
**EFFECT OF TEACHING METHODS ON LEARNERS' PERFORMANCE IN MATHEMATICS SUBJECT
IN SECONDARY SCHOOLS, A CASE STUDY OF LUWERO HIGH SCHOOL, LUWERO DISTRICT****1 Mirembe Christine, 2 Dr Ariyo Gracious Kazaara, 3 Dr Arinaitwe Julius, 4 Prof Nafiu Lukman****1, 2, 3, 4 Metropolitan International University****ABSTRACT**

The study aimed at effect of teaching methods on learners' performance in mathematics subject in secondary schools and was guided by the following objectives; To analyze the effect of teacher centered approach on the learners' performance in Mathematics at Luwero High School, to examine the effect of student centered method on the learners' performance in Mathematics at Luwero High School and to assess the relationship between high tech approach and the learners' performance in Mathematics at Luwero High School. The study adopted both quantitative and qualitative research approaches. The quantitative approach was adopted because the proposed study draws statistical inferences. The qualitative approach supplemented the quantitative approach by providing detailed information in form of statements from interviews for in depth analysis. From the findings, 40 (30%) of the respondents strongly agreed that High tech approaches facilitate better knowledge retention to produce excellent students' academic performance. 13 (10%) of the respondents agreed that High tech approaches facilitate better knowledge retention produced excellent students' academic performance. 26 (20%) were unfortunately not sure of this assertion, while 40 (30%) of the respondents disagreed and 13 (10%) of the participants strongly disagreed to the assertion that High tech approaches facilitate better knowledge retention produce excellent students' academic performance.

Key words: **teaching methods, learners, performance, mathematics subject and secondary schools**

Background to the Study

Elementary mathematics turned into part of the schooling gadget in most historical civilizations, such as ancient Greece, the Roman Empire, Vedic society and historical Egypt. In maximum instances, formal training turned into only available to male children with sufficiently excessive reputation, wealth or caste. In Plato's

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division of the liberal arts into the trivium and the quadrivium, the quadrivium blanketed the mathematical fields of arithmetic and geometry. A coaching approach comprises the principles and strategies used by teachers to enable scholar mastering (Anthony, Kazaara, & Kazaara, 2023). these strategies are determined partly on concern remember to

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study and partly through the character of the learner (Godfrey et al., 2023). For a specific coaching method to be suitable and efficient it has to be in relation with the function of the learner and the type of gaining knowledge of it is supposed to bring about. guidelines are there to layout and choice of coaching strategies need to take into account no longer best the

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character of the issue count number however additionally how students analyze. In brand new college the trend is that it encourages a great deal creativity. it's miles an acknowledged reality that human advancement comes thru reasoning. (Malinga, 2010). This reasoning and original notion enhances creativity (Anthony, Kazaara, Kazaara, et al., 2023).

The techniques for coaching can be extensively labeled into teacher targeted and pupil centered. In a trainer targeted method to learning, teachers are the principal authority determine in this version. college students are considered as "empty vessels" who's number one role is to passively acquire facts (through lectures and direct coaching) with an give up aim of trying out and assessment. It is the primary role of teachers to pass know-how and statistics onto their college students. in this model, teaching and evaluation are regarded as two separate entities. scholar learning is measured through objectively scored checks and checks (Isaiah & Alex, 2023). In student focused method to mastering, at the same time as instructors are the authority figure in this version, instructors and college students play an equally energetic position in the getting to know procedure. The instructor's number one role is to coach and facilitate scholar gaining knowledge of and

standard comprehension of cloth. student gaining knowledge of is measured thru each formal and informal varieties of evaluation, inclusive of group projects, student portfolios, and class participation. Teaching and tests are connected; student gaining knowledge of is constantly measured all through instructor coaching. Normally used coaching techniques may additionally include magnificence participation, demonstration, recitation, memorization, or combinations of those.

Problem Statement

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A trainer is a critical discern in coaching and studying process, because he/she follows the curriculum in order that at some stage in the year all of the important expertise is provided to the scholars. the primary motive of teaching at any level is to deliver out a big trade within the learner (Pauline, 2023). Before the 20 th Century, maximum of the traditional coaching techniques had been trainer targeted with no hobby for the beginners making them passive and consequently obtaining information from the trainer without building their engagement degree with the

concern depend and the method is least realistic, greater theoretical and memorizing (Godfrey et al., 2023). Student-focused strategies which can be extra powerful are more encouraged because they embody the idea of discovery gaining knowledge of (Brindley, 2015). most teachers today apply the scholar- centered approach to sell interest, analytical research, critical thinking and amusement amongst students (Hesson & Shad, 2007). Shifting expertise requires instructors to apply the appropriate approach and pedagogy that satisfactory suits

the learner and in shape the targets and favored performances (Victoria et al., 2023). Some issues affecting the students' academic overall performance are the nation of importance of the content, the sustainability of the method and perhaps, the trainer who handles each the content and approach. Because there may be restricted studies pertaining to teaching strategies and the rookies out are available in mathematics challenge, the researcher is intrigued to investigate this dating among the various coaching techniques and learners' overall performance in arithmetic concern.

Objectives of the Study

- To analyze the effect of teacher centered approach on the learners' performance in Mathematics at Luwero High School
- To examine the effect of student-centered method on the learners' performance in Mathematics at Luwero High School
- To assess the relationship between high tech approach and the learners' performance in Mathematics at Luwero High School

Research Questions

- What is the effect of teacher centered approach on the learners' performance in Mathematics at Luwero High School?
- What is the effect of student-centered method on the learners' performance in Mathematics at Luwero High School?

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- What is the relationship between high tech approach and the learners' performance in Mathematics at Luwero High School?

Methodology**Research Design**

The study adopted both quantitative and qualitative research approaches. The quantitative approach was adopted because the proposed study draws statistical inferences. The qualitative approach supplemented the quantitative approach by providing detailed information in form of statements from interviews for in depth analysis (Fassinger & Morrow, 2013).

Target Population

The research study targeted the teachers and learners of Luwero High School totaling to more than 500 participants.

Sample Size and Selection

Sample size refers to the number of items to be selected from the universe to constitute sample (Kothari, 2004). Technically, the size of the sample depends on the type of research design being used, desired level of confidence in the result the amount of accuracy wanted and the characteristics of the population of interest. Thus, it is important to note that there is no single best way that can be used to determine sample size (Singh, 2006). However, the sample was determined using the sample determination table by Kreijic and Morgan (1970). Therefore, the sample size was 132 respondents as recommended by Kreijic and Morgan (1970)

Sampling Techniques

The study used simple random sampling to select the suitable sample. This approach is preferred because it gives each potential participant an equal chance to participate and eliminates any form of bias (Kombo and Tromp, 2006).

Data Collection Methods

Data was collected by use of a questionnaire and interview survey.

Questionnaire Survey

The study was largely a quantitative survey involving a large number of the primary school teachers as respondents. Thus, the data collection method adopted was the survey, which involved the use of self-administered questionnaires (SAQs). The method enabled the researcher to cover the respondents quickly and at reasonable cost (Bordens & Abbott, 2011).

Data Analysis**Qualitative Data**

Patterns and connections were within and between categories of data collected. Data was presented in form of notes, word for word transcripts, single words, brief phrases and full paragraphs (Powell & Renner, 2003). Data was interpreted by content analysis composing explanations and substantiating them using the respondents' open

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responses. While analyzing qualitative data using SPSS (Nelson et al., 2022), conclusions were made on how different variables were related.

RESULTS

Effect of teacher centered approach on the learners' performance in Mathematics

Effect teacher centered approached on the learners' performance in Mathematics subject	Responses											
	Strongly Agree 5		Agree 4		Not Sure 3		Disagree 2		Strongly Disagree1		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
The classroom remains orderly throughout the session	69	52	22	17	20	15	20	15	-	-	132	100
There is logical arrangement of educational content when a teacher uses the teacher centered approach of teaching.	82	62	44	33	7	5	-	-	-	-	132	100
Teacher centered learning enhances development of cooperation in the classroom setting	99	75	26	20	-	-	7	5	-	-	132	100
Teacher centered learning allows focus on the subject matter and helps the learners to understand the concepts.	92	70	26	20	-	-	13	10	-	-	132	100

From the findings in the table above, it is revealed that 69 (52%) strongly agree that when you use teacher centered approach of teaching, the classroom remains orderly throughout the session. 22 (17%) agree to this assertion, while 20 (15%) are not sure whether or not when you use teacher centered approach of teaching, the classroom remains orderly throughout the session. However, 20 (15%) disagree to this assertion. Since 70% of the sample affirmed to this assertion, it can therefore be concluded that indeed, when you use teacher centered approach of teaching, the classroom remains orderly throughout the session.

Similarly, 82 (62%) of the respondents strongly agreed that there is logical arrangement of educational content when a teacher uses the teacher centered approach of teaching. 44 (33%) of the sample agreed to this fact. However, a

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minimal 7 (5%) weren't sure of this. Since over 90% affirmed this assertion, it can therefore be concluded that there is logical arrangement of educational content when a teacher uses the teacher centered approach of teaching.

Further still, 99 (75%) of the respondents strongly agreed that teacher centered learning enhances development of cooperation in the classroom setting. 26 (20%) of the respondents agreed to this assertion, whereas 13 (10%) of the sample disagreed to the claim. Over 90% of the respondents affirmed the assertion. It is therefore correct to conclude that teacher centered learning enhances development of cooperation in the classroom setting.

Finally, 92 (70%) of the respondents strongly agreed that teacher centered learning allows focus on the subject matter and helps the learners to understand the concepts. 26 (20%) agreed to this assertion while 13 (10%) disagreed.

Effect of student-centered method on the learners' performance in Mathematics subject

Student centered method on learners' performance in Mathematics subject.	Responses											
	Strongly Agree		Agree		Not Sure		Disagree		Strongly Disagree		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
Student centered methods allow formative evaluation of learners and maximizes learners' academic performance	82	62	26	20	13	10	11	8	-	-	132	100
Student centered learning allows active engagement of learners in the learning process	99	75	26	20	-	-	7	5	-	-	132	100
Student centered learning emphasis on the meaningfulness of the knowledge being passed	69	52	22	17	20	15	20	15	69		132	100

From the table above, it can be observed that 82 (62%) of the respondents strongly agreed that student centered methods allow formative evaluation of learners and maximizes learners' academic performance. 26 (20%) of the respondents agreed to the assertion while 13 (10%) were not sure of this assertion and 11 (8%) disagreed to the

assertion. This can therefore be confirmed that student centered methods allow formative evaluation of learners and maximizes learners' academic performance (Christopher et al., 2022).

Similarly, 99 (75%) strongly agreed that student centered learning allows active engagement of learners in the learning process within a year while 26 (20%) agreed to the assertion. However, 7 (5%) disagreed to this assertion. Since over 95% of the participants responded to the affirmative of this assertion, it can therefore be concluded that student centered learning allows active engagement of learners in the learning process.

From the findings in the table above, it is revealed that 69 (52%) strongly agree that student centered learning emphasis on the meaningfulness of the knowledge being passed hence improving students' academic performance. 22 (17%) agree to this assertion, while 20 (15%) are not sure whether or not that student centered learning emphasis on the meaningfulness of the knowledge being passed hence improving students' academic performance. However, 20 (15%) disagree to this assertion. Since 70% of the sample affirmed to this assertion, it can therefore be concluded that indeed, student centered learning emphasis on the meaningfulness of the knowledge being passed hence improving students' academic performance.

Similarly, 82 (62%) of the respondents strongly agreed that teacher training improves content delivery and thus learners' performance. 44 (33%) of the sample agreed to this fact. However, a minimal 7 (5%) weren't sure of this. Since over 90% affirmed this assertion, it can therefore be concluded that teacher training improves content delivery and thus learners' performance.

Finally, 99 (75%) of the respondents strongly agreed that student centered learning allows active engagement of learners in the learning process. 26 (20%) of the respondents agreed to this assertion, whereas 13 (10%) of the sample disagreed to the claim. Over 90% of the respondents affirmed the assertion. It is therefore correct to conclude that that student centered learning allows active engagement of learners in the learning process (Godfrey et al., 2023).

Relationship between high tech approaches on the learners' performance in Mathematics subject.

Relationship between high tech approaches and learners' performance in Mathematics subject	Responses											
	Strongly Agree 5		Agree 4		Not Sure 3		Disagree 2		Strongly Disagree 1		Total	
	F	%	F	%	F	%	F	%	F	%	F	%
High tech approaches facilitate better knowledge retention	53	40	26	20	13	10	40	30	13	10	132	100
High tech approaches attract	53	40	26	20	13	10	26	20	13	10	132	100

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Active participation of students												
High tech approaches enable Practice of collaboration skills.	66	50	26	20	13	10	26	20	-	-	132	100

From the table above, the findings show that 40 (30%) of the respondents strongly agreed that High tech approaches facilitate better knowledge retention to produce excellent students' academic performance. 13 (10%) of the respondents agreed that High tech approaches facilitate better knowledge retention produced excellent students' academic performance. 26 (20%) were unfortunately not sure of this assertion, while 40 (30%) of the respondents disagreed and 13 (10%) of the participants strongly disagreed to the assertion that High tech approaches facilitate better knowledge retention produce excellent students' academic performance. This simply means that High tech approaches facilitate better knowledge retention produce excellent students' academic performance.

Furthermore, 53(40%) strongly agreed that less experienced teachers are hungry for achievement and therefore work hard to achieve higher students' academic performance; 26 (20%) agreed to assertion while 13 (10%) were not sure. On the negative side, 26 (20%) of the respondents disagreed to the assertion while 13 (10%) strongly disagreed to this claim. It can be concluded that since only 60% of the participants responded to the affirmative while 30% responded to the negative, less experienced teachers are likely hungry to create impact and achieve results and therefore work hard to achieve higher students' academic performance.

To the assertion whether more experienced teachers no longer have vigor and therefore do not pursue greater students' academic performance, 66 (50%) of the respondents strongly agreed, while 26 (20%) agreed to the assertion. Meanwhile, 20 (13%) were not sure while 26 (20%) disagreed to the assertion. Since 70% of the participants responded to the affirmative of this assertion, it can be concluded that more experienced teachers no longer have vigor and therefore do not pursue greater students' academic performance.

Finally, 26 (20%) of the respondents strongly agreed to the assertion that due to little experience in content delivery and classroom management, less experienced teachers do not achieve high students' academic performance. 13 (10%) of the respondents agreed to the assertion whereas 13 (10%) of the respondents were not sure. However, 66 (50%) of the respondents disagreed to the assertion while 13 (10%) strongly disagreed. It can therefore be concluded that it is not true that due to the little experience in content delivery and classroom management, less experienced teachers do not achieve higher students' academic performance.

Conclusions

Generally, the study revealed that there is a positive relationship between effective use of teacher centered teaching approach and learners' academic performance. Therefore, the researcher concludes that:

The study concludes that the classroom remains orderly throughout the session whenever the teacher uses teacher centered learning

Recommendations

The study recommends that teacher teachers should use student centered learning in teaching

The study also recommends that teachers should be even student-centered learning.

The study recommends that highly trained teachers should be hired to tech centered learning among learners

References

- Anthony, D., Kazaara, A. G., & Kazaara, A. I. (2023). *PERFORMANCE IN ENGLISH SUBJECT IN SECONDARY*. 2(2), 347–362.
- Anthony, D., Kazaara, A. G., Kazaara, A. I., Ismail, L., & Prudence, K. (2023). *The Impact of Teachers' Teaching Methods on Students' Performance in English Subject in Secondary Schools In Uganda, A Case Study Of Selected Secondary Schools In Kampala & Wakiso*. 7(3), 290–297.
- Christopher, F., Moses, N., Muhindo, M. E., & Komunda, T. R. (2022). Employee Training and Organizational Performance: A Case Study of African College of Commerce and Technology in Kabale District, South Western Uganda. *International Journal of Academic Pedagogical Research*, 6(5), 1–7.
- Godfrey, W., Silvia, N., Kazaara, A. G., Nelson, K., Christopher, F., Deus, T., Micheal, T., & Catherine, M. (2023). *The Effect Of Teacher's Instructional Methods On The Learners Academic Performance In Mathematics Subject In Secondary Schools, A Case Study Of Buwesswa Secondary School In Manafwa District*. 7(2), 100–107.
- Isaiah, T., & Alex, O. (2023). *MOTHER TONGUE EFFECT TO THE TEACHING OUTCOMES IN ENGLISH*. 2(3), 1598–1612.
- Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. 6(7), 84–122.
- Pauline, N. (2023). *Effects of Physical Education on the Learners Academic Performance in Secondary School. A Case of Kabojja Secondary*. 7(4), 118–125.

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Published on: 30.09.2023

Victoria, N., Nelson, K., Kazaara, A. G., & Kazaara, A. I. (2023). *The Impact Of Staff Development On The Pupils' Academic Performance In Primary Schools In Kimaanya Sub-County, Masaka District A Case Study Of Kimaanya Sub-County, Masaka District*. 7(3), 179–186.