education* 1, no.1 (2008): 12-23.

Telli, S., den Brok, P., and Cakiroglu, J. "The importance of teacher-student interpersonal relationships for Turkish students' attitudes towards science," *Research in Science and Technological Education* 28, (2010): 261-276.

Tian, C. "Anxiety in classroom English Presentations: A Case Study in Korean Tertiary Educational Context," *Higher Education Studies* 9, no.1 (2019): 132-143, *https://doi.org/10.5539/hes.v9n1p132*

Ugwumaduka, E. and B.O. Adekunle, "Predicting science achievements in senior secondary school in Ijebu north LGA, Ogun State: Role of Emotional Intelligence and Self Efficacy," *Journal of Research in science Education* 2, no-1 (2018): 81-90.

Velayutham, S. and J. M. Aldridge, "Influence of psychosocial classroom environment on students' motivation and self-regulation in science learning: A structural equation modelling approach," *Research in Science Education* 1, (2012): 1-21, http//doi 10.1007/s11165-011-9273-y.

Waldman, C. "Four Elements for Creating a Positive Learning Environment," September 9 2016, *https://all4ed.org/four-elements-for-creating-a-positive-learning-environment/*.

Walton, G. and G. L. Cohen, "A question of belonging: Race, social fit, and achievement," *Journal of Personality and Social Psychology* 92, (2012): 82–96.

Yusuf, M. and A.O. Afolabi. "Effects of Computer assisted instruction on secondary school students' performance in Biology," *The Turkish Online Journal of Educational Technology* 9, no.1 (2010): 62-69.

