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Full Length Research Paper

Teacher centred strategy and academic achievement of students in public Universities of Uganda

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This study explored the relationship between teacher-centred strategies and academic achievement of students in Ugandan public universities. Using the cross-sectional research design, data were collected using a questionnaire and an interview guide on a sample of 375 students and 8 heads of departments. Quantitative data involved use of descriptive and inferential statistical analyses while qualitative data were analysed using thematic and content analyses. Correlation results revealed that teacher-centred strategies including immediate feedback, continuous/repeat practice and reinforcement had a positive and significant relationship with students' academic achievement. Nevertheless, results generated from the regression analysis were also consistent with correlation results except for reinforcement. The conclusion of the study was that immediate feedback and continuous practice are important teaching strategies but reinforcement is relatively less effective strategy in enhancing academic achievement. It was recommended that lecturers should focus on giving immediate feedback to their students as well as promote continuous practice.

Keywords: Academic achievement, continuous practice, immediate feedback, reinforcement and teacher-centred strategies

INTRODUCTION

Academic achievement is associated with cognitive skills (technical knowledge, expertise and abilities) and personal or behavioural characteristics (principles, attitudes, values and motives) (Hodges and Burchell, 2003) necessary in a person's life. Graduates with high academic achievement have knowledge and skills that they can use in different situations (Cardoso, Ferreira, Abrantes, Seabra and Costa, 2011 Hodges and Burchell, 2003). However, anecdotal evidence from observers of graduates from public universities in Uganda suggests that they have low academic achievement. Wamala, (2013) reported that the academic achievement of the majority of students of Bachelor of Laws at the School of Law of Makerere University was the median CGPA of 3.16 that is lower second class. Similarly, Wamala Maswere and Mwanga, (2013) also revealed that academic achievement of Bachelor of Science in Actuarial Science at the School of Statistics and Planning at Makerere University was low with an overall median CGPA (3.28; range of 2.52–4.56) obtained by the majority of the graduates on the program. The graduates exhibit limited acquisition of subjects' knowledge of classifications, principles, theories, models; and structures, subject-specific skills, subject-specific techniques and appropriate procedures; and acquisition of strategic knowledge, mental tasks and self-knowledge. The graduates are ill prepared for the ever changing and competitive knowledge economy. A number of graduates turn out to be illiterate lacking knowledge of simple conceptual work terms taught in universities (Kanyeihamba, 2015). At 63%, Uganda in the East African Community has the worst record of graduates lacking adequate knowledge in areas of their study and are not conversant with current affairs in their fields. Graduates lack innovativeness, communication skills and poor command in English language (Munishi, 2016).

It was not known whether, this low academic achievement of undergraduates in Ugandan public universities was linked to the teacher centred pedagogical strategies used by lecturers or not. This paper investigated whether teachers use the teacher centred approach in universities related to students' academic achievement.

Academic achievement

Academic achievement has been defined as referring to performance outcomes that indicate the extent to which a person has accomplished specific goals that are the focus of activities in instructional environments, specifically in school, college or university (Mimrot, 2016). Pickard, (2007) indicates that academic achievement is a multidimensional concept referring to factual, conceptual, procedural and meta-cognitive knowledge achievement. Factual knowledge refers to the discrete facts and basic elements that experts use when communicating about their discipline, understanding it, and organising it systematically (Watts and Hogdson, 2019). Conceptual knowledge refers to students' ability to explain the concepts in their own words and transfer information to new situations (Pickard, 2007). Procedural knowledge refers to mastery of the criteria of when to use various procedures and reflects knowledge of different processes (Hailikari, Katajavuori and Lindblom-Ylanne, 2008). Meta-cognitive knowledge refers to awareness of the learning process by the learner and the ability to adapt to challenges that occur during this process through effective strategies (Orlando, 2016). Academic achievement and factors related to it has been a concern of scholars for a long time. For instance, Grimes and Allinsmith, (1961) reported that the choice of instructional methods and taking into account of the personality of the students determined academic achievement. Reporting on influences of academic achievement in comparison of results from Uganda and more industrialized societies, Geringer, (2005) reporting on the educational experience of Southern and Eastern European immigrants from 1894-1926 paralleling it with that of the years 1960-1988 found out that the family demographics of gender expectations and socioeconomic status significantly contributed to academic achievement. Abrantes, Seabraa and Lages, (2007) in a study on how pedagogical methods affected learning performance of students revealed that pedagogical methods in terms of student–instructor interaction had a positive significant impact on student's learning performance. Ng'umbi and Andala, (2016) carried out an experiment designed to test how teaching methods related to the academic performance in universities in Rwanda using MBA business statistics students as the unit of analysis. Results revealed that the traditional lecture method (teacher centred approach) was the least beneficial teaching approach in determining students' academic achievement. Zohrabi, Torabi and Baybourdiani (2012) in an experimental study revealed that implementation of teacher-centred process led to higher academic achievement. Zhao, Valcke, Desoete, Sang and Zhu, (2014) revealed that teacher-centred teaching had a positive impact on students' performance. Precisely, the studies above suggest that factors that relate to academic achievement include instructional strategies (Abrantes *et al*., 2007; Asoodeh *et al*. 2012; Cardoso *et al*., 2011; Zhao *et al*., 2014), personality of the pupils (Grimes and Allinsmith, 1961), socio-economic status (Geringer, 2005) and demographics of gender expectations (Geringer, 2005). However, empirical gaps emerge with the study some studies producing controversial results. For instance, whereas all the other scholars emphasized the significance of the teacher-centred approach, Ng'umbi and Andala, (2016) reported that teacher-centred teaching was the least beneficial teaching approach in determining students' academic achievement. This controversy made it imperative for this study to further investigate the relationship between teachers use of the teacher centred strategy and academic achievement of students.

Teacher centred strategies

The teacher-centred strategies involve the teacher offering instruction in a highly structured environment where the teacher organises the learning tasks, establishes the classroom objectives, and presents materials to support only those objectives, and creates the timetable and methods to achieve those learning tasks (Hancock, Bray and Nason, 2002). With the teacher-centred strategy, teachers play an important role in the learning process as information providers or evaluators that monitor students to learn. Students are learners who passively receive information (Emaliana, 2017). Teachers exert control through a system of clearly defined rules, routines and punishments that are mandated. When students exhibit undesirable behaviour, the teacher uses punishments such as reprimands, time outs and loss of special privilege. Teachers may also rely on extrinsic motivation such as praise and tangible rewards such as gifts or additional marks to influence student behaviour (Garrett, 2008). Teachers that use the teacher centred approach make all the decisions concerning the curriculum, teaching methods, and the different forms of assessment (Lak, Soleimani and Parvaneh, 2017). Teachers use the teacher-centred strategy to promote or focus on methods such as lectures and guided demonstrations. These forms of instruction lead to having the teacher stand in front of the classroom while the students listen or observe. The physical design of the classroom promotes a focus on the teacher and limits student activity that disrupts focus. Rooms are often organized so that desks face toward the teacher who is the primary focus (Garrett, 2008).

With the teacher centred strategy, teachers' statements

of learning outcomes express what is expected that students should be able to do at the end of the learning period. Learning outcomes are clear statements of what the student is expected to achieve and how the student is expected to demonstrate this achievement as a result of engaging in the learning (Schreurs and Dumbraveanu, 2014). Studies have revealed again and again that the teacher-centred strategy is of great value for effective instruction although self-appointed education leaders give it no respect. Most recent social studies leaders have fought hard against the idea of teacher-centred instruction and at every opportunity in journal articles, education textbooks, and speeches at professional meetings slogans are voiced about teaching the child, not the subject according to developmentally appropriate practices. However, despite the criticism against the teacher centred approach many teachers have been successfully using teacher-centred instruction in the classroom (Schug, 2003). Indeed, the teacher-centred instruction strategy is the dominant teaching strategy used by educators in higher education globally especially in the social sciences (Lak *et al*., 2017). Ormrod, (2004) reveals that the teacher centred approach is built on the Behavioural Learning Theory which suggests that learning is the product of the stimulus conditions and responses hence teachers should directly influence learning by giving immediate feedback to learners and carry out repeat practice with feedback.

Literature review

Theoretical review

The Behavioural Learning Theory explains the relationship between the teacher-centred strategy and academic achievement. The Behavioural Learning Theory posits that learning is the product of the stimulus conditions (S) and the responses (R). Therefore, to modify people's attitudes and responses, there is need to either alter the stimulus conditions in the environment or change what happens after a response occurs (Schunk, 2012). Transfer is aided by a similarity in the stimuli and responses in the learning situation relative to future situations where the response is to be performed. Learning can be based on respondent conditioning and operant conditioning procedures. Respondent conditioning emphasises the importance of stimulus conditions and the associations formed in the learning process (Ormrod, 2004).The assumption of the Behaviourist Theory is that observable behaviour indicates whether or not the learner has learned something. Therefore, teachers should directly influence learning by giving immediate feedback to learners and carry out repeat practice with feedback. Also stimulus-response associations should be strengthened through instructional cues, practice and reinforcement (Alzaghoul, 2012). Behaviourism suggests that learning is accomplished when a proper response is demonstrated following the presentation of a specific environmental stimulus.

The learner is reactive to conditions in the environment (Ertmer and Newby, 2013). The Behaviourist Theory shows that the work of the teacher is to change the behaviour of the learner using measures such as immediate feedback, repeat or continuous practice and reinforcement.

This study thus investigated how the teacher-centred approaches suggested by the Behavioural Learning Theory namely; immediate feedback, repeat or continuous practice and reinforcement relate to academic achievement of students.

Immediate feedback and academic achievement of students

Feedback is defined as the results of one's efforts. Feedback that is clear, specific and timely motivates students to improve. Thus, assessment provides feedback for both learners and teachers, and conversely, the absence of prompt, useful feedback reduces interest in learning. Danga, (2012); Gökçe, (2014); Iqbal, Muhammad and Muhmmad, (2013); Núñez-Peña, Bono and Suárez-Pellicioni, (2015) have studied the relationship between immediate feedback and academic achievement.

For instance, Danga (2012) carried out a study on classroom feedback and academic performance using senior secondary school students in Bassa local government area in Nigeria. Their study found out that classroom feedback was effective in influencing students' academic performance and interest. Gökçe, (2014) investigated the effects of feedback on achievement goals and perceived motivational climate in physical education in the central district of Denizli in Turkey. The results showed that mastery and performance achievement increased performance. Iqbal *et al*. (2013) also investigated the effect of corrective feedback on academic achievement of students in government secondary schools in Pakistan. Their results showed that there was a relationship between teachers' corrective feedback and academic achievement of students. Núñez-Peña *et al*. (2015) accessed the contribution of feedback on students' performance on students of the University of Barcelona.

Using regression analysis the study also revealed that feedback positively correlated with students' grades (i.e. academic excellence). However, the studies above suggest contextual gaps with none of the studies carried out in the Ugandan context and only one study by Núñez-Peña *et al*. (2015) carried out in the university context. This contextual gap made it necessary the study to further test the hypothesis that;

H_1: There is a relationship between immediate feedback and academic achievement of students.

Continuous practice and academic achievement of students

Continuous or repeat practice involves students learning new material by repeatedly studying it and being tested on that material (Horst, Parsons and Bryan, 2011). Continuous practice is based on the principle that if one is trying to learn something well such as a set of facts, concepts, skills, or procedures, a single exposure is usually inadequate. Having the initial study and subsequent review or practice generally leads to superior learning (Kang, 2016). Application of continuous/repeated practice is desired in any teaching and learning situation. Given that it leads to mastery of learning by reducing or out rightly preventing the loss of ability to retrieve learnt information from either short term memory or long term memory. Therefore, application of continuous or repeat practice in any teaching/learning process will enhance the retrieval abilities in the process of recovering information in the memory of the learners (Gbarato and Mandah, 2017). Studies (Butler, 2010; Carrillo-de-la-Peña and Perez, 2012; Gbarato and Mandah, 2017; Kang, 2016; Valleley and Shriver, 2003) have related continuous or repeat practice to academic achievement. For example, Butler, (2010) investigated whether repeated studying affected retention and transfer of facts and concepts in an experimental study on undergraduate psychology students at Washington University in St. Louis in the USA. The findings revealed that repeated studying influenced retention and transfer of facts and concepts by students. Carrillo-de-la-Peña and Perez, (2012) carried out a study on continuous/repeated practice through continued assessment in a psychology course at a Spanish university using students. The findings showed that continuous assessment had a positive impact on academic outcomes and students perceived the practice as a procedure that promotes deeper learning. Gbarato and Mandah, (2017) assessed the influence of planned repetition on academic performance of secondary school students in Physics in Khana Local government Area of Rivers State, Nigeria using teachers and students. The study revealed that planned repetition had significant influence on the academic performance of secondary school physics students. Kang, (2016) analysed the effects of spaced repetition on efficient and effective learning in a review. The review revealed that repeated spaced practice enhanced diverse forms of learning, including memory, problem solving, and generalisation to new situations. Valleley and Shriver, (2003) also examined the effectiveness of repeated readings for increasing four secondary student's fluency on passages at their instructional level using high school students from Midwest in the USA. The findings revealed that students achieved improvement with repeated practice. However, the studies above reveal contextual gaps with only one study by Gbarato and Mandah, (2017) carried out in the context of a developing country that is Nigeria. This contextual gap made it imperative for this study to further test whether the following hypothesis holds:

H_2: There is a relationship between continuous practice and academic achievement of students.

Reinforcement and academic achievement of students

Reinforcement is a way of influencing behaviour through rewards and punishments or something added to provide more strength or support (Adibsereshki, Abkenar, Ashoori and Mirzamani, 2015). Reinforcement is either positive or negative. Positive reinforcement is any stimulus or presentation which increases the likelihood of a particular behaviour (Hoque, 2013). Negative reinforcement involves the removal, reduction, postponement, or prevention of stimulation strengthening the response on which they are contingent (Thompson and Iwata, 2005). Scholars (e.g. Adibsereshki *et al*. 2015; Amuma and Idoli 2013; Gulap, Mazhar and Zakia, 2017; Mandah and Gbarato 2016; Eremie and Doueyi-Fiderikumo, 2018) have carried out studies on reinforcement and academic achievement. For instance, Adibsereshki *et al*. (2015) compared the effectiveness of tangible reinforcements and social reinforcements on the academic achievement of eighth-grade female students in Tehran in Iran. ANOVA results demonstrated that there was a significant difference in the academic achievement scores of the groups after using the intervention and the mean difference in achievement scores for the tangible reinforcements group was significantly higher than the social reinforcement group. Amuma and Idoli, (2013) examined the effects of material and non-material reinforcers on academic performance of Abia State Senior Secondary School girls in Nigeria. ANOVA and Z-test results revealed that students materially reinforced and students that were non-materially reinforced differed significantly. Students materially reinforced had higher academic achievement than those that were non-materially reinforced. Gulap *et al*. (2017) examined the perceived effect of the use of reinforcement on students' academic achievement of both public and private secondary school of the district of Bannu, Pakistan. T-test results showed that positive reinforcement played a positive role in motivation of students towards academic achievement. Mandah and Gbarato, (2016) examined the influence of reinforcement on the academic performance of secondary school physics students in Obio/ Akpor Local Government area of Rivers State, Nigeria. Their results revealed that use of reinforcement influenced the academic performance of students. Eremie and Doueyi-Fiderikumo, (2018) carried out a study of positive reinforcement on the academic achievement of secondary school students in Rivers State, Nigeria. Results indicated that both male and female students

were not influenced by verbal and tangible reinforcements but differentially influenced by non-verbal rewards. However, still none of the studies above was carried out in the context of Uganda. This therefore, made it imperative for this study in the context of Uganda to further test whether:

H_3: There was a relationship between reinforcement and academic achievement of students.

METHODOLOGY

Sample and procedure

The sample comprised 375 students and 8 heads of departments from two public universities in Uganda. The eight heads of departments responsible for ensuring that undergraduate students excelled academically were interviewed (in-depth) to generate qualitative data. To attain the sample size, the researcher used two-stage sampling whereby in the first stage, the students were clustered according to the universities. In stage two, the students were stratified according to faculties and from each university one faculty that is the faculty of Education was selected. This was because the faculty of Education was considered to have been keen to pedagogical strategies since they professionally trained teachers. Thus, students from the College of Education and External Studies Makerere University and Faculty of Education Kyambogo were studied. 375 respondents were drawn from the sampled population using simple random sampling.

Instrument

The study adopted two data collection instruments, namely; a self-administered questionnaire and interview guide. A self-administered questionnaire had five sections that were sections A through E. The question items were close-ended items based on nominal scale with appropriate alternatives given for section A and ordinal scale based on the five-point Likert from a minimum of 1 through 5 for sections B through E. The questions in section A were on the background characteristics that are namely; gender, age group, year of study, marital status and university. The questions in section B were on the dependent variable and those in sections C through E were on the independent variables. Section B on academic achievement (IVI) covered four aspects that were namely; factual knowledge, conceptual knowledge, procedural knowledge and Meta Cognitive Knowledge achievement. The questions in section C were on the teacher-centred pedagogical strategy divided into three subsections that were immediate feedback, continuous/repeated practice and reinforcement. For the interview guide, this was a face-to-face data collection instrument. The design of the interview items was standardized open-ended interview that allowed the participants to provide detailed information because of the probing questions and had a means of follow-up (Jamshed, 2014).

Data analysis

The quantitative data collected was processed by coding all data questionnaires, entering them into the computer using the Statistical Package for Social Sciences (SPSS), summarizing them using frequency tables and editing them to remove errors. Data were analyzed at bivariate and multivariate levels. At the bivariate level, the dependent variable (DV), academic achievement was correlated with teacher-centred strategy in terms of immediate feedback, continuous practice and reinforcement. At multivariate level, the DV, was regressed on the three teacher-centred strategies (IVs) using multiple regression. The Statistical Package for Social Sciences (SPSS) facilitated the data analysis. Analysis of qualitative data was done through thematic and content analyses. Thematic analysis ensured that clusters of texts with similar meaning are presented together (O'Neil and Koekemoer, 2016). Content analysis involved interpretation of the underlying context (Hsieh and Shannon, 2005). Using both quantitative and qualitative analyses enabled making of statistical inferences for generalisation and carrying of in-depth analysis.

RESULTS

Academic achievement index

There are four aspects of academic achievement namely; factual, conceptual, procedural and meta-cognitive knowledge achievement. The summary statistics for academic achievement were as presented in (Table 1). The results in (Table 1) revealed that the mean = 3.98 was almost equal to the median = 4.00. Therefore, despite the negative skew (skew -0.57), the results were normally distributed. The mean and median are close to four suggesting that academic achievement was good because basing on the scale used four represented true. The low standard deviation = 0.45 suggested low dispersion in the responses. In relation to the above, in the interviews the respondents were asked to explain how true it was that students' factual knowledge or the basic elements they needed to know to be versed with a discipline or solve problems in it was good. Several responses were given. For instance, *Interviewee 1 said, "To a great extent it is good because students have knowledge about the subject especially reflected during school practice where students demonstrate that they are*

Table 1. Summary Statistics for Academic Achievement.

Descriptive			Statistic	Std. Error
Academic Achievement	Mean		3.98	0.02
	95% Confidence Interval for Mean	Lower Bound	3.93	
		Upper Bound	4.03	
	5% Trimmed Mean		4.00	
	Median		4.00	
	Variance		0.20	
	Std. Deviation		0.45	
	Minimum		2.61	
	Maximum		4.81	
	Range		2.19	
	Interquartile Range		0.58	
	Skewness		-0.57	0.13
	Kurtosis		0.76	0.27

able to do what was taught to them." *Interviewee 2 stated, "Students factual knowledge is good because students could possibly explain most terms taught in the subjects given. Of course this is not to say that all the students are good, but generally most of the students are up to the required standard*." Interview 5 also stated; *I know universities in Uganda are being bashed for producing graduates low in factual knowledge that are unable to express themselves clearly in English, which is the language of instruction…. However, my interaction with students in this university has shown me that a good number of them are good and have factual knowledge of their subjects*.

Interviewee 7 said; "Factual knowledge of the students is largely gauged during marking of examinations and school practice. In exams, very few show exceptional mastery of the basic elements of their subjects with the majority being just above average. However, I have been impressed by the level of mastery of our trainees during their school practice".

The information above from the interviewees suggested largely that mastery of factual knowledge by the students was good. This finding is consistent with the descriptive statistics results and in the interviews; several but related views were given in relation to Conceptual Knowledge. For instance, Interviewee 2 said, "Some of the students are good in terms of being able to explain concepts studied both in writing and in talking. During discussions in lectures, I have seen many students who articulate concepts properly." Interviewee 7 concurred that "Most of the students I teach in this university during examinations show above average level in understanding of concepts, principles, theories and models from what I teach them". On contrary, Interviewee 5 observed that, "For most of our students their oral expression was not very good.

Furthermore, respondents were asked to give their opinions about possession of procedural knowledge. Interviewee 2 stated "Students show mastery of the criteria of when to use various procedures and knowledge but the problem is that students these days run to the internet to find solutions to whatever study problem they have to handle." Further, interviewee 5 remarked;

"We make effort to equip students with criteria of when to use various procedures and knowledge as we teach and indeed a few students exhibit this competence when doing activities given to them except that there are also a good number of students that appear very raw. Many students just present abstracts from books but their knowledge cannot be realised".

The interview item on meta-cognitive knowledge required the respondents to comment on the meta-cognitive knowledge or higher-order thinking skills of the students they taught. To this question item Interviewee 1 said, "A good number of the students do not have higher order thinking skills.

Their reasoning capacity is low and most of them go to internet to find solutions to problems they need to respond to." Interviewee 3 remarked, "Some few are very good and a good number of them mediocre and need lengthy explanations before getting a concept." Interviewee 4 stated; *"Higher thinking skills are rare in most of the students. They are copy and paste category students who do not apply any reasoning. Most of the students in examinations reproduce the notes. This problem has been exacerbated by the internet which has removed students' effort to think as they just directly copy from the internet and paste in course works. Much of what the students produce is plagiarism. However, there are some few who are first class students that exhibit higher order thinking skills".*

Lastly, interviewee 8 said, "*Many students have no initiative to become scholars but are only interested in the degrees. Therefore, there are few students who exhibit higher-order thinking skills.*" The views above from the interviewees suggest that meta-cognitive knowledge achievement was low.

However, these views are inconsistent with the views of the students which suggested that it was high. Therefore, basing on the lecturers who were the people that assessed the students, it can be suggested there were challenges in meta-cognitive knowledge achievement.

Teacher-centred strategy and academic achievement of students

To establish the relationship between academic achievement and the teacher-centred strategy that is to test the three hypotheses (H1-H3) in this study, correlation analysis was done. The three teacher-centred strategies were immediate feedback, continuous practice and reinforcement. The results were given as in (Table 2).

The results in (Table 2) suggest that all teacher-centred pedagogical strategies namely; immediate feedback ($r = 0.198$, $p = 0.000 < 0.05$), continuous practice ($r = 0.268$, $p = 0.000 < 0.05$) and reinforcement ($r = 0.234$, $p = 0.000 < 0.05$) had a positive and significant relationship with academic achievement. This means that hypotheses (H_1-H_3) were supported.

In the interviews, the question item on immediate feedback by lecturers required the interviewees to give their assessment of the lecturers' provision of immediate feedback to students. The responses from the interviewees revealed that largely the lecturers provided immediate feedback. One interviewee 7 said;

Definitely in the lecturer rooms, lecturers tend to give us immediate feedback because if students put questions to them they provide responses immediately. For assignments such as coursework and examination results these are dependent on the swiftness of each individual lecture and the deadlines provided by the university.

Generally, all the interviewees gave responses which suggested there are some situations which required the lecturers to give immediate feedback and others which depended on the timeline provided by the universities. These views suggested that there was provision of immediate feedback. These results meant lecturers provided feedback to the students.

In the interviews, the interviewees were asked to comment on lecturers helping students carry out continuous practice of revision in the universities. Interviewee 1 said, "*Lecturers use one hour of lecturing so it is difficult to carry out continuous revision this is possible during tutorials. Lecturers help students to understand what they did not understand in class helping students improve their performance*." However, all the other interviewees indicated that lecturers promoted continuous practice through giving students revision questions, organization of discussions, offering several continuous assessments. These views suggested that the lecturers promoted continuous practice consistently with descriptive statistics which revealed that continuous practice was good. The question item on reinforcement required to give their opinion on the fact that lecturers' use of reinforcement during teaching was low. In the interviews, it was revealed that the numbers of students were high for lecturers to effectively reinforce students.

However, it was pointed out that lecturers praised students in class, rebuked the undisciplined and forwarded some to disciplinary committees. For instance, R8 stated, "There are lecturers who have forwarded students to the faculty disciplinary committee for cheating in examinations and for plagiarizing coursework." Therefore, the views above suggested that the lecturers somehow carried out reinforcement as they taught students. However, consistent with the descriptive statistics it was not high.

Regression of academic achievement on teacher-centred pedagogical strategy

At the confirmatory level, to establish whether teacher-centred pedagogical strategies namely; immediate feedback, continuous learning and reinforcement influenced academic achievement, a regression analysis was carried out (Table 3). The results in (Table 3) show that teacher-centred pedagogical strategies namely; immediate feedback, continuous learning and reinforcement explained 7.4% of the variation in academic achievement of students (adjusted $R^2 = 0.074$). This means that 0.92.6% of the variation was accounted for by other factors not considered under this model. However, only two teacher-centred pedagogical strategies namely; immediate feedback ($\beta = 123$, $p = 0.040 < 0.05$) and continuous learning ($\beta = 0.159$, $p = 0.047 < 0.05$) had a positive and significant relationship with academic achievement while reinforcement ($\beta = 0.075$, $p = 0.349 > 0.05$) did not. This means that only hypotheses one and two (H_1 & H_2) were supported but hypothesis three was not. The magnitudes of the respective betas suggested continuous practice had a more significant influence on academic achievement followed by immediate feedback.

DISCUSSION

The findings revealed that the first hypothesis to the effect that immediate feedback had a positive and significant relationship with academic achievement was supported. This finding concurred with the findings of previous scholars. For instance, Danga, (2012) found out that classroom feedback was effective in influencing students' academic performance and interest. Gökçe, (2014) reported that feedback increased performance achievement. Iqbal *et al*. (2013) revealed that there was a relationship between teachers' corrective feedback and academic achievements of students. Núñez-Peña *et al*. (2015) indicated that feedback positively correlated with students' grades. With the finding of the study concurring with the findings of previous scholars, this means that immediate feedback has a positive significant relationship with academic achievement. The second hypothesis to the effect that continuous practice has a positive and significant relationship with academic achievement was

Table 2. correlation of academic achievement on teacher-centred pedagogical strategy.

	Academic Achievement	Immediate Feedback	Continuous Practice	Reinforcement
Academic Achievement	1			
Immediate Feedback	0.198**	1		
	0.000			
Continuous Practice	0.268**	0.366**	1	
	0.000	0.000		
Reinforcement	0.234**	0.349**	0.738**	1
	0.000	0.000	0.000	

Correlation is significant at the 0.05 level (2-tailed).

Table 3. Regression of academic achievement on teacher-centred pedagogical strategy.

Teacher-Centred Pedagogical Strategy	Standardised Coefficients (β)	Significance (p)
Immediate Feedback	0.123	0.040
Continuous Practice	0.159	0.047
Reinforcement	0.075	0.349

Adjusted $R^2 = 0.074$
$F = 9.079$, $p = 0.000$
Dependent Variable: Academic Achievement

also supported. Finding was consistent with the findings of previous scholars. For example, Butler, (2010) revealed that repeated studying influenced retention and transfer of facts and concepts by students. Carrillo-de-la-Peña and Perez, (2012) reported that continuous assessment had a positive impact on academic outcomes and students perceived the practice as a procedure that promotes deeper learning. Gbarato and Mandah, (2017) found out that planned repetition had significant influence on the academic performance of secondary school physics students. Kang, (2016) revealed that repeated spaced practice enhanced diverse forms of learning, including memory, problem solving, and generalization to new situations. Valleley and Shriver, (2003) found out that students achieved improvement repeated practice. Nevertheless, the hypothesis to the effect that reinforcement has a positive and significant relationship with academic achievement was not supported. This finding was inconsistent with findings of previous scholars. Adibsereshki *et al*. (2015) reported that there was a significant difference in the academic achievement scores of the groups after using reinforcements. Amuma and Idoli, (2013) revealed that students materially reinforced had higher academic achievement than those that were non-materially reinforced. Gulap *et al*. (2017) established that positive reinforcement played a positive role in motivation of students towards academic achievement. Mandah and Gbarato, (2016) indicated that use of reinforcement influenced the academic performance of students. Eremie and Doueyi-Fiderikumo, (2018) indicated that male and female students were differently influenced by non-verbal rewards. With the findings of the study inconsistent with the findings of the study, this means that in the context of universities in Uganda, the situation was different.

Conclusion

The study revealed that immediate feedback and continuous practice are important strategies in teaching because they enhance learning of students in universities. However, reinforcement is a less effective strategy as far as enhancing academic achievement is concerned. Therefore, it is recommended that lecturers in the universities should proactive giving immediate feedback to students while teaching and promote use of continuous practice. However, lecturers in universities should give less emphasis to the use of reinforcement when teaching to enhance academic achievement of students. This study makes significant contributions with respect to the use of the teacher-centred approach in teaching. However, some limitations emerged from this study. First, the findings of the study on use of reinforcement contradicted the findings made by all previous scholars by indicating that it had an insignificant relationship with academic achievement at confirmatory level. This finding calls for further research to clarify the importance of reinforcement in predicting academic achievement of students. Besides, the study was based on data collected from students from only two public universities. This suggests that the generalization of the research findings to all universities should be considered with care. Therefore, future studies should make effort to carry similar or related studies on a larger number of

universities including private universities.

Authors' declaration

We declared that this study is an original research by our research team and we agree to publish it in the journal.

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