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# Influence of Teaching Strategies on Students' Competences in Mathematics in Public Secondary Schools in Rwanda

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## Abstract

The level of students' competency in various subjects like mathematics depends on the effectiveness of teachers while teaching especially teaching strategies used in teaching process. The purpose of this study therefore, thought to examine influences of parent's involvement in teaching strategies and students 'competences in mathematics from selected Bugesera Public Secondary Schools. The target population was 454 people that provided the sample size of 146 respondents got using Yamane formula. Interview guide and questionnaire were used as data collection instruments. A descriptive survey design was also employed. The findings revealed that group work, too much tests and quizzes and homework were discovered to be the most commonly used teaching approaches used by teacher and head teachers also good for learners in the selected schools. But ICT was not a teaching strategy favored by both teacher and students. The results showed that teaching strategies have high positive correlation to students' competences as shown by 0.529 of Pearson coefficient. Multiple linear regression analysis found that teaching strategies have significant influence on students 'competences at 64.9% of R-Square. Further, there is a highly significant positive correlation between teaching methods and student competencies. Moreover, the study established that there is a highly significant positive correlation between teaching methods and student competencies. The study recommends that Teachers should increase their efforts in finding where mathematics is relevant and applying it to math's problems when they connect with students in the class. Ministry of Education to supply sufficient teaching and learning materials such as textbooks, computers and internet. In addition, providing training to teachers on how to use effective teaching strategies that influence students' competences such as ICT and among others is necessary.

**Keywords:** *Mathematic competences, Teaching strategies, Group work and assignments*

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## 1.0 Introduction

In the nineteenth century, education theorists like as Jean Piaget, John Dewey, and Lev Vygotsky believed that because students are regarded vital participants when it comes to the process of teaching and learning, they ought to be in charge of deciding what they want to accomplish in class. As a result, various countries around the world have called for the adoption and implementation of learner-centered pedagogy, as well as the deployment of new innovative approaches to education and learning, especially in science and math education. Although there is no universal statement about the outcomes of tutoring, Hattie and Anderman (2019) state that students' learning "has always been the most important outcome of tutoring at whatever level. As a result, finding effective techniques to support and foster students' learning is an important issue in educational research. To increase students' learning, researchers must first identify the primary factors that may influence different techniques that influence students' outcomes/competences (Victoria Department of Education, 2017). According to Visible Learning Plus (2017), there are 252 variables on students' learning achievement, according to a study that integrated over 800 meta-studies involving over 80 million students.

The instructor is at the top of the list. Teachers have been highlighted as "important participants in the educational process" in recent research (Victoria Department of Education, 2017). Educational research involving secondary school teachers around the world has empirically demonstrated that a variety of teacher characteristics can have a significant impact on outcomes. They include teachers' qualifications, teaching experience, and professional development, all of which have the potential to influence students' academic achievements (Bonney *et al.*, 2015). Quality teaching is the most important component for students' learning processes and abilities among teacher factors (Munna & Kalam, 2021). This research focuses on delivering assignments, supporting group works, and encouraging ICT. In addition to teaching strategies and according to new research, mathematics is a critical subject of the school curriculum and is important in daily life as well as the study of other subjects.

However, many people believe that the majority of the students dislike mathematics, which is due to factors such as instruction, Learners' cognitive, affective, and psychomotor attributes, subject matter, and the learning environment (Gafoor & Kurukkan, 2015). According to a new study conducted on 51 students at the University of Calicut in India to assess their mathematical competences, 88 percent chose mathematics as the subject they despise, while only 6 percent stated that they enjoy mathematics. The difficulty in understanding the subject matter, as well as the difficulty in educating key variables, was major reasons for dislike of Mathematics. According to the Assist, 20% of that polled thought math was a very difficult subject, 54% thought it was a medium difficulty, and only 10% thought it was a simple subject. The researcher moreover appeared that around 42% fall flat to recognize the ways to illuminate issues given in their course reading. According to Gafoor and Kurukkan (2015), many students employ outdated strategies when studying mathematics and have less adaptable self-efficacy and epistemic convictions.

Most students and learners in Sub-Saharan Africa (SSA) have a confused perception of mathematics competencies, particularly in Tanzania, Kenya, and Rwanda where standards are severely low. If the issue of low achievement in mathematics is not addressed appropriately and urgently, other researchers have observed that it would take several years for SSA countries to reach the levels comparable to their counterparts of the high-flying income economies of East Asia

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(Fidele et al., 2019). The curriculum has been reviewed to better align it with national aspirations and to make sure that learners' knowledge, skills, attitudes, and values are in line with the needs of the 21st century skills (Ndiokubwayo et al., 2020). The Rwanda Education Board has made this effort. The Rwanda Education Board also believed that providing learners with the necessary skills could lead to the development of a knowledge-based economy, allowing students to compete globally (Ndiokubwayo et al., 2020).

### **1.1 Problem Statement**

Mathematics subject is one of a kind and essential portion of school educational programs. According to some researchers, mathematics is a tool for the advancement of all other sciences (Peter, 2011). We use mathematics in every aspect of our lives, whether we realize it or not (Gafoor & Kurukkan, 2015). However, majority of students across not only the world but also in Rwanda dislike mathematics. The reason for this is that mathematics is a lesson that contains abstract formulas and concepts that make it difficult for students to imagine without being given real-life examples by the teacher (Mania & Alam, 2021). For example, 75% of American students abandon mathematics as a preferred course of study and avoid many careers that may be related to mathematics (Gafoor & Kurukkan, 2015). However, REB introduced competence-based curriculum but it has not been yet successfully implemented.

The curriculum has been reviewed to better align it with national aspirations and to make sure that learners' knowledge, skills, attitudes, and values are in line with the needs of the 21st century skills (Ndiokubwayo et al., 2020). The Rwanda Education Board has made efforts to meet these expectations. The Rwanda Education Board concurred that equipping pupils with fundamental abilities might result in the growth of a knowledge-based economy, enabling Rwandans to compete on the international stage. 2020 (Group and Rwanda). Many factors, including teaching strategies, teachers' and students' cognitive and beliefs, affective and psychomotor characteristics, subject matter and the learning environment influence students' mathematical competence (Robas et al., 2018). Consequently, less competence of students in mathematics affects students' thinking capacity, developing understands skills and knowledge and solving problems capacity.

### **1.2 Research Objective**

The objective of this study was to examine the influences of parent's involvement in teaching strategies and students' competences in mathematics from selected Bugesera Public Secondary Schools in Rwanda.

## **2.0 Literature Review**

### **2.1 Assignment Overview as Teaching Strategy**

#### **2.1.1 Homework**

As a common instructional strategy, homework aims to motivate students, improve their study skills and habits, let parents know how their children are doing academically, and increase student achievement (National Education Association, Report of the NEA Resolutions Committee, 2015-2016 NEA Representative Assembly, 2016). Even while providing homework is thought to be a good way to help students study more, there is disagreement on its value and relevance to student progress (Güven & Akçay, 2019). Additionally, there are differing views among teachers regarding the impact of homework. While some instructors regularly assign homework, others hardly ever

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utilise it, and still others think that homework ought to be banned in elementary schools since it wastes the time of students, instructors, and parents (Davidovitch & Yavich, 2017).

Teachers have been assigning homework to children for a long time; yet the impact of homework on student progress is debatable (Güven & Akçay, 2019). Previous research on the positive impacts of homework is inconclusive because some studies found that homework had a good influence on student achievement while others found that it has a detrimental effect (Güven & Akçay, 2019). For instance, researchers Ladson (2012) and Fernandez-Alonso, Suarez-Alvarez, Muniz (2015) examined the connection between math proficiency and homework time and discovered appreciable effects. However, homework can improve students' academic accomplishment as well as their academic skills if it is well-designed for students' life-long learning process skills, suitable for children's interests and requirements, and appropriate for their age (Ramdass & Zimmerman, 2011).

Studies further suggest that assigning homework at a young age has little impact on a student's academic progress and fosters negative views toward education among students (Cooper, Robinson and Patall, 2006; Eren and Henderson, 2011; Froiland, 2011; Rudman, 2014; Xu, 2005). Cooper, Robinson, and Patall (2006) discovered that kids in grades 7-12 have stronger correlations between homework and achievement than students in grades K-6. Homework time has a beneficial effect on academic progress for high school guys, according to Kalenkoski and Pabilonia (2017). According to a recent study in Spanish, providing homework that takes one hour each day to finish is the best amount of homework. Studying for two to three hours a day can greatly increase students' performance in science, maths and English, according to study from the Department of Education (Vasagar, 2012). But a research from Stanford University found that having too much schoolwork could cause stress, physical health issues, unbalance, and social isolation (Boddison, 2015). There is disagreement among teachers on how frequently homework should be given, despite the fact that it may have some advantages.

According to previous TIMSS survey data, the frequency of assigning mathematics homework and the length of time it takes to complete homework differ from nation to country and even from teacher to instructor. Because teachers have differing perspectives on the benefits of homework, homework practices vary from one teacher to the next. Different nations have different regulations regarding homework assignments, which leads to various ways that they might be used (Mullis et al., 2012). Additionally, homework causes problems for instructors, students, and parents since youngsters worry about doing their homework instead of having fun, and teachers complain about students' lack of effort in finishing assignments (Xu, 2013). Since they cannot agree on when or how the assignment should be finished, parents are also dissatisfied with homework (Güven & Akçay, 2019).

### **2.1.2 Test –Taking Skills**

The majority of civilizations now employ tests as a common method for making decisions, and people are evaluated based on how well they perform on these tests. As a result, students and teachers all across the world are very concerned about their abilities to perform better on tests (Al Fraidan & Al-Khalaf, 2012). Studies show that students who improved their test-taking abilities had better test-taking attitudes, felt less anxiety, and achieved higher test scores (Dodeen et al., 2014). Even students who are knowledgeable about the subject may perform poorly on

examinations due to poor test-taking abilities (Whelan & Brown, 2011). According to studies, test-taking abilities are just as crucial as having the knowledge or information needed to answer the test questions (Hamzeh Dodeen, 2015). This does not mean that these abilities can take the place of understanding of the topics or exam preparation; rather, it implies that having them can assist students enhance their grades and performance. Students' test performance is influenced by a variety of psychological, cognitive, and personal factors, including their motivation to learn a particular subject, the level of associated anxiety, their attitudes towards that subject in particular, their attitudes towards tests, and their test-taking abilities (Dodeen et al., 2014).

### **2.1.3 Exercises (Physical Activities)**

It is commonly known that physical activity (PA) during school hours can improve a student's ability to learn (Watson et al., 2017). For a number of health benefits, it was also acknowledged that schools needed to find new approaches to increase physical activity during the elementary school day (Mullender-Wijnsma et al., 2019). Physically active lessons (PAL), which incorporate physical activity into academic sessions, may be a way to encourage PA at school while also enhancing academic performance (Skage et al., 2020). The world would not exist without mathematics, which is the mother of all sciences, the foundation of educational teaching, and a topic that is taught in schools all around the world. Nonetheless, there are a number of children who dislike mathematics, dislike learning it, and find it difficult to understand. Therefore, it is crucial to promote the acquisition of mathematical knowledge and abilities. According to recent studies, PAL integration with mathematical content in the classroom is a novel strategy that may enhance students' math performance as well as their intrinsic motivation to learn (Mullender-Wijnsma et al., 2019). The academic performance of students from low-income families can also be improved through motor-enriched learning activities (Mullender-Wijnsma et al., 2019). There is also evidence that classes with gross motor skills exercises result in greater improvements than classes with fine motor skills exercises, however this is not the case for low math performance (Cichy et al., 2020). To summarize, PAL is a promising new approach to mathematics education.

## **2.2 Group Work Overview As Teaching Strategy**

Students can develop a variety of critical thinking, analytical, and communication skills as well as effective teamwork, appreciation and respect for other people's perspectives, techniques, and problem-solving methods through group work, all of which promote active learning and improve student learning (Sofroniou & Poutos, 2016). According to Bunge (2010), group projects are based on the constructivism learning model. In the report from the National Council of Teachers of Mathematics (Panthi & Belbase, 2017), it is stated that group work in mathematics education is crucial for students' acquisition of questions and for constructive criticism (Sofroniou & Poutos, 2016), all of which result in positive and useful outcomes for student learning. At the elementary and senior school levels, there have been a correspondingly greater number of research projects conducted in recent years (Valente, 2021).

Significant research in the field of mathematics education shows that using small groups for a variety of tasks and exercises does result in positive and advantageous consequences for student learning. Several agreeable results were attained from a review by Webb (Webb et al., 2021) concerning studies studying peer interaction and achievement in small groups. Achievement was

positively correlated with communicating a clarification or simplification of an idea, solution, or method to another group member, whereas achievement was negatively correlated with receiving non-responsive feedback from a group member, specifically no feedback or feedback that was irrelevant to what one has said or done (Webb et al., 1995). It was also interesting to see from Webb's review that teaching students how to operate in groups and how to present, deliver, and accept assistance made group work most effective. When this assistance was given in the form of thorough explanations and then applied by the student to the given assignment or to a different task, it was most effective and practical. According to Slavin's research, working in groups can improve interethnic relations and student achievement (Robert, 1845). Yackel, Cobb, and Wood discovered that small-scale group problem-solving followed by whole class discussion produced many learning opportunities that do not typically occur in a conservative tutorial or class, including chances for cooperative discussion and resolving divergent viewpoints.

The effectiveness of competitive, individualistic, and cooperative group work techniques in supporting and encouraging productivity and performance has been the subject of several studies over the years (Johnson & Johnson, 1989). The results of a meta-analysis that took into account these studies and examined cooperative learning achievement revealed that on average, cooperative learning students outperformed those learning in competitive or individualistic structured lessons by about two-thirds of a standard deviation (Linden et al., 2000). This led to higher achievement levels when considering cooperative group work. Both cooperative and collaborative learning methods depend heavily on group work, which has generated a lot of study attention (Johnson et al., 2014). In comparison to competitive or individualistic experiences, studies show that these pedagogical practises of group work do result in higher achievement and more pleasant relationships among students. According to research, group work has become strongly promoted by collaborative learning in educational institutions at all levels (Mullender-Wijnsma et al., 2019).

To achieve more than the simple sum of their individual efforts, participants in collaborative learning discuss, share ideas and work, work on the same topic continuously as a group, and learn from one another (Barneva et al., 2018). Cooperative learning refers to discrete practises and concepts like specific role assignments in a group and goal related liability of both members and the group, so that each student is accountable for the entire concluding result. As Damon and Phelps clearly state, this differs structurally from cooperative learning. In contrast to collaborative learning, where a shared solution to a problem is built simultaneously, collectively, and in liaison with all members of the group, cooperative learning focuses more on tasks that are divisible into more or less independent subtasks, where cooperating parties work in parallel to process individual subtasks in an autonomous, independent way. e-learning, web-based learning, and computer-based learning (Cubillos Moreno, 2013; Almulla, 2020). The fact that two or more learners interact in a synchronous manner to negotiate shared meaning and continuously address difficulties is what unites these collaborations, according to Dillenbourg (2007).

Collaborative and cooperative learning through group work can address these issues and improve students' progress and achievements since learning mathematics can frequently be perceived as a solitary, individualistic, or competitive matter, leading to students developing mathematical anxiety or avoidance (Sofroniou & Poutos, 2016). The contact that occurs during group work helps

all participants acquire concepts and problem-solving techniques, boost their confidence, and get over their fear of making mistakes (Hillen, 2006). Intriguing problems, open-ended questions, and possibilities for creative thinking may all be found in mathematics, and group collaboration can assist students in overcoming these challenges and difficult tasks that, at that developmental stage, are well above the capabilities of individual effort. Another practical and beneficial method for fostering a positive attitude towards learning is group collaboration.

According to a study by Bernero, students who struggled with maths continued to worry about it, felt disheartened while working alone, but when it came to group work, they fared better academically and socially thanks to an increase in self-assurance (Sofroniou & Poutos, 2016). However, group work can occasionally result in ineffective operation, primarily because the key factors that determine its performance are not understood. Group efforts may not be successful in a variety of ways. Less capable group members, for example, may occasionally let others complete and wrap up the group's tasks, whilst more capable student members may exert less effort to avoid performing all the work (Sofroniou & Poutos, 2016). More skilled members may learn a great deal by giving thorough explanations of the lecture content to less capable students who are having trouble understanding as a captive audience. The amount of time spent explaining topics can be positively connected with the length of time studying.

Education Science 2016, 6, 30, 4 of 15 the educator is essential to the smooth operation of group projects. When students are working in groups, the teacher should serve "both as an academic expert and as a classroom manager" (Johnson & Johnson, 1989), be able to articulate the academic goals and objectives of the lesson, make judgements on the delivery of teaching, and clearly describe the task outlining the assignment goals (Graf, 2015). For grading group work, various grading models are available. Some just evaluate the finished product, while others evaluate the entire process. Either the teachers or the students, utilizing a sort of peer assessment, might complete the grading. Peer assessment has been shown to improve student learning in numerous studies (Brown, 2018). Another choice is for the teacher to give a final grade with a scaled grade for each group member based on their level of contribution as determined by peers or the lecturer, making sure that all grading must be in line with the module's learning objectives (Anderson et al., 2000).

### **3.0 Research Methodology**

This study employed descriptive research design in order to examine the influences of parent's involvement in teaching strategies and students 'competences in mathematics from selected Bugesera Public Secondary Schools in Rwanda. The target population was 454 people and Yamane formula was used to get sample size of 7 school head teachers and 7 mathematics teachers. Questionnaire and guided interview were used as data collection instruments. The research team conveniently sampled mathematic learning at each school that meet with the criteria and available for the interview. The validity of the research instrument was maintained by distributing the research instruments to the expert respondents in the area of the study. The IBM SPSS software version 28 was used in data management.



#### 4.0 Research Findings

The finding of this study was presented in line with the study objective which was to examine the influences of parents' involvement in teaching strategies and students' competences in mathematics from selected Bugesera Public Secondary Schools in Rwanda. However, the association between variables was also presented.

#### 4.1 Preferred Teaching Strategies That Can Affect Students' Competences in Mathematics

Table 1 presents the perceptions of teaching strategies and students' competencies in mathematics in public secondary schools.

**Table 1: Perception On Teaching Strategies and Students' Competences In Mathematics In Public Secondary Schools**

Please rate how much you agree with each of the following statements.	Total responses(n)	Frequency percentage (%)									
		Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
		F	%	F	%	F	%	F	%	F	%
I learn math effectively when I am in group	132	77	58.3	40	30.3	5	3.8	5	3.8	5	3.8
Math quizzes and examinations yielded excellent results for me	132	45	34.1	38	28.8	25	18.9	21	15.9	3	2.3
I enjoy sharing my knowledge with my classmates	132	23	17.4	38	28.8	23	17.4	28	21.2	20	15.2
I feel confident when I am collaborating with my colleagues	132	71	53.8	42	31.8	10	7.6	6	4.5	3	2.3
My teacher uses ICT as an effective method to improve teaching and learning mathematics	132	23	17.4	38	28.8	23	17.4	28	21.2	20	15.2
My teacher often demonstrates mathematics concepts and allows to observe attentively	132	35	26.5	45	34.1	29	22.0	11	8.3	12	9.1
My teacher uses extra hours to make mathematics' lessons more understandable	132	60	45.5	16	11.9	24	18.2	14	10.4	18	14

According to the findings, 88.6% of students agreed or strongly agreed that they learned mathematics effectively when they are in group, compared to 3.8% who did not say anything and 7.6% who disagreed or strongly disagree with the statement. Similar to this, 84.6% of respondents

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concluded that they felt competent when working with colleagues to have one student teach another student, while 6.7% disagreed or strongly disagreed with the statement. When it came to maths tests and quizzes, which produced great results, 62.9% of respondents agreed or strongly agreed with the statement, while 16.2% disagreed or strongly disagreed.

On the teacher’s demonstration of mathematical concepts and allowing for attentive observation, 60.4% agreed or strongly agreed to the statement while 17.4% strongly disagreed or disagreed to the statement. On statement that teachers use extra hours to make mathematics’ lessons more understandable, 58.4% strongly agreed or agreed to the statement while 17.4 % disagreed or strongly disagreed. Lastly, on the statement that the mathematics teacher uses ICT as an effective method to improve teaching and learning mathematics, 46.2% agreed or strongly agreed while 36.4% disagreed or strongly disagree. As a result, it is clear that the students' chosen learning style supports the social constructivism hypothesis, which offers students the chance to study and create knowledge together. This effectively demonstrates how fostering a culture of knowledge sharing among our pupils will foster a lifelong love of learning and improve mathematical performance. However, teachers teaching in public secondary schools located in Bugesera district were given interview guide about preferred teaching strategies that can affect students’ competences in Mathematics in public secondary schools and showed that group work is the preferred teaching strategy that enhance students’ competences in Mathematics.

Based on the perceptions of various interviewees regarding the preferred teaching strategies on students' mathematical competences, the interviewer made a comparative interpretation, which revealed that interviewees have similar perceptions regarding the preferred teaching strategies on students' mathematical competences in public secondary schools, but different magnitudes as shown in table 1 and in dialogue provided to teachers. According to several studies, group work allows students to generalize and convey their knowledge into the classroom, as well as providing a firm foundation for spoken transmission of ideas (Reznitskaya & Gregory, 2013). In addition to this, group work plays a key part in strengthening students' capacity to check their own thinking, summarize others' thoughts, and increase their understanding of what they're learning as supported by Corden in 2017.

#### 4.2 Relationship Between Teaching Strategies and Students’ Competences in Mathematics

This study assessed the relationship between teaching strategies and students’ competences in Mathematics to Bugesera public secondary schools.

**Table 2: Relationship Between Teaching Methods and Students' Mathematical Proficiency Correlations**

		Students’ competences	Teaching strategies
<b>Students’ competences</b>	Pearson Correlation	1.000	
	Sig. (2-tailed)		
	N	131	
<b>Teaching strategies</b>	Pearson Correlation	.529**	1.000
	Sig. (2-tailed)	.00	
	N	131	131

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Based on an independent variable, the study examined the link between instructional styles and student competence. According to the findings in Table 2, there is a highly significant positive correlation between teaching methods and student competencies. The Pearson coefficient of correlation shows a correlation ( $r$ ) of 0.529 and a p-value of  $0.000 < 0.01$  for this relationship. This means that the use of effective teaching strategies provides enough evidence that promote the students' competences in Mathematics. As stated in interview, it was shown that the use of effective teaching strategies in teaching leads to the improvement of students' competences in Mathematics. The results agree with the previous studies in finding that good mathematic teaching strategies were proved to have a significant and direct impact on student mathematics competencies (Iyamuremye *et al.*, 2021). When teaching complicated mathematics, it is crucial for teachers to understand how various teaching strategies affect students' various learning outcomes (Panthi & Belbase, 2017).

### 4.3 Influence of Parent' Involvement in Teaching Strategies On Students' Competences

This study examined how the findings related to students' competences, parents 'involvement in teaching strategies can affect students' competences in Mathematics like critical thinking, problem solving, decision making and digital numeracy in public secondary schools located in Bugesera district.

**Table 3: The R Square of Teaching Strategies and Students' Competences**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.805 <sup>a</sup>	.649	.639	.97173	.649	64.355	4	139	.000

**Source: Field (2023)** a. Predictors: (Constant), every teacher provides assignments group work and integrate ICT in teaching and learning process.

The table 3 indicates the influence of teaching strategies and students' competences in Mathematics in secondary schools which is indicated by improved critical thinking. The results showed that there is a high level of correlation ( $r$ ) of 0.805 and R square of 0.649, which suggests that teaching methods have a 64.9 % impact on students' mathematical competency.

### 5.0 Summary of findings

The objective of this study was to examine the influences of parent's involvement in teaching strategies and students 'competences in mathematics from selected Bugesera Public Secondary Schools in Rwanda. The study revealed that there is a highly significant positive correlation between teaching methods and students' proficiency, with a Pearson coefficient of correlation ( $r$ ) of 0.529 and a p-value of  $0.000 < 0.01$ . This implies that the use of effective teaching strategies provides enough evidence that promote the students' competences in Mathematics. As stated in interview, it was shown that the use of effective teaching strategies in teaching leads to the improvement of students' competences in Mathematics. It was also noted that there is a high level

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of correlation (r) of 0.805 and R square of 0.649, which indicates that teaching tactics have a 64.9 percent impact on students' mathematical competency. It was also indicated that, each increase on influence of teaching strategies on students' competences in Mathematics increases somewhere between 87.2 percent and 121.4 percent. This was demonstrated to be more significant when compared to other teaching methods, with a p-value of  $0.000 < 0.05$ ; however, the impact of teachers' group-work assignments on students' performance in mathematics is also significant, with a p-value of  $0.008 < 0.05$ ; the regression line's location being between 7.4 percent and 49.5 percent; and the contribution of ICT integration in teaching mathematics is not significant, with a p-value of  $0.802 > 0.05$ ; and the regression line is somewhere between 13.1 percent and 16.9 percent.

## 6.0 Conclusion

This study concludes that that effective teaching strategies influences students' competences in Mathematics somewhere between 87.2 percent and 121.4 percent. It was also concluded that there is a highly significant positive correlation between teaching strategies and students' competencies, with a Pearson coefficient of correlation of 0.529 and a p-value of  $0.000 < 0.01$ .

## 7.0 Recommendations

Basing on the presented findings and drawn conclusion, the following recommendations were addressed: Ministry of Education (MINEDUC) to supply sufficient teaching and learning materials such as textbooks, computers and internet. In addition, providing training to teachers on how to use effective teaching strategies that influence students' competences such as ICT and among others is necessary. The development of students' competences (their self-efficacy and real-life use of mathematics) depends on parents visiting their children at school, collaborating closely with teachers, and helping their children with their mathematical activities and homework after school and at home. Teachers should increase their efforts in finding where mathematics is relevant and applying it to math's problems when they connect with students in the class.

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