PUPILS' AUTONOMY, COMPETENCE AND RELATEDNESS AS DETERMINANTS OF ONLINE LEARNING ENGAGEMENT DURING THE COVID-19 PANDEMIC

C. Ugwuanyi, C. Okeke

University of the Free State (SOUTH AFRICA)

Abstract

The COVID-19 pandemic ushered in setbacks as well as opportunities for the education system. Setbacks in the sense that most schools across the globe were closed during the hit of the pandemic while only the developed countries were able to switch over to online teaching and learning mode immediately. However, schools in developing countries were shut down for more than six (6) months before resorting to online teaching and learning thereby affecting their normal school calendar. This pandemic has brought online learning opportunities as that is the only way to keep the school calendar ongoing despite any future pandemic. However, there is a dearth of literature on the determinants of pupils' online learning engagement. Thus, this research used a correlational survey to explore how pupils' autonomy, competence, and relatedness impact their online learning engagement within the theoretical framework of self-determination theory (SDT). A sample of 156 primary six pupils participated in the study. Basic Psychological needs scale (autonomy scale α = .87, competency scale α = .91, relatedness scale α = .75) and Pupils' engagement scale (α = .83) were used to collect data. Data were analysed using structural equation modelling and regression analysis. The results showed that pupils' autonomy, competence, and relatedness are significantly (p < .05) related to their online learning engagement. This practically implies that pupils' autonomy, competence, and relatedness are important factors in their online learning engagement. Theoretically, the results of this research have strengthened the tenets of the SDT. Thus, pupils should be encouraged to develop their online learning autonomy, online learning competence, and relatedness to teachers in order to enhance their online learning engagement.

Keywords: Autonomy, competence, online engagement, pupils, relatedness.

1 INTRODUCTION

The emergence of Coronavirus in 2019 came with a lot of disruptions in academic activities among others. This ugly situation caused so many schools across the globe to suspend face-to-face classroom interactions and paved the way for the adoption of online teaching and learning mode. Buttressing the researchers' views, [1] noted that in many regions of the world, the suspension of classroom instruction during the coronavirus epidemic spread to a wide range of educational institutions, from primary to higher education. This unanticipated catastrophe ushered in a revolution in educational reform [1]. Since late 2019, the COVID-19 pandemic has compelled educational systems around the world to move all learning and instruction to a virtual platform [2]. This quick changeover affects how engaged students are in their online classes [2]. Although online education has been extensively researched recently, one of the primary issues is how actively involved students are in online English learning [1]. Nowadays, the idea of involvement is growing in popularity in the educational sector. The engagement has been categorized by Fredricks et al. as cited in [1] as behavioral, cognitive, and emotional involvement, which could be related to the challenging nature of learning. The focus of behavioral engagement is on students' involvement in and participation in academic activities that have an impact on academic outcomes while, emotional engagement is linked to both positive and negative responses to teachers, the classroom, and fellow students [3]. Cognitive engagement is the investment of willingness and consideration to put in the required effort to learn challenging skills and comprehend complex concepts [3]. Despite that online teaching and learning were implemented in China as a last resort to avoid suspending educational activities, it presents difficulties for both teachers and students to increase engagement in online learning courses [1]. Thus, there is a need to explore the level of pupils' engagement in relation to their basic psychological needs (autonomy, competency and relatedness). This research was anchored on the self-determination theory (SDT). According to self-determination theory, people are more motivated to act when they believe their actions will have an impact on the outcome, which explains how being self-determined affects motivation. Find out more about this theory's operation and what you can do to strengthen your self-determination abilities. According to the self-

determination hypothesis, persons can become self-determined when their demands for autonomy, competence, and relatedness are met.

The psychologists Edward Deci and Richard Ryan, who published Self-Determination and Intrinsic Motivation in Human Behavior in 1985, are credited with developing the concept of self-determination. They created a theory of motivation that contends that people are typically motivated by a desire to advance and find fulfillment. Two fundamental presumptions are made by self-determination theory: Behavior is influenced by the demand for progress. Self-determination theory begins with the premise that humans are actively motivated by growth. Building a strong sense of self requires overcoming obstacles and engaging in novel experiences. It is crucial to have autonomous motivation. Self-determination theory places a greater emphasis on internal sources of motivation (intrinsic motivation), such as a desire to learn or independence than on external sources of incentive (extrinsic motivation), such as money, prizes, or praise.

Self-determination theory states that in order to experience psychological progress, humans must feel the following: Autonomy: Individuals must feel in charge of their actions and objectives. People's feelings of self-determination are greatly aided by their sense of being able to take immediate action that will lead to genuine change. Competence: Individuals must learn new skills and gain task mastery. People are more inclined to take actions that will forward their goals when they believe they possess the necessary talents for success. Relatedness: People require a sense of attachment and belonging to others.

Figure 1: Self-Determination Theory Model

According to [4] SDT examines three essential psychological demands that all people have autonomy, competence, and relatedness and is one of the most thorough and well-respected theoretical approaches to human motivation in educational contexts. According to SDT, when these three demands are met, intrinsic motivation will be preserved and strengthened [5]. The validity of SDT in educational areas has been the subject of prior research, both in conventional classrooms [5] and online learning engagement [6], [7].

Thus, a lot of studies have been conducted on the relationship between basic psychological needs and the learning engagement of learners. A study revealed that competence as one of the basic psychological needs has proven to be the most effective predictor of students' four characteristics of online learning engagement [8]. It was also found that pupils' emotional and cognitive engagement have a substantial impact on their learning engagement [8]. Buttressing this finding, it was revealed that the four different categories of classroom engagement were significantly predicted by autonomy support [9]. Additionally, the highest correlation between emotional engagement and the need for autonomy was revealed [9]. Additionally, the relationship between perceived autonomy support and each metric of student engagement was mediated by the demand for autonomy [9]. In a similar study, it was discovered that during the COVID-19 epidemic, all four points of interaction—content, instructors, peers, and technology—had a strong favorable impact on how the learning was viewed [10]. Results of a similar study indicated that learners' participation in online learning was influenced by transactional distance, and study skill engagement was influenced by e-learning capital [11]. In a related study, it was discovered through the use of structural equation modeling that student engagement considerably affects how well students achieve in online learning [12]. An explanatory study revealed that lecturers' ability to fulfill their teaching responsibilities during the COVID-19 pandemic significantly affects their students' interest in online English language learning [2]. According to a related study, students' self-efficacy and anxiety had a substantial

impact on how engaged they were with their online learning and how well it went [3]. The findings of similar research indicated that factors such as education level, socioeconomic status, digital literacy, and place of residence, in addition to the presence of electronic devices and infomediaries in the home, influence the likelihood that children would engage in online learning activities [13]. The influence of teacher autonomy support on students' involvement in online learning is mediated in an important way by parental autonomy support and students' self-efficacy [14]. The results of this study demonstrated that college students' autonomy affected their capacity to adjust to online learning [15]. The empirical study's findings of similar research revealed that students' readiness elements had a statistically significant impact on their self-directed learning ability, online communication self-efficacy, learner control, and motivation for learning [16]. According to the findings of structural equation modeling, learner desire to continue with online learning is significantly influenced by interactions, engagement, strongest satisfaction, and perceived usefulness [17]. According to a related study, autonomy did not mediate the association between a pleasant teacher-student relationship and psychological wellbeing in online learning during COVID-19, but rather the satisfying of the core psychological requirements for competence and relatedness [18]. While confidence in one's capacity or competency to complete academic activities did not directly influence a student's desire to enroll in additional online courses, performance proficiency did have an impact on that intention through the element of satisfaction [19]. It was also found in a similar study that teachers' basic psychological needs had a significant relationship with their usage of engaging messages which in turn were related to the learners' engagement in learning [20].

Based on the foregoing, it is obvious that studies on the impact of basic psychological needs on learners' engagement exist. However, it is worrisome that none of the studies was carried out in the Nigerian context. This gap in literature makes one wonder what impact the basic psychological needs of pupils had on their engagement in online learning during the COVID-19 pandemic. This lacuna necessitated this research which based on the SDT hypothesised thus: Basic psychological needs of pupils had a significant impact on their online learning engagement. This is shown in the hypothesized model for the research in Figure 2 below.
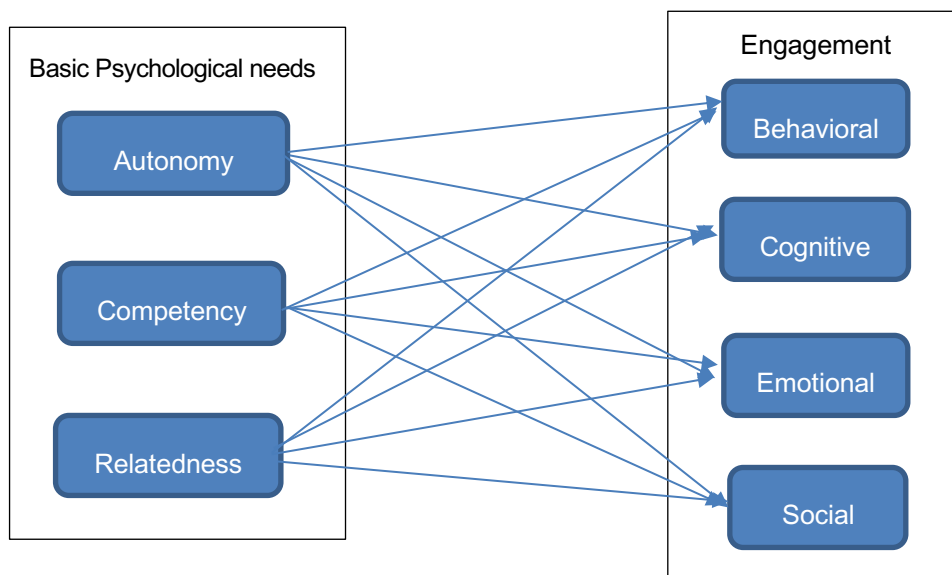

Figure 2: A hypothesized causal model for the study

2 METHODOLOGY

This study adopted a correlational survey research design which is one of the quantitative research designs. A correlational survey design was deemed appropriate because it enabled the researchers to establish how the psychological needs of the pupils related to their online learning engagement. Due to the fact that the research was conducted within the scientific research paradigm, the researchers were able to test the associated hypotheses for the research. This design has been adopted in recent similar studies [21]–[27]. The research was conducted in the South East part of Nigeria which has five states (Abia, Anambra Ebonyi, Enugu, and Imo). A sample of 156 primary six pupils was purposively selected for the research. These pupils were selected from government primary schools in Anambra, Enugu and Imo states. The inclusion criteria were: i) the school must have information and communication technology facilities, ii) the pupils must be at their last class lower basic education, iii) the pupils must have been

exposed to the use of online learning during the COVID-19. These criteria made the researchers adopt the purposive sampling technique. Necessary data for the study were collected using basic psychological needs questionnaire adapted by [28] [29] and a learning engagement questionnaire. Three subscales, namely those measuring autonomy (7 items), competence (6 items), and relatedness (8 items), made up a basic psychological needs scale. The questionnaire was structured on a 7-point Likert-type scale with a range of 1 (not at all true) to 5 (very true). On the other hand, the adapted version of the 14-item student engagement questionnaire from the works of [30]–[33] was used for the study. Behavioral (3 items), cognitive (3 items), emotional (4 items), and social engagement (4 items) are the four sub-constructs/scales that make up the learning engagement questionnaire. The items of the questionnaire were structured on a 4-point Likert-type scale which ranged from 1 (strongly disagree) to 4 (strongly agree).

The instruments were validated and trial tested in the Nigerian context (autonomy subscale α = .87, competency subscale α = .91, relatedness subscale α = .75) and student engagement scale α = .83). Prior to the commencement of the data collection, ethical approval for the conduct of the research was granted by the faculty of education committee on research ethics. Besides, gatekeepers' permission letters were obtained from the headmasters of the primary schools used for the study and also consent forms were signed by both primary six pupils and their teachers. Thereafter, the researchers with the help of some research assistants visited the participants at their various school locations during which the copies of the questionnaires were distributed to them and collected on the spot after they had completed them. The data collected were processed for formal analysis which was done using IBM SPSS Analysis of moment structures (AMOS). Specifically, structural equation modelling and regression analysis were carried out to ascertain how pupils' basic psychological needs impact their online learning engagement.

3 RESULTS

Table 1: Intercorrelation coefficients among the research variables

	Auto.	*Compet.*	*Relate.*	*Beh. Engage.*	*Cog. Engage.*	*Emot. Engage.*	*Soc. Engage.*
Auto.	1.000						
Compet.	.519	1.000					
Relate.	.428	.135	1.000				
Beh. Engage.	.628	.654	.351	1.000			
Cog. Engage.	.527	.726	.012	.731	1.000		
Emot. Engage.	.557	.235	.779	.457	.079	1.000	
Soc. Engage.	.504	.467	.490	.602	.301	.583	1.000

Auto. = autonomy, Compet. = competency, Beh. Engage. = bahevioral engagement, Cog. Engage. = cognitive engagement, Emot. Engage. = emotional engagement, Soc. Engage. = social engagement

Table 1 shows that the correlation coefficient between autonomy and pupils' competency is (r = .519), the correlation coefficient between autonomy and pupils' relatedness is (r = .428), the correlation coefficient between autonomy and pupils' Behavioral engagement is (r = .628), the correlation coefficient between autonomy and pupils' cognitive engagement is (r = .527), the correlation coefficient between autonomy and pupils' emotional engagement is (r = .557), while correlation coefficient between autonomy and pupils' social engagement is (r = .504). On the other hand, the correlation coefficient between competency and pupils' relatedness is (r = .135), the correlation coefficient between competency and pupils' behavioral engagement is (r = .654), the correlation coefficient between competency and pupils' cognitive engagement is (r = .726), the correlation coefficient between competency and pupils' emotional engagement is (r = .235), while the correlation coefficient between competency and pupils' social engagement is (r = .467). Similarly, the correlation coefficient between relatedness and pupils' behavioral engagement is (r = .351), the correlation coefficient between relatedness and pupils' cognitive engagement is (r = .012), the correlation coefficient between relatedness and pupils' emotional engagement is (r = .779), the correlation coefficient between relatedness and pupils' social engagement is (r = .490). The correlation coefficient between behavioral engagement and pupils' cognitive engagement is (r = .731), The correlation coefficient between behavioral engagement and pupils' emotional engagement is (r = .457), while the correlation coefficient between behavioral engagement and pupils' social engagement is (r = .602). The correlation coefficient between cognitive engagement and pupils' emotional engagement is (r = .079), while the correlation coefficient between cognitive engagement and pupils' emotional engagement is (r = .301). Finally, the correlation coefficient between emotional engagement and pupils' social engagement is (r = .583).

Table 2: Parameter estimate of the independent variables on the dependent variables

Dependent		Independent	Estimate	S.E.	C.R.	p
Behavioral Engagement	<---	Autonomy	.361	.053	6.002	***
Cognitive Engagement	<---	Autonomy	.320	.062	5.891	***
Social Engagement	<---	Autonomy	.192	.067	2.902	.004
Behavioral Engagement	<---	Competency	.528	.045	8.787	***
Cognitive Engagement	<---	Competency	.629	.052	11.564	***
Emotional Engagement	<---	Competency	.006	.043	.117	.907
Social Engagement	<---	Competency	.352	.057	5.325	***
Behavioral Engagement	<---	Relatedness	.171	.036	2.842	.004
Cognitive Engagement	<---	Relatedness	-.209	.042	-3.851	***
Emotional Engagement	<---	Relatedness	.721	.035	14.311	***
Social Engagement	<---	Relatedness	.401	.046	6.068	***
Emotional Engagement	<---	Autonomy	.294	.051	5.843	***

Table 2 revealed that pupils' autonomy had a significant positive relationship with their behavioral engagement, (β = .361, p = .000. Pupils' autonomy had a significant positive relationship with their cognitive engagement, (β = .320, p = .000). Pupils' autonomy had a significant positive relationship with their social engagement, (β = .192, p = .004). Pupils' autonomy had a significant positive relationship with their emotional engagement, (β = .294, p = .000). Similarly, pupils' competency had a significant positive relationship with their behavioral engagement, (β = .528, p = .000). Pupils' competency had a significant positive relationship with their cognitive engagement, (β = .629, p = .000). Pupils' competency had a significant positive relationship with their social engagement, (β = .352, p = .000). In the same vein, pupils' relatedness had a significant positive relationship with their behavioral engagement, (β = .171, p = .004). Pupils' relatedness had a significant negative relationship with their behavioral engagement, (β = -.209, p = .000). Pupils' relatedness had a significant positive relationship with their emotional engagement, (β = .721, p = .000) while pupils' relatedness had a significant positive relationship with their social engagement, (β = .401, p = .000). However, it was found that pupils' competency had no significant relationship with their emotional engagement, (β = .006, p = .907). This implies that pupils' competency had no significant impact on their emotional online engagement.
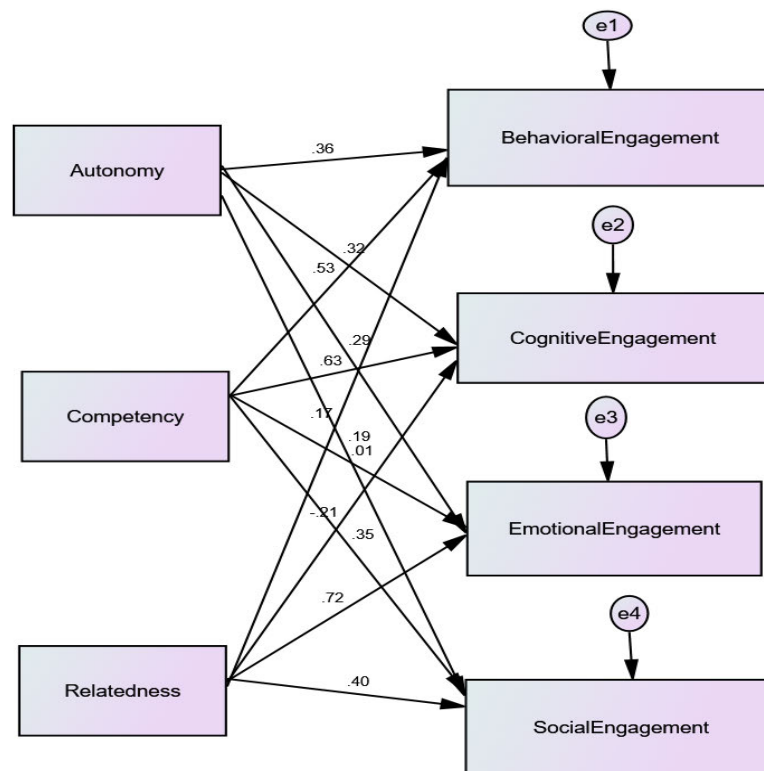

Figure 3: Causal Model for the explanation of the impact of basic psychological needs on pupils' online learning engagement

Figure 3 showed the data for this research had a good model fit, (Comparative fit index [*CFI*] = .912, Root Mean Square Error of Approximation [*RMSEA*] = .040, Parsimony Comparative fit index [*PCFI*] = .901, χ2 (153) = 265.31, *p* < .050).

4   DISCUSSION OF RESULTS

This research was necessitated to explore the impact of the basic psychological needs of primary six pupils on their engagement in online learning. This became necessary as there is a dearth of literature on such issues in the Nigerian context and Africa at large. The findings of this research revealed that pupils' autonomy, competency and relatedness had a significant impact on their behavioral, cognitive and social engagements. However, only relatedness had a negative impact on the cognitive engagement of pupils while others had positive impacts on cognitive engagement. It was further revealed that while pupils' autonomy and relatedness had a significant positive correlation with emotional engagement, competency had no significant correlation with emotional engagement. These results may have been so since students occasionally engage actively in learning activities, while other times they engage passively or even antagonistically. This is because satisfying basic psychological needs encourages active engagement, but ignoring or sabotaging these needs foreshadows various symptoms of disaffection. For one to be psychologically, physically, and socially healthy, basic psychological requirements must be satisfied in daily life events. These needs are described as psychological needs that energize engagement/involvement. Buttressing these findings, a similar study revealed that competence as one of the basic psychological needs has proven to be the most effective predictor of students' four characteristics of online learning engagement [8]. It was also found that pupils' emotional and cognitive engagement have a substantial impact on their learning engagement [8]. Buttressing this finding, it was revealed that the four different categories of classroom engagement were significantly predicted by autonomy support [9]. Additionally, the highest correlation between emotional engagement and the need for autonomy was revealed [9]. Additionally, the relationship between perceived autonomy support and each metric of student engagement was mediated by the demand for autonomy [9].

Similarly, the influence of teacher autonomy support on students' involvement in online learning is mediated significantly by parental autonomy support and students' self-efficacy [14]. The results of this study demonstrated that college students' autonomy had an effect on their capacity to adjust to online learning [15]. The empirical study's findings of similar research revealed that students' readiness elements had a statistically significant impact on their self-directed learning ability, online communication self-efficacy, learner control, and motivation for learning [16]. According to the findings of structural equation modeling, learner desire to continue with online learning is significantly influenced by interactions, engagement, strongest satisfaction, and perceived usefulness [17]. According to a related study, autonomy did not mediate the association between a pleasant teacher-student relationship and psychological wellbeing in online learning during COVID-19, but rather the satisfying of the core psychological requirements for competence and relatedness [18]. While confidence in one's capacity or competency to complete academic activities did not directly influence a student's desire to enroll in additional online courses, performance proficiency did have an impact on that intention through the element of satisfaction [19]. It was also found in a similar study that teachers' basic psychological needs had a significant relationship with their usage of engaging messages which in turn were related to the learners' engagement in learning [20].

This research has a good contribution to knowledge since it is the first research in the Nigerian context to empirically examine the impact of basic psychological needs on pupils' online learning engagement. The findings of this research will enable primary school teachers to understand the role of the basic psychological needs of the pupils in learning engagement and thus will make appropriate arrangements for conducive classrooms that will promote the psychological needs of the pupils. Theoretically, the findings of this research have strengthened the tenets of the self-determination theory by showing that the psychological needs of the pupils impact their learning engagement. Thus, these findings have both practical and policy implications. Practically, the findings implicate the classroom interaction patterns of the teachers in that the teachers need to ensure that their classroom interaction patterns are such that will promote the psychological needs of the pupils. Also, the policy implication of the findings is that there is a need to develop a functional policy framework to monitor the development of the basic psychological needs of the pupils in order to achieve maximum classroom learning engagement.

5   CONCLUSION AND RECOMMENDATION

Online classes were conducted during the COVID-19 pandemic without actually finding out how the basic psychological needs of the learners impacted their online learning engagement in the Nigeria

context specifically. The researchers in the course of this investigation found that pupils psychological needs had significant impacts on their online learning engagement. Thus, the effectiveness of online learning engagement of the pupils depends largely on their psychological needs. This implies that if the psychological needs of the learners are not adequately developed, their online learning engagement will be negatively influenced. Based on the findings of the study, it is recommended that teachers should create a conducive classroom environment that will enhance the psychological needs of the learners.

ACKNOWLEDGMENT

REFERENCES

[1]   S. Zhou, H. Zhu, and Y. Zhou, "Impact of Teenage EFL Learners' Psychological Needs on Learning Engagement and Behavioral Intention in Synchronous Online English Courses," *Sustainability (Switzerland)*, vol. 14, no. 17, Sep. 2022, doi: 10.3390/su141710468.

[2]   D. H. Ngo, "Exploring EFL undergraduates' views of the impact teachers have on their online learning engagement during the COVID-19 pandemic in Vietnam," *International Journal of TESOL & Education*, vol. 2, no. 3, pp. 75–95, Jun. 2022, doi: 10.54855/ijte.22236.

[3]   N. Zapata-Cuervo, M. I. Montes-Guerra, H. H. Shin, M. Jeong, and M. H. Cho, "Students' Psychological Perceptions Toward Online Learning Engagement and Outcomes during the COVID-19 Pandemic: A Comparative Analysis of Students in Three Different Countries," *Journal of Hospitality and Tourism Education*, 2021, doi: 10.1080/10963758.2021.1907195.

[4]   S. Fathali and T. Okada, "Technology acceptance model in technology-enhanced OCLL contexts: A self-determination theory approach," 2018.

[5]   C. P. Niemiec and R. M. Ryan, "Autonomy, competence, and relatedness in the classroom:Applying self-determination theory to educational practice," *Theory and Research in Education*, vol. 7, no. 2, pp. 133–144, 2009, doi: 10.1177/1477878509104318.

[6]   H. C. K. Hsu, C. V. Wang, and C. Levesque-Bristol, "Reexamining the impact of self-determination theory on learning outcomes in the online learning environment," *Educ Inf Technol (Dordr)*, vol. 24, no. 3, pp. 2159–2174, May 2019, doi: 10.1007/s10639-019-09863-w.

[7]   K. C. Chen and S. J. Jang, "Motivation in online learning: Testing a model of self-determination theory," *Comput Human Behav*, vol. 26, no. 4, pp. 741–752, Jul. 2010, doi: 10.1016/j.chb.2010.01.011.

[8]   S. Zhou, H. Zhu, and Y. Zhou, "Impact of Teenage EFL Learners' Psychological Needs on Learning Engagement and Behavioral Intention in Synchronous Online English Courses," *Sustainability (Switzerland)*, vol. 14, no. 17, Sep. 2022, doi: 10.3390/su141710468.

[9]   J. L. Núñez and J. León, "Determinants of classroom engagement: a prospective test based on self-determination theory," *Teachers and Teaching: Theory and Practice*, vol. 25, no. 2, pp. 147–159, Feb. 2019, doi: 10.1080/13540602.2018.1542297.

[10]   N. B. Prabhu M, K. Bolar, J. Mallya, P. Roy, V. Payini, and T. K, "Determinants of hospitality students' perceived learning during COVID 19 pandemic: Role of interactions and self-efficacy," *J Hosp Leis Sport Tour Educ*, vol. 30, Jun. 2022, doi: 10.1016/j.jhlste.2021.100335.

[11]   K. Fabian, S. Smith, E. Taylor-Smith, and D. Meharg, "Identifying factors influencing study skills engagement and participation for online learners in higher education during COVID-19," *British Journal of Educational Technology*, vol. 53, no. 6, pp. 1915–1936, Nov. 2022, doi: 10.1111/bjet.13221.

[12]   F. Afzal and L. Crawford, "Student's perception of engagement in online project management education and its impact on performance: The mediating role of self-motivation," *Project Leadership and Society*, vol. 3, Dec. 2022, doi: 10.1016/j.plas.2022.100057.

[13]   M. Martínez-Domínguez and I. Fierros-González, "Determinants of internet use by school-age children: The challenges for Mexico during the COVID-19 pandemic," *Telecomm Policy*, vol. 46, no. 1, Feb. 2022, doi: 10.1016/j.telpol.2021.102241.

[14] X. Bai and X. Gu, "Effect of teacher autonomy support on the online self-regulated learning of students during COVID-19 in China: The chain mediating effect of parental autonomy support and students' self-efficacy," *J Comput Assist Learn*, vol. 38, no. 4, pp. 1173–1184, Aug. 2022, doi: 10.1111/jcal.12676.

[15] M. D. Díaz-Noguera, C. Hervás-Gómez, A. M. de la Calle-Cabrera, and E. López-Meneses, "Autonomy, Motivation, and Digital Pedagogy Are Key Factors in the Perceptions of Spanish Higher-Education Students toward Online Learning during the COVID-19 Pandemic," *Int J Environ Res Public Health*, vol. 19, no. 2, Jan. 2022, doi: 10.3390/ijerph19020654.

[16] N. Thongsri, C. Chootong, O. Tripak, P. Piyawanitsatian, and R. Saengae, "Predicting the determinants of online learning adoption during the COVID-19 outbreak: a two-staged hybrid SEM-neural network approach," *Interactive Technology and Smart Education*, vol. 18, no. 3, pp. 362–379, Oct. 2021, doi: 10.1108/ITSE-08-2020-0165.

[17] X. Wang, T. Liu, J. Wang, and J. Tian, "Understanding Learner Continuance Intention: A Comparison of Live Video Learning, Pre-Recorded Video Learning and Hybrid Video Learning in COVID-19 Pandemic," *Int J Hum Comput Interact*, vol. 38, no. 3, pp. 263–281, 2022, doi: 10.1080/10447318.2021.1938389.

[18] C. T. Cyril Bernasor *et al.*, "Teacher-Student Relationship and Students' Well-being in Online Learning during the COVID-19 Pandemic: Does Basic Psychological Needs Satisfaction Matter?," *Philippine Journal of Counseling Psychology*, vol. 24, no. 1, pp. 21–36, 2022.

[19] H. Tseng, Y. C. Kuo, H. te Yeh, and Y. Tang, "Relationships between Connectedness, Performance Proficiency, Satisfaction, and Online Learning Continuance," *Online Learning Journal*, vol. 26, no. 1, pp. 285–301, Mar. 2022, doi: 10.24059/olj.v1i1.2637.

[20] E. Santana-Monagas, J. L. Núñez, J. F. Loro, E. Huéscar, and J. León, "Teachers' engaging messages: The role of perceived autonomy, competence and relatedness," *Teach Teach Educ*, vol. 109, Jan. 2022, doi: 10.1016/j.tate.2021.103556.

[21] C. S. Ugwuanyi, C. I. O. Okeke, and K. C. Njeze, "Parenting Style and Parental Support on Learners' Academic Achievement," vol. 11, pp. 198–205, 2020, doi: 10.31901/24566764.2020/11.3-4.352.

[22] C. S. Ugwuanyi and C. I. O. Okeke, "Determinants of university students' interest in science, technology, engineering and mathematics education in nigeria: a case of a structural equation modeling," vol. 10, no. 3, pp. 6209–6218, 2020.

[23] C. S. Ugwuanyi, C. C. Okeke, and C. I. O. Okeke, "Structural equation modeling of the influence of primary school teachers' demographics on their psychosocial work hazards," *J Community Psychol*, no. January, pp. 1–17, 2022, doi: 10.1002/jcop.22857.

[24] C. S. Ugwuanyi, C. I. O. Okeke, and T. A. Ageda, "Motivation and Self-efficacy as Predictors of Learners' Academic Achievement," vol. 11, pp. 215–222, 2020, doi: 10.31901/24566764.2020/11.3-4.351.

[25] C. I. O. Okeke, C. S. Ugwuanyi, C. C. Okeke, and G. C. Ugwu, "Teaching Engagement and Preschool Practitioners' Disciplining Practice in Post-Corporal Punishment Era: A Correlational Quantitative Evaluation," vol. 25, no. 02, pp. 1345–1354, 2021.

[26] N. J. Ugochukwu *et al.*, "Parents' Perception Of Television Viewing Habit As A Predictor Of Preschoolers' Violent And Attention Behaviours In Nursery Schools Imo In State, Nigeria," vol. 19, no. 2, pp. 7651–7666, 2022.

[27] C. S. Ugwuanyi *et al.*, "The Effects of Mother-Child Mediated Learning Strategies on Cognitive Modifiability and Psychological Resilience of Children With Learning Disabilities: A Replication of Tzuriel and Shomron' s Study (2018) With Nigerian Children," 2021, doi: 10.1177/21582440211008897.

[28] E. L. Deci and R. M. Ryan, "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior," 2000.

[29] M. Gagné, "The Role of Autonomy Support and Autonomy Orientation in Prosocial Behavior Engagement," *Motiv Emot*, vol. 27, no. 3, pp. 199–223, Sep. 2003, doi: 10.1023/A:1025007614869.

[30] J. Reeve, "How students create motivationally supportive learning environments for themselves: The concept of agentic engagement," *J Educ Psychol*, vol. 105, no. 3, pp. 579–595, Aug. 2013, doi: 10.1037/a0032690.

[31]   N. Bergdahl, J. Nouri, U. Fors, and O. Knutsson, "Engagement, disengagement and performance when learning with technologies in upper secondary school," *Comput Educ*, vol. 149, May 2020, doi: 10.1016/j.compedu.2019.103783.

[32]   I. F. Liu, M. C. Chen, Y. S. Sun, D. Wible, and C. H. Kuo, "Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community," *Comput Educ*, vol. 54, no. 2, pp. 600–610, Feb. 2010, doi: 10.1016/j.compedu.2009.09.009.

[33]   R. Strong, "Investigating Students' Satisfaction with eLearning Courses: The Effect of Learning Environment and Social Presence," *J Agric Educ*, vol. 53, no. 3, pp. 98–110, Sep. 2012, doi: 10.5032/jae.2012.03098.