

Student-Centred Pedagogical Approach and Student Engagement at a Private University in Western Uganda

Wilson Mugizi^{1,*}, Abeera Odetha Katuramu², Augustina Ogaga Dafiewhare³, John Kanyesigye³

¹Educational Planning and Management, Kyambogo University, Kampala, Uganda

²College of Humanities and Social Sciences, Kampala International University, Kampala, Uganda

³Faculty of Humanities and Education, Kampala International University (Western Campus), Bushenyi-Ishaka, Uganda

Email address:

mugizi.w@gmail.com (W. Mugizi)

*Corresponding author

To cite this article:

Wilson Mugizi, Abeera Odetha Katuramu, Augustina Ogaga Dafiewhare, John Kanyesigye. Student-Centred Pedagogical Approach and Student Engagement at a Private University in Western Uganda. *Education Journal*. Vol. 10, No. 5, 2021, pp. 193-203.

doi: 10.11648/j.edu.20211005.14

Received: April 17, 2020; **Accepted:** August 31, 2021; **Published:** October 15, 2021

Abstract: This study investigated the relationship between the student-centred pedagogical approach and student engagement at a private university in Western Uganda. The student-centred approach was studied in terms of active learning, contextual learning, motivation of learners and collaborative learning. On the other hand, student engagement was conceptualised in terms of behavioural, affective, cognitive and agentic engagements. The study adopted the cross-sectional research design on a sample of 264 undergraduate students. Data were collected using a self-administered questionnaire and analysed quantitatively. Descriptive analysis showed that students rated their levels of engagement and lecturers use of the student-centred approach as high on all aspects. Regression analysis revealed that the student-centred approaches of active learning, contextual learning, motivation of students and collaborative learning had a positive significant relationship with student engagement. It was concluded that the teacher-centred pedagogical approaches namely; active learning, contextual learning, motivation of students and collaborative learning are imperative for promotion of student engagement. Therefore, it was recommended that university lecturers should promote the use of those approaches when conducting teaching in universities.

Keywords: Active, Affective, Agentic, Behavioural, Cognitive, Contextual, Collaborative, Motivation, Student-Centred, Student Engagement

1. Introduction

Student engagement refers to the energy and effort that students employ within their learning community [9]. This means that student engagement is about the amount of time and effort that a student spends on academically-related activities [16]. The concept was conceived as a multi-dimensional concept covering behavioural, affective, cognitive and agentic engagements of students [41]. Behavioural engagement concerns matters regarding to the learners conduct in class, student participation in school-related activities, and student interest in their academic tasks [45]. Behavioural engagement comprises several distinct behaviours including participation, compliance [46], task

completion, effort and attendance [27]. With affective engagement, the learner exhibits a level of interest in learning that results in improved motivation and enjoyment establishing a level of commitment [21]. Affective engagement relates to positive reactions to the learning environment, peers and teachers, as well as their sense of belonging and interest [9]. In other words, affective engagement includes sense of belonging, identification with schools, and interest in learning [27].

Cognitive engagement is the learners' investment of thought, mental effort or learning achievement strategies [30]. Cognitive engagement is about the inner psychological qualities of the learners or their nonvisible traits that promote effort in learning, understanding, and mastering the knowledge or skills that are promoted in their academic work

[45]. Affective engagement is characterised by the learners' feelings of belonging or value to their teachers, their classroom, and school such as interest or boredom, happiness, sadness, anxiety [73]. Agentic engagement is the learner's constructive contributions to their own learning process as well as the transactional and reciprocal processes learners go through with teachers and peers. In other words, agentic engagement explains the proactive contributions initiated by the learners [41]. In all, student engagement encompasses salient academic as well as certain non-academic aspects of the student experience including active learning, participation in challenging academic activities, formative communication with academic staff, involvement in enriching educational experiences, and feeling legitimated and supported by university learning community [21]. Student engagement explains the students' active involvement in their learning tasks and activities [32].

Student engagement is important as far as students learning and achievement are concerned. Educators emphasise that student engagement is the key to addressing problems of low achievement, high levels of student boredom, alienation and high dropout rates [8]. Student engagement has emerged as one of those mechanisms that can act as an antidote to the problems of high dropout and poor academic achievement [18]. This is because student engagement increases student satisfaction, enhances student motivation to learn and reduces the sense of isolation [36]. Engaged students persist in effortful attempts to master the knowledge and skills they encounter and exhibit a preference for and enjoyment of studies [6]. The strength of student engagement lies in its ability to address numerous critical factors impacting learning such as promoting student success through creating a sense of belonging, leading to positive academic outcomes, transforming students from consumers to co-producers of knowledge and developing active student citizenship and participation [75]. According to Olivier et al. [46], more than prerequisites for educational attainment, student engagement is a gateway to professional well-being, life satisfaction, and social success.

Due to the importance of student engagement, a number of scholars [2, 43, 48, 58, 72, 74] have investigated factors relating to it. The studies reveal that factors relating to student engagement include pedagogical approaches, school infrastructure, classroom size, quality of faculty, learning mechanisms and administrative services among others. Nonetheless, this study examined the relationship between the pedagogical approaches particularly the student centred approach. This was because while Sikoyo [57] recommended that institutions in Uganda should adopt learner-centred pedagogies in teaching, literature search revealed lack of empirical evidence on the implementation of the same. Still, Muganga and Ssenkusu [42] in a study at Makerere University the Prime University in Uganda indicted that several students were being exposed to student-centred practices. This thus attracted this study to investigate the use of the student (learner) centred approach at a university in Uganda and how it related to student engagement.

2. Literature Review

2.1. Theoretical Review

The Cognitive Constructivist Theory propounded by Jean Piaget in 1936 provided the theoretical underpinnings for this analysis. The Cognitive Constructivist Theory posits that knowledge is a result of a mechanism of self-construction by processing existing mental representations to obtain equilibrium between the existing mental representations and new environment [40]. Apparently, exposing the learner to new experiences creates a perturbation or forms of mental disquiet that challenge the learner to understand and make sense of the new information generated by the new experience. Thus, cognitive development occurs when the learner is compelled to use prior experiences and knowledge to comprehend and digest the new information, resulting in the acquisition of new knowledge. Each learner is uniquely active in the creation, interpretation and reorganisation of the new knowledge. The learner has to think through the new information, leading to a deeper understanding of that information [56]. The Cognitive constructivist Theory assumes that learners have to construct their own knowledge individually and collectively in an active process in which they construct meaning by linking new ideas with their existing knowledge [13]. Therefore, knowledge can be acquired through personal actions. The Constructivist Theory proposes that there is no objective reality; rather all reality is created by individuals. In the classroom setting, this translates into the need for including and involving students in developing and maintaining their own positive learning environment. The constructivist learning approach emphasises a student centred approach by which learners construct their reality [63]. The general set of constructivist learning principles is that learning is an active process, involves considering contexts of learners, motivating of learners and collaborative learning [11, 47]. Therefore, this study related the constructivist (student centred) learning approaches of active learning, contextual learning, motivation of learners and collaborative learning to student engagement.

2.2. Student-Centred Pedagogical Approach

The student-centred pedagogical approach is a teaching strategy that encourages students to have more responsibility for their learning. The process relies largely on professional confidence of the teacher to let-go of the traditional teaching responsibilities [38]. The student-centred pedagogical approach is about ways of thinking and learning that emphasise student responsibility and activity in learning rather than what the teachers are doing. Essentially student-centred learning has student responsibility and activity at its heart, in contrast to a strong emphasis on teacher control and coverage of academic content in much conventional didactic teaching [59]. With the student-centred pedagogical approach, learners are not passive recipients of teacher knowledge but co-producers of meaning [71]. The student-

centred pedagogical approach emphasises equipping students with core generic skills and transversal competencies such as critical thinking, problem-solving and independent learning. The student-centred pedagogical approach encompasses four fundamental features that are active responsibility for learning, proactive management of learning experience, independent knowledge construction and teachers as facilitators [38]. The Cognitive Constructivist Theory indicates that the student centred pedagogical approach strategy includes active learning, contextual learning, motivation of learners and group learning [11, 47]. Therefore, the study related active learning, contextual learning, motivation of learners and collaborative learning to student engagement.

2.2.1. Active Learning and Student Engagement

Active learning is a learning approach by which there is students' active impact on learning with students involved in the learning process which allows them to focus on creating knowledge with emphasis on skills such as analytical thinking, problem-solving and meta-cognitive activities that develop students' thinking [15]. With active teaching, the students are engaged and are active participants in the learning process. The students themselves are agents of the learning process, and the teacher facilitates this process. The use of active learning involves letting the learners to structure their knowledge actively, making their approach to learning and knowledge critical and having learners reflect on and control their learning process [66]. Active learning includes different forms of activation such as increased physical activity, interaction, social collaboration, deeper processing, elaboration and exploration of the material [22]. There are scholars that have related active learning and student engagement. For instance, Arjomandi *et al.* [2] sought to highlight the role of active teaching strategies played in engagement of students using Bachelor of Commerce students at the University of Wollongong in Australia. The study established existence of a strong connection between active teaching strategies and engagement for traditional students but the link was weak for non-traditional students.

Bevans, Fitzpatrick, Sanchez and Forrest [6] studied student characteristics and instructional factors that impacted on student engagement using Students in schools in Maryland and West Virginia in the USA. The findings indicated that skill practice was positively associated with student engagement and inactive instruction was negatively associated with student engagement. Fitzsimons [20] explored how to engage students' learning through active learning using Bachelor of Science in Business and Management students at Dublin Institute of Technology in Ireland. The findings showed that the active learning strategy made students to be more engaged in learning. Khan, Egbue, Palkie and Madden [24] in a review explored various strategies that could be incorporated into the design of online learning courses to foster a high level of student engagement based on multiple pedagogies. The review revealed that use of active learning methods such as debates and

interdisciplinary collaboration actively engaged students in the courses and improved learning. However, as the studies suggest, they were all done in the western world context. This thus attracted this study in the context of a university in a developing country to test the hypothesis to the effect that;

H₁: There is a relationship between active learning and student engagement.

2.2.2. Contextual Learning and Student Engagement

Contextual Learning is a learning system that matches the performance of the brain to construct patterns that embody meaning by linking the academic content with the context of everyday life of the learners. Contextual learning involves involving active students in the learning process to discover the concepts learned by linking the material with the knowledge they possess and the students experience in daily life [61]. With contextual learning, teachers relate learning materials taught to the real-world situations of students and encourage students to make connections between their knowledge and application in their daily lives [14]. With contextual learning, students are invited actively to be able to connect the content of the material to the context of everyday life to bring understanding and intact meaning [61]. Contextual learning involves constructivism, inquiry, questioning, learning community or groups in learning activities in which students exchange ideas, modelling by which there is a model that can be observed and imitated by every student, reflection that is thinking back or activity flash back and authentic assessment based on the learning process [54]. Thus, learning becomes an enjoyable activity which most likely promotes students engagement.

Some scholars have examined the relationship between contextual learning and student engagement. For example, Marini [34] sought to find out how contextual teaching and learning enhanced student learning outcomes using students of the State University of Jakarta in Indonesia. The study found out that student learning outcomes were enhanced through the use of contextual teaching and learning. Qudsyi, Wijaya, Widiasmara and Nurtjahjo [49] in an experimental study investigated whether contextual teaching-learning improved student engagement. The study was carried out on college students doing a cognitive psychology course at Universitas Islam Indonesia. The results indicated that contextual learning had no significant effect in improving student engagement. Köse and Tosun [26] sought to determine the effect of context based learning approach on student's attitudes using education students at Bayburt University in Turkey. Their findings revealed meaningful differences between context-based learning approach and traditional learning on student's attitudes. Lam, Wong, Yang and Liu [28] investigated the association between the contextual model of learning and student engagement using Chinese junior secondary school students. The results showed that the contextual model of learning was highly related to student engagement. Nevertheless, while the above studies give a hint on the existence of a relationship between contextual learning and student engagement, literature search

revealed that limited empirical studies had been carried out on the variables and non in the context of developing countries of Africa such as Uganda. This thus attracted this study to test whether:

H₂: There is a relationship between contextual learning and student engagement.

2.2.3. Motivation of Learners and Student Engagement

Motivation is the cognitive and affective force that initiates, sustains and directs engagement behaviours as an internalised process of formation drawn from the individual's experiences, perceptions and interpretations [70]. Motivation is that complex part of human behaviour that influences how individuals choose to invest their time, how much energy they exert in any given task, how they think and feel about the task, and how long they persist at the task [5]. Motivation entails an inner psychological drive that leads to an action or engagement behaviours [70]. Motivation explains the students' energy and drive to learn, work hard, and achieve at school [35]. Motivation is either intrinsic or extrinsic. Intrinsic motivation is engagement in an activity because it is inherently satisfying or enjoyable [31]. Intrinsic motivation is doing something for its own sake while extrinsic motivation refers to the pursuit of an instrumental goal or reward [51]. Extrinsically motivated students do something only because it leads to separable desired outcomes. Intrinsically motivated behaviours are performed out of interest, do not require a reward other than the spontaneous experience of interest and enjoyment in doing a task and they result in high-quality learning [64].

Motivation of students is reflected in students' choice of learning tasks, in the time and effort they devote to tasks, in their persistence on learning tasks, in their coping with the obstacles they encounter in the learning process [5]. Teachers have the ability to influence student motivation through providing students accurate, timely, and stimulating and content pertinent to the student's current and future needs (Williams & Williams, 2011). Therefore, motivation of students might influence student engagement. Scholars have related motivation and students engagement. For instance, Ferreira, Cardoso and Abrantes [19] analysed the influence of motivation on students' perceived learning using high school students from the central region of Portugal. The study found out that motivational variables had a potentiating effect on student learning. Nayir [44] examined the relationship between class engagement and motivation levels among high school students in Ankara in Turkey. The study findings showed that motivation level was related to class engagement. The study indicated that motivational variables had a potentiating effect on student learning. Saeed and Zyngier [55] sought to understand the variation between intrinsic and extrinsic motivation with student engagement using pupils in a co-education state primary school in Melbourne in Australia. The study found out that intrinsic and extrinsic motivation had a relationship with student engagement. Subramaniam [60] in reviewed the motivational effect of interest on student engagement and learning. The

review revealed that motivation of students through teaching strategies, task presentation, and structuring of learning experiences can motivate the unmotivated and disengaged learners to learn. The literature above suggests that there is a relationship between motivation and students engagement. However, the studies above also raise contextual gap with not study carried out in the context of a developing country in Africa. Thus, this study in the context of Uganda tested the relationship to the effect that:

H₃: There is a relationship between motivation of learners and student engagement.

2.2.4. Collaborative Learning and Student Engagement

Collaborative learning refers to a set of teaching and learning strategies promoting student collaboration in small groups of two to five students in order to optimise their own and each other's learning [29]. Collaborative learning involves small groups of students sharing responsibility, taking collective decisions and acting together in order to learn something together. The emphasis of the collaborative learning is on working together in the teaching and learning process [23]. Collaborative learning is not only about working together but requires team-work with defined roles, team-building activities, frequent meetings, and the value that individuals place on the process of learning (goal orientation). This importance of collaborative learning is developing students into autonomous learners [23]. Collaborative learning promotes critical thinking in students [33], offer them tools to improve their confidence and increase interest in harder subjects, make them more likely to participate in learning, develop positive attitudes toward others and content, to exert more effort, and improve their genuine engagement in the content [4]. Therefore, collaborative learning leads to student engagement.

There are scholars that have related collaborative learning and engagement of students. For example, Backer et al. [4] investigated the impact of collaborative grouping on students' engagement of middle/ high school students in Minnesota schools in the USA. The findings indicated that collaborative grouping had a positive impact on student learning and fostered student engagement. Bharucha [7] examined the relationship between the collaborative approach and student engagement of Bachelor of Management students at Mumbai College in India. Statistical analysis showed that students who were the beneficiaries of the collaborative approach had significantly higher levels of satisfaction than students who had studied under the traditional approach hence higher levels of engagement. Hernández [23] studied the relationship between collaborative learning and student engagement at University College Dublin in Ireland. The findings showed that collaborative learning promoted student engagement. McGarrigle [39] explored the relationship between collaborative learning and student engagement using fine art students and lecturers at the Institute of Technology Carlow in Ireland. Qualitative analysis revealed that collaborative group learning through project and problem based learning

enhanced student engagement. The literature above suggests that collaborative teaching has a relationship with student engagement. However, there is lack of studies interrogating the same in the context of a university in Uganda. Thus, this study tested the hypothesis to the effect that:

H₄: There is a relationship between collaborative learning and student engagement.

3. Methodology

3.1. Research Procedure

The study was quantitative based on a questionnaire survey on undergraduate students of the Western Campus of Kampala International University. Quantitative data collected was analysed using statistical procedures to enable generalisation of findings. The study adopted the cross-sectional research design which helped the researcher to collect data on the part of the population about the study problem on what was going on at the particular time. The design enabled obtaining useful data in a relatively short period of time. Research ethics were strictly observed in carrying out the study. The research ethics emphasised were obtaining of informed consent, ensuring anonymity and confidentiality, and respecting privacy of the students.

3.2. Participants

The participants in the study were 264 students (52.3% male, 47.7% female) in the age categories (1.5% below 20 years, 93.9% 20-25 years, 4.5% above 25 years). The students were from different faculties (28.8% Education, 21.2% Business and Management, 27.3% Allied Health Sciences, 9.1% Science and Technology, and 13.6% Clinical Medicine and Dentistry). The students were also from different years of study (1.5% year one, 15.2% year two, 79.9% year three and 3.4% year four). The participants were selected using simple random sampling with the students selected at random and entirely by chance. This helped in ensuring that each student had equal chances of participating in the study producing results that can be generalised. Data were collected with the help of class coordinators because they possessed students' lists and had easy access to them.

3.3. Instrument

The study used a self-administered questionnaire (SAQ) with sections A through C. Section A comprised question items on demographic characteristics of the students. Section B on student engagement the dependent variable (DV) covering four aspects that are affective engagement,

behavioural engagement and cognitive engagement adopted from Lam *et al.* [27], and agentic engagement from Reeve (2013). The question items in section C were on the student centred pedagogical approach the independent variable (IV) comprising aspects of active learning and contextual learning from Wilke [68], motivation of learners from Cardoso *et al.* [10] and Utvær and Haugan [65] and collaborative learning from Atxurra, Villardón-Gallego and Calvete [3] and Rodríguez, Hinojosa & Páez [52]. The scaling of the question items in the instrument was based on a five-point Likert Scale (Where 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree). The validity of the instrument was attained using Exploratory Factor Analysis (EFA), Varimax rotation method provided by SPSS to confirm correlation among factors [53]. Items that loaded highly at 0.50 and above were considered valid [67]. Reliability of the instrument for the various constructs was tested using Cronbach's Alpha (α). Reliabilities for the items for the different constructs were attained at $\alpha = 0.70$ above which is the ideal level [62]. The validity and reliability results are presented in section of results.

3.4. Data Analysis

Data analysis involved quantitative methods that were descriptive and inferential analyses. The descriptive analysis used the means while correlation and regression analyses were the inferential analyses. Correlation analysis was used at preliminary level to establish if a linear relationship existed between student approaches that were namely; active learning, contextual learning, motivation of learners and collaborative learning with student engagement. At confirmatory level, a regression model was run by regressing the four student centred approaches on the dependent variable. Data analysis was facilitated by the Statistical Package for Social Sciences (SPSS).

4. Results

4.1. Student Engagement

Student engagement was considered as a multi-dimensional factor comprising affective, behavioural, cognitive and agentic engagement. The results for student engagement that were the means, and validity and reliability results that were factor loadings and Cronbach's alpha (α) are presented. These validity and reliability results show the accuracy and interrelatedness of the items measuring the factor of student engagement. The descriptive results, validity and reliability results were as presented in Table 1.

Table 1. Descriptive Results for Student engagement.

Affective Engagement (overall mean =4.10)	Means	Factors	α
I enjoy learning new things during lectures	4.33	0.866	0.843
Learning is interesting to me	4.26	0.858	
I am very interested in learning	4.50	0.802	
I like what I am learning in this University	4.00	0.784	
I think what we are learning in University is interesting	3.89	0.746	
Most mornings, I look forward to going to University	3.88	0.519	

Affective Engagement (overall mean =4.10)	Means	Factors	α
I am happy to be at this University	3.88	0.878	0.871
I am proud to be at this University	4.05	0.865	
I like my University	3.98	0.814	
Behavioural Engagement (overall mean =3.93)	Means	Factors	
I try hard to do well in University	4.36	0.861	0.832
I work as hard as I can while on my studies	4.21	0.837	
I pay attention during lectures	4.33	0.830	
When I am in lectures, I fully participate in lectures activities	4.27	0.778	
When I run into a difficult study problem, I keep working at it until I think I have solved it	4.20	0.640	0.852
If I have trouble understanding a problem, I go over it again until I understand it	4.09	0.572	
When I am in lectures, my mind concentrates	4.09	-	
I take an active role in extra-curricular activities in my University	3.09	0.873	
I am an active participant of University activities such as sports day	3.38	0.864	0.832
I volunteer to help with University activities such as sports day	3.27	0.836	
Cognitive Engagement (overall mean =3.86)	Means	Factors	
When I study, I try to understand the material better by relating it to things I already know	4.24	0.900	
When learning new information, I try to put the ideas in my own words	4.38	0.845	0.864
I make up my own examples to help me understand the important concepts I learn from University	4.30	0.834	
When studying my university work, I try to see how they fit together with other things I already know	4.12	0.775	
When I study, I figure out how the information might be useful in the real world	4.15	0.652	
When I study, I try to connect what I am learning with my own experiences	4.44	0.864	0.852
When I learning new things, I often try to associate them with what I learnt in other lectures about the same or similar things	4.27	0.764	
Agentic Engagement (Overall mean = 3.93)	Means	Factors	
During this lectures, I express my preferences and opinions	3.82	0.850	
When I need something in this lectures, I will ask the lecturers for it	3.83	0.824	0.852
I adjust to whatever we are learning so I can learn as much as possible	4.25	0.762	
I let my lecturers know what I need and want	3.64	0.736	
I let my lecturers know what I am interested in	3.73	0.736	
I try to make whatever we are learning as interesting as possible	4.05	0.670	0.852
During lectures, I ask questions to help me learn	4.14	0.511	

Table 1 shows that the students rated their engagement as high (overall means for affective engagement = 4.10, behavioural engagement =3.93, cognitive engagement = 3.86 and agentic engagement = 3.93 all corresponding to agreed). With all the means close to code 4 which on the five point Likert used corresponded to agree, the results implied that the students rated their engagement as high or good. Factor Analysis showed that the components of affective, behavioural and cognitive engagement could be reduced to two factors each while agentic engagement could be reduced to one factor. However, since each of the factors loaded once on each component at 0.5 and above, the items for each component were considered valid. However, for the component of behavioural engagement, item seven did not load hence was considered weak and was thus dropped from use in subsequent analyses [12]. The Cronbach's alphas = 0.843, 0.871, 0.832 and 0.852 for the respective components

of student engagement were above the acceptable level = 0.70 [25]. This meant that the items for the four student engagement constructs were reliable measures.

4.2. Student Centred Pedagogical Approach

Student centred pedagogical approach was considered as a multi-dimensional factor comprising active learning, contextual learning, motivation of students and collaborative learning. The results for the student centred pedagogical approach include frequencies, percentages, and means. Validity and reliability tests that are factor loadings and Cronbach's alpha (α) are also presented. These validity and reliability results show the accuracy and interrelatedness of the items measuring the factor of student engagement. The descriptive, validity and reliability results were as presented in Table 2.

Table 2. Descriptive Results for Student Centred Pedagogical Approach.

Active learning (overall mean =3.84)	Means	Factors	A
Lecturers involve us in learning practical activities or make us do self-guided learning in lectures	3.65	0.755	0.808
Lecturers involve us in discussions while in lectures	3.89	0.676	
Lecturers provide questions to answer at the end of every lecture	3.55	0.671	
Lecturers allow us to consult one another in lectures as we learn	3.78	0.669	
Lecturers avail us materials and sources to help us understand the material in lectures	3.54	0.652	0.852
We are given regular course works by lecturers	4.15	0.642	
Sometimes lecturers make us do some practical activities or discussions while learning	3.76	0.634	
During lectures, most lecturers make us very active contributing ideas	4.07	0.550	
Contextual learning (overall mean =3.76)	Means	Factors	0.852
My lecturers ensure self-directed learning	3.80	0.817	
My lecturers stimulate thinking, analysis and reasoning	3.88	0.779	
My lecturers activate my prior knowledge	3.78	0.777	

Active learning (overall mean =3.84)	Means	Factors	A
My lecturers teach from the known to the unknown	4.72	0.745	
The knowledge taught in lectures is realistic	4.02	0.698	
My lecturers are equal to my level of knowledge helping me to understand	3.29	0.685	
The knowledge taught in lectures is relevant to my needs	3.71	0.590	
My lecturers arouse my curiosity during learning	3.65	0.568	
Motivation of students (overall mean =3.92)	Means	Factors	0.875*
The lecturers are receptive to new ideas from students	4.18	0.839	0.871**
The lecturers generally try to stimulate lecture discussion	4.25	0.832	
The lecturers encourage me to express my opinions	4.33	0.828	
I have the opportunity to ask questions	4.25	0.770	
The lecturers teach in a manner that broadens my knowledge	4.17	0.695	
Lecturers make me feel satisfaction while learning new things	4.06	0.622	
Lecturers make me experience pleasure while learning new things	4.04	0.574	
Lecturers make learning become fun	3.12		0.862
Lecturers guide me to learn about many things that interest me	3.44		0.860
Lecturers make feel pleasure in discussions in the lecturer room	3.34		0.840
Collaborative learning (Overall mean = 4.11)	Means	Factors	0.857
My lecturers have encouraged me to join study groups	4.34	0.890	
The sizes of study groups are appropriate to stimulate group discussion	4.22	0.876	
The sizes of the study groups are appropriate to encourage my active participation	4.33	0.850	
The learning groups set up have a positive atmosphere (i.e. non-threatening)	4.25	0.706	
Interaction with other students is an important learning component of this course	4.10		0.764
I and all other students are encouraged to contribute to lectures learning.	3.38		0.762
The course provides an opportunity to learn from other students	4.10		0.636
Learning has been structured in a manner that I have sufficient opportunity to interact with other students on this course	4.19		

Table 2 revealed that the students rated the lecturers use of the student centred pedagogical approach as good (overall means for active learning = 3.84, contextual learning = 3.76, motivation of students = 3.92 and collaborative learning = 4.11 all corresponding to agreed). All the means were close to code 4 which on the five point Likert used corresponded to agree or good. Factor Analysis showed that the components of active learning and contextual learning could be reduced to one factor while the components of motivation of students and collaborative learning could be reduced to two factors. However, with the items for each of the factors loading once on each component at 0.5 and above, the items for each component were considered valid. The Cronbach's alphas = 0.808, 0.852, 0.871 and 0.857 for the respective components of student centred pedagogical approach were above the acceptable level = 0.70. However, while the initial

Cronbach's alpha for motivation of students was $\alpha = 0.875^*$, after removing item seven which did not load, the new Cronbach's alpha was lower at $\alpha = 0.871$. Nevertheless, the items remained reliable. This meant that the items for the four components of students' engagement were reliable measures.

4.3. Correlation of Student-Centred Pedagogical Approach and Student Engagement

To establish the relationship between the student-centred pedagogical approach and student engagement that is to test the four hypotheses (H1-H4) in this study, correlation analysis was done. The four student-centred approaches were active learning, contextual learning, motivation of students and collaborative learning. The results were given as in Table 3.

Table 3. Correlation between Student-Centred Pedagogical Approach and Student Engagement.

	Student Engagement	Active learning	Contextual learning	Motivation of students	Collaborative learning
Student Engagement	1	0.519**	0.492**	0.826**	0.831**
		0.000	0.000	0.000	0.000
Active learning		1	0.536**	0.469**	0.409**
			0.000	0.000	0.000
Contextual learning			1	0.453**	0.432**
				0.000	0.000
Motivation of students				1	0.894**
					0.000
Collaborative learning					1

The results in Table 3 indicate that there is a positive significant relationship between the student-centred pedagogical approach and student engagement. The results revealed that active learning ($r = 0.519$, $p = 0.000 < 0.05$), contextual learning ($r = 0.492$, $p = 0.000 < 0.05$), motivation of students ($r = 0.826$, $p = 0.000 < 0.05$) and collaborative

learning ($r = 0.831$, $p = 0.000 < 0.005$) had a positive significant relationship with student engagement. These preliminary results revealed that collaborative learning had a more significant relationship with student engagement followed by motivation of students, active learning and contextual learning respectively.

4.4. Regression of Student Engagement on the Student Centred Pedagogical Approach

At the confirmatory level, to find out whether student engagement was determined by the student centred approach in terms of active learning, contextual learning, motivation of students and collaborative learning, regression analysis was carried out. The results were as in Table 4.

Table 4. Regression of Student Engagement on Student-Centred Pedagogical Approach.

Student-Centred Pedagogical Approach	Standardized Coefficients	Significance
	Beta (β)	P
Collaborative learning	0.158	0.000
Contextual learning	0.123	0.002
Motivation of students	0.314	0.000
Collaborative learning	0.468	0.000

Adjusted $R^2 = 0.801$.

$F = 194.742$, $p = 0.000$.

The results in Table 4 show that the student-centred approach in terms of active learning, contextual learning, motivation of students and collaborative learning explained 80.1% of the variation in student engagement (adjusted $R^2 = 0.801$). This means that 19.9% was accounted for by other factors not considered in this model. The regression model was significant ($F = 194.742$, $p = 0.000 < 0.05$). The four student centred pedagogical approaches namely active learning ($\beta = 0.158$, $p = 0.000 < 0.05$), contextual learning ($\beta = 0.123$, $p = 0.002 < 0.05$), motivation of students ($\beta = 0.314$, $p = 0.000 < 0.05$) and collaborative learning ($\beta = 0.468$, $p = 0.000 < 0.05$) had a positive significant relationship with student engagement. This means that all the hypotheses were supported. However, the magnitudes of the respective betas suggested that collaborative learning had the most significant relationship with student engagement followed by motivation of students, active learning and contextual learning respectively.

5. Discussion

The results for the first hypothesis (H_1) to the effect that there is a relationship between active learning and student engagement indicated that the relationship was positive and significant. This finding was consistent with the findings of previous scholars. For example, Arjomandi et al. [2] established the existence of a strong connection between active teaching strategies and engagement for traditional students. Relatedly, Bevans et al. [6] indicated that skill practice (active learning) was positively associated with student engagement and inactive instruction was negatively associated with student engagement. Similarly, Fitzsimons [20] reported that the active learning strategy made students be more engaged in learning. Also, Khan et al. [24] revealed that use of active learning methods such as debates and interdisciplinary collaboration actively engaged students in the courses and improved learning. With respect to the second hypothesis (H_2) stating that there is a relationship between contextual learning and student engagement, the results indicated that the relationship

was positive and significant. This finding was supported by the findings of previous scholars. For instance, Marini [34] found out that student learning outcomes were enhanced through the use of contextual teaching and learning. Also, Köse and Tosun [26] revealed meaningful differences between context-based learning approach and traditional learning on student's attitudes. Likewise, Lam et al. [28] reported that the contextual model of learning was highly related to student engagement. However, the finding was not supported by Qudsyi et al. [49] who found out that contextual learning had no significant effect in improving student engagement. However, with the larger number of previous scholars supporting the finding of the study, it can be inferred that contextual learning had a positive significant relationship with student engagement.

The results for the third hypothesis (H_3) to the effect that there is a relationship between motivation of learners and student engagement also revealed that the relationship was positive and significant. This finding concurred with the findings of previous scholars. For example, Ferreira et al. (2011) reported that motivation level was related to class engagement. The study indicated that motivational variables had a potentiating effect on student learning. Also, Saeed and Zyngier [55] found out that intrinsic and extrinsic motivation had a relationship with student engagement. Similarly, Subramaniam [60] revealed that motivation of students through teaching strategies, task presentation, and structuring of learning experiences can motivate the unmotivated and disengaged learners to learn. Lastly, the results for the fourth hypothesis (H_4) testing the relationship between collaborative learning and student engagement also indicated that the relationship was positive and significant. This finding agreed with previous scholars such as Backer et al. [4] who found out that collaborative grouping had a positive impact on student learning and fostered student engagement. Bharucha [7] revealed that students who were the beneficiaries of the collaborative approach had significantly higher levels of satisfaction than students who had studied under the traditional approach hence higher levels of engagement. Also, Hernández [23] established that collaborative learning promoted student engagement. Likewise, McGarrigle [39] revealed that collaborative group learning through project and problem based learning enhanced student engagement. Therefore, with the findings of the study agreeing with the findings of previous scholars, it can be surmised that collaborative learning has a positive significant relationship with student engagement.

6. Conclusions

The discussion above led to the conclusion that all the student-teacher centred approaches namely; active learning, contextual learning, motivation of students and collaborative learning are imperative for promotion of student engagement. Therefore, it is recommended that university lecturers should promote the use of those approaches when conducting teaching. In promoting active teaching, the lecturers should involve students in practical activities, discussions, provide questions to answer at the end of every lecture, allow students

to consult one another, avail students' materials and sources of materials, give them regular course works and make students very active by contributing ideas. Implementing contextual learning should involve ensuring students self-directed learning, stimulate thinking, analysis and reasoning, activate prior knowledge of students, teach from the known to the unknown, teach knowledge relevant to students' needs, lower down to the level of students, and arouse curiosity of students during learning. To carry out motivation of learners, the lecturers should be receptive to new ideas from students, stimulate lecture discussion, encourage students to express their opinions, give them opportunity to ask questions, teach in a manner that broadens students' knowledge, make learning fun, and make students feel satisfaction.

To promote collaborative learning, the lecturers should encourage students to join study groups of appropriate size operating in a positive atmosphere, enhance student interaction, and enable every student to contribute during study groups. The limitations of the current study are that it considered one pedagogical approach namely, the student-centred approach. Therefore, future studies should cover other evident pedagogical approaches namely, teacher-centred approach in terms of immediate feedback, continuous practice/revision and reinforcement [1, 17], and teacher-student interaction approach in terms of making expectations clear, provide clear feedback and inspires students [37]. Considering the different pedagogical approaches will help in establishing the interaction relationship of pedagogical approaches in predicting student engagement. The practical contribution of this study is that it develops a model indicating that the student centred approach comprises of active learning, contextual learning, motivation of students and collaborative learning as approaches for promoting student engagement.

References

- [1] Alzaghouli, A. F. (2012). The implication of the learning theories on implementing e-learning courses. *The Research Bulletin of Jordan ACM*, 11 (11), 27-30.
- [2] Arjomandi, A., Seufert, J., O'Brien, M., & Anwar, S. (2018). Active teaching strategies and student engagement: A comparison of traditional and non-traditional business students. *E-Journal of Business Education and Scholarship of Teaching*, 12 (2), 120-140.
- [3] Atxurra, C., Villardón-Gallego, L., & Calvete, E. (2015). Design and validation of the cooperative learning application scale (CLAS). *Revista de Psicodidáctica*, 20 (2), 339-357. doi: 10.1387/RevPsicodidact.11917.
- [4] Backer, J. M., Miller, J. L., & Timmer, S. M. (2018). *The effects of collaborative grouping on student engagement in middle school students*. Retrieved from: <https://sophia.stkate.edu/maed/280>
- [5] Bakar, R. (2014). The effect of learning motivation on student's productive competencies in vocational high school, West Sumatra. *International Journal of Asian Social Science*, 4 (6), 722-732.
- [6] Bevans, K., Fitzpatrick, L. A., Sanchez, B., & Forrest, C. B. (2010). Individual and instructional determinants of student engagement in physical education. *Journal of Teaching in Physical Education*, 29 (4), 399-416. doi: <https://doi.org/10.1123/jtpe.29.4.399>.
- [7] Bharucha, J. P. (2017). Building Student engagement through collaborative practice in business management education. *International Journal of Virtual and Personal Learning Environments*, 7 (2), 1-12.
- [8] Boateng, P., & Sekyere, F. O. (2018). Exploring In-Service Teachers' Self-Efficacy in the Kindergarten Classrooms in Ghana. *International Journal of Instruction*, 11 (1), 239-254.
- [9] Bond, M., & Bedenlier, S. (2019). Facilitating student engagement through educational technology: Towards a conceptual framework. *Journal of Interactive Media in Education*, 1 (11), 1-14. doi: <https://doi.org/10.5334/jime.528>.
- [10] Cardoso, A. P., Ferreira, M., Abrantes, J. L., Seabra, C., & Costa, C. (2011). Personal and pedagogical interaction factors as determinants of academic achievement. *Procedia-Social and Behavioural Sciences*, 29, 1596-1605. doi: 10.1016/j.sbspro.2011.11.402
- [11] Cholewinski, M. (2009). An introduction to constructivism and authentic activity. *Journal of the school of contemporary international studies Nagoya University of Foreign Studies*, 5, 283-316.
- [12] Coetzee, M., Marx, A. A., & Potgieter, I. L. (2017). Examining the construct validity of the positive coping behavioural inventory. *SA Journal of Industrial Psychology*, 43, 1-8.
- [13] Dagar, V., & Yadav, A. (2016). Constructivism: A paradigm for teaching and learning. *Arts and Social Science Journal*, 7 (200). doi: 10.4172/2151-6200.1000200.
- [14] Danis, A., Perangin-Angin, R. B., & Milfayetty, S. (2017). The effect of contextual teaching and learning (CTL) and motivation to students' achievement in learning civics in grade VII SMP Imelda Medan. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 7 (6), 24-33. doi: 10.9790/7388-0706012433.
- [15] Demirci, C. (2017). The Effect of Active Learning Approach on Attitudes of 7th Grade Students. *International Journal of Instruction*, 10 (4), 129-144. doi: 10.12973/iji.2017.1048a
- [16] De Villiers, B., & Werner, A. (2016). The relationship between student engagement and academic success. *Journal for New Generation Sciences*, 14 (1), 36-50.
- [17] Ertmer, P. A., & Newby, T. J. (2013). Behaviourism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*, 26 (2), 43-71. <https://doi.org/10.1002/piq.21143>
- [18] Fall, A. M., & Roberts, G. (2012). High school dropouts: Interactions between social context, self-perceptions, school engagement, and student dropout. *Journal of adolescence*, 35 (4), 787-798.
- [19] Ferreira, M., Cardoso, A. P., & Abrantesc, J. L. (2011). Motivation and relationship of the student with the school as factors involved in the perceived learning. *Procedia - Social and Behavioral Sciences*, 29, 1707-1714. doi: 10.1016/j.sbspro.2011.11.416.

- [20] Fitzsimons, M. (2014). Engaging students' learning through active learning. *Irish Journal of Academic Practice*, 3 (1), 1-27. doi: 10.21427/D7842T.
- [21] Groccia, J. E. (2018). What is student engagement? *New Directions for Teaching and Learning*, 2018 (154), 11-20. doi: 10.1002/tl.20287.
- [22] Hartikainen, S., Rintala, H., Pylväs, L., & Nokelainen, P. (2019). The concept of active learning and the measurement of learning outcomes: A review of research in engineering higher education. *Education Sciences*, 9 (276) 1-19. doi: 10.3390/educsci 9040276.
- [23] Hernández, R. (2012). Collaborative learning: Increasing students' engagement outside the classroom. *US-China Education Review, A* 9, 804-812.
- [24] Khan, A., Egbue, O., Palkie, B., & Madden, J. (2017). Active learning: Engaging students to maximize learning in an online course. *Electronic Journal of E-Learning*, 15 (2), 107-115.
- [25] Korstjens, I., & Moser, A. (2018). Series: practical guidance to qualitative research. Part 4: trustworthiness and publishing. *European Journal of General Practice*, 24 (1), 120-124.
- [26] Köse, E. Ö., & Tosun, F. Ç. (2015). Effects of context based learning on students' achievement and attitudes in Biology. *Kastamonu Eğitim Dergisi*, 23 (4), 1425-1436.
- [27] Lam, S. F., Jimerson, S., Wong, B. P., Kikas, E., Shin, H., Veiga, F. H.,... & Stanculescu, E. (2014). Understanding and measuring student engagement in school: The results of an international study from 12 countries. *School Psychology Quarterly*, 29 (2), 213-232. doi: 10.1037/spq0000057.
- [28] Lam, S. F., Wong, B. P., Yang, H., & Liu, Y. (2012). Understanding student engagement with a contextual model. In *Handbook of research on student engagement* (pp. 403-419). Springer, Boston, MA. doi: 10.1007/978-1-4614-2018-7_19.
- [29] Le, H., Janssen, J., & Wubbels, T. (2018). Collaborative learning practices: teacher and student perceived obstacles to effective student collaboration. *Cambridge Journal of Education*, 48 (1), 103-122. <https://doi.org/10.1080/0305764X.2016.1259389>
- [30] Lee, J., Song, H., & Hong, A. J. (2019). Exploring factors, and indicators for measuring students' sustainable engagement in e-learning. *Sustainability* 11 (985). 1-12. doi: 10.3390/su11040985.
- [31] Legault, L. (2016). Intrinsic and extrinsic motivation. In V. Zeigler-Hill, & T. K. Shackelford (Eds.). *Encyclopedia of Personality and Individual Differences*. doi: 10.1007/978-3-319-28099-8_1139-1.
- [32] Lei, H., Cui, Y., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis. *Social Behaviour and Personality: an international journal*, 46 (3), 517-528. <https://doi.org/10.2224/sbp.7054>.
- [33] Loes, C. N., & Pascarella, E. T. (2017). Collaborative Learning and Critical Thinking: Testing the Link. *The Journal of Higher Education*, 85 (8), 1 726-753. doi: 10.1080/00221546.2017.1291257
- [34] Marini, A. (2016). Enhancement of student learning outcomes through the use of contextual teaching and learning. *International Journal of Sciences and Research*, 72 (11), 26-43.
- [35] Martin, A. J. (2013). Motivation to learn. In A. Holliman (Ed.). *The Routledge international companion to educational psychology*. London, UK: Routledge.
- [36] Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning* 22 (1), 205-222. doi: 10.24059/olj.v22i1.1092.
- [37] Martin, D. P., & Rimm-Kaufman, S. E. (2015). Do student self-efficacy and teacher-student interaction quality contribute to emotional and social engagement in fifth grade math?. *Journal of school psychology*, 53 (5), 359-373. <https://doi.org/10.1016/j.jsp.2015.07.001>
- [38] McCabe, A., & O'Connor, U. (2014). Student-centred learning: the role and responsibility of the lecturer. *Teaching in Higher Education*, 19 (4), 350-359. <http://dx.doi.org/10.1080/13562517.2013.860111>.
- [39] McGarrigle, J. (2013). Exploring student engagement and collaborative learning in a community-based module in fine art. *Irish Journal of Academic Practice*, 2 (1), 1-12. Retrieved from <http://arrow.dit.ie/ijap/vol2/iss1/1>
- [40] McLeod, S. A. (2018, June 06). Jean Piaget's theory of cognitive development. Retrieved from <https://www.simplypsychology.org/piaget.html>.
- [41] Montenegro, A. (2017). Understanding the concept of student agentic engagement for learning. *Colombian Applied Linguistics Journal*, 19 (1), 117-128. doi: <http://dx.doi.org/10.14483/calj.v19n1.10472>.
- [42] Muganga, L., & Ssenkusu, P. (2019). Teacher-centered vs. student-centered. *Cultural and Pedagogical Inquiry*, 11 (2), 16-40.
- [43] Näkk, A. M., & Timoštšuk, I. (2019). The dynamics of learning engagement and its relationship with teachers' classroom practices in primary school. *Education 3-13*, 47 (1), 89-100. <https://doi.org/10.1080/03004279.2017.1404620>.
- [44] Nayir, F. (2017). The relationship between student motivation and class engagement levels. *Eurasian Journal of Educational Research*, 71, 59-78.
- [45] Nguyen, T. D., Cannata, M., & Miller, J. (2018). Understanding student behavioural engagement: Importance of student interaction with peers and teachers. *The Journal of Educational Research*, 111 (2), 163-174. <https://doi.org/10.1080/00220671.2016.1220359>.
- [46] Olivier, E., Galand, B., Hospel, V., & Dellisse, S. (2020). Understanding behavioural engagement and achievement: The roles of teaching practices and student sense of competence and task value. *British Journal of Educational Psychology*, 1-23. doi: 10.1111/bjep.12342.
- [47] Olusegun, B. S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *IOSR Journal of Research & Method in Education*, 5 (6), 66-70.
- [48] Pilotti, M., Anderson, S., Hardy, P., Murphy, P., & Vincent, P. (2017). Factors Related to Cognitive, Emotional, and Behavioral Engagement in the Online Asynchronous Classroom. *International Journal of Teaching and Learning in Higher Education*, 29 (1), 145-153.

- [49] Qudsyi, H., Wijaya, H. E., & Widiastara, N., & Nurtjahjo, F. E. (2018). Contextual teaching-learning method to improve student engagement among college students in cognitive psychology course. *International Conferences on Education, Social Sciences and Technology*, 632-640. doi: <https://doi.org/10.24036/XXXXX>.
- [50] Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology*, 105 (3), 579–595. doi: 10.1037/a0032690.
- [51] Reiss, S. (2012). Intrinsic and extrinsic motivation. *Teaching of Psychology*, 39 (2), 152-156. DOI: 10.1177/0098628312437704.
- [52] Rodríguez, M. C., Hinojosa, L. M. M., & Páez, C. A. O. (2019). Scale of teaching strategies for collaborative learning: Design, validation and evaluation of its psychometric properties in high school education. *Psychology*, 10, 256-272. <https://doi.org/10.4236/psych.2019.102019>.
- [53] Rossoni, L., Engelbert, R., & Bellegard, N. L. (2016). Normal science and its tools: Reviewing the effects of exploratory factor analysis in management. *Revista de Administracao (Sao Paulo)*, 51, 198-211. <https://doi.org/10.5700/rausp1234>.
- [54] Roza, A. S., Rafli, Z., & Rahmat, A. (2019). The implementation of contextual teaching learning (CTL) to improve the students' speaking ability in Islamic studies course. *International Journal of Applied Linguistics & English Literature*, 8 (4), 45-50. <http://dx.doi.org/10.7575/aiac.ijalel.v.8n.4p.45>.
- [55] Saeed, S., & Zyngier, D. (2012). How motivation influences student engagement: A qualitative case study. *Journal of Education and Learning*, 1 (2), 252-267. doi: 10.5539/jel.v1n2p252.
- [56] Shapira-Lishchinsky, O. (2014). Simulation-based constructivist approach for education leaders. *Educational Management Administration & Leadership*, 43 (6), 972-988. <https://doi.org/10.1177/1741143214543203>.
- [57] Sikoyo, L. (2010). Contextual challenges of implementing learner-centred pedagogy: the case of the problem-solving approach in Uganda. *Cambridge Journal of Education*, 40 (3), 247-263. <https://doi.org/10.1080/0305764X.2010.509315>.
- [58] Singh, A. K., & Srivastava, S. (2013). Antecedents and consequence of student engagement in an Indian management education setting. *Metamorphosis*, 12 (1), 47-64. <https://doi.org/10.1177/0972622520130105>.
- [59] Starkey, L. (2019). Three dimensions of student-centred education: A framework for policy and practice. *Critical Studies in Education*, 60 (3), 375-390, doi: 10.1080/17508487.2017.1281829.
- [60] Subramaniam, P. R. (2009). Motivational effects of interest on student engagement and learning in physical education: A review. *International Journal Physical Education*, 46 (2), 11-19.
- [61] Surdin. (2017). The effect of contextual teaching and learning (CTL) models on learning outcomes of social sciences of the material of forms the face of the earth on class VII of junior high school. *International Journal of Education and Research*, 6 (3), 57-64.
- [62] Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48 (6), 1273-1296. doi 10.1007/s11165-016-9602-2.
- [63] Tandon, T. (2017). Constructivist learning approach: A child centred pedagogy. *EDULIGHT Journal*, 6 (11), 1-3.
- [64] Thoonen, E. E. J., Slegers, P. J. C., Peetsma, T. T. D., & Oort, F. J. (2010). Can teachers motivate students to learn? *Educational Studies*, 1-16. doi: 10.1080/03055698.2010.507008.
- [65] Utvær, B. K. S., & Haugan, G. (2016). The academic motivation scale: dimensionality, reliability, and construct validity among vocational students. *Nordic Journal of Vocational Education and Training*, 6 (2), 17-45. doi: 10.3384/njvet.2242-458X.166217.
- [66] Virtanen, P., Niemi, H. M., & Nevgi, A. (2017). Active learning and self-regulation enhance student teachers' professional competences. *Australian Journal of Teacher Education*, 42 (12), 1-20. <http://ro.ecu.edu.au/ajte/vol42/iss12/1>.
- [67] Watkins, M. W. (2018). Exploratory factor analysis: A guide to best practice. *Journal of Black Psychology*, 44 (3), 219-246. doi: 10.1177/0095798418771807.
- [68] Wilke, R. R. (2003). The effect of active learning on student characteristics in a human physiology course for non-majors. *Advances in Physiology Education*, 27 (4), 207-223.
- [69] Williams, K., & Williams, C. (2011). Five key ingredients for improving motivation. *Research in Higher Education Journal*, 11, 1-24. <http://aabri.com/manuscripts/11834.pdf>.
- [70] Wood, R. (2019). Students' motivation to engage with science learning activities through the lens of Self-Determination Theory: Results from a single-case school-based study. *EURASIA Journal of Mathematics, Science and Technology Education*, 2019, 15 (7). <https://doi.org/10.29333/ejmste/106110>.
- [71] Xulu-Gama, N., Nhari, S. R., Alcock, A., & Cavanagh, M. (2018). A student-centred approach: A qualitative exploration of how students experience access and success in a South African University of Technology. *Higher Education Research & Development*, 37 (6), 1302-1314, doi: 10.1080/07294360.2018.1473844.
- [72] Yang, G., Badri, M., Al Rashedi, A., Almazroui, K., Qalyoubi, R., & Nai, P. (2017). The effects of classroom and school environments on student engagement: The case of high school students in Abu Dhabi public schools. *Compare: A Journal of Comparative and International Education*, 47 (2), 223-239. doi: 10.1080/03057925.2016.1230833.
- [73] Yonezawa, S., Jones, M., & Joselowsky, F. (2009). Youth engagement in high schools: Developing a multidimensional, critical approach to improving engagement for all students. *Journal of Educational Change*, 10 (2-3), 191-209. doi 10.1007/s10833-009-9106-1.
- [74] Yueh-Luen, H., & Ching, G. S. (2012). *Factors affecting student engagement: An analysis on how and why students learn*. Conference on creative education (pp. 989-992). Irvine, CA: Scientific Research Publishing.
- [75] Zepke, N. (2018). Student engagement in neo-liberal times: What is missing? *Higher Education Research & Development*, 37 (2), 433-446. doi: 10.1080/07294360.2017.1370440.