



EFFECTS OF PERFORMANCE RANKING ON STUDENTS' VOICE AND AGENCY IN THE MATHEMATICS CLASSROOM

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Abstract

The modalities of performance ranking in high stakes testing to a greater extent affect Mathematics teaching and learning. While performance ranking has the potential of being a critical catalyst in the process of making Mathematics classrooms a place of positive competition, it fails to balance the most crucial aspects in Mathematics discourses—the voice and agency of teachers and students. The proactive engagement of all students and teachers equitably with the process of Mathematics teaching and learning is a necessary condition for ensuring excellent students Mathematics learning outcomes. The purpose of the study was to investigate the effects of performance ranking on voice and agency in Mathematics teaching and learning in secondary schools in Embu, Kenya. The study employed a qualitative research approach. Six teachers and eight students were randomly sampled for interviews, while three teachers and eighteen students were engaged in focus group discussions. The data analyzed demonstrated that top ranked students become powerful independent learners who are capable of critiquing work presented to them by their teachers while low ranked students are guided as to whom to seek help from by the performance ranking data. This paper recommends that performance ranking should be used as a tool to give students voice and agency by ranking students on the basis of marks scored on continuous assessment tests, students' entry mark and value addition.

Keywords: Performance ranking, mathematics, teaching, learning, voice, agency.

INTRODUCTION

Performance rankings in education have been a common feature all over the world. The government and the news agencies of particular countries obtain and publish the rankings data in an attempt to compare the relative performance of individual students (or schools) based on academic performance (Ball, 2009, Hazelkorn, 2008; Leckie & Goldstein, 2019; Wilson & Piebalga, 2008). At the school level, the rankings are at times published on school notice boards to compare the relative performance of individual students in the same grade or the relative performance of sections (streams) in a given grade.

Performance rankings are intended to serve several purposes for students, parents, teachers, school administrators, policy makers, and politicians. To some, performance rankings are a mechanism for providing feedback to those who provide resources to run the schools on those schools that are doing well and those that require intervention. The rankings also enable parents make informed choices about schools for their children, since such rankings provide a basis for making comparisons. The rankings thus increase the transparency and the quality of educational processes, thus contributing to academic excellence (Neves, Pereira, & Nata, 2014). They can also induce organizational changes in schools that are underperforming (Neves, Pereira, & Nata, 2014) by borrowing the educational practices and policies of the top-performing schools, or by performing a root cause analysis to uncover



root causes for underperformance and correct deficiencies. They also provide incentives for behavioral change by stimulating inter-school or inter-student competition.

Critics of performance rankings have several reservations. To begin with is the fact that though performance rankings tend to change behavior positively, they are deleterious to the education process. The rankings lead to having important areas in the syllabus ignored following the excessive focus on improving the rank positions in the league tables. Thus, for example, there is evidence that performance rankings encourage unethical practices such as grade inflation and exclusion of students who would drag down the overall performance score of the school (Neves, Pereira, & Nata, 2014) to the detriment of student choice. These practices, which are exacerbated by the publication of school rankings, ultimately lead to growing disparities between schools. To be sure, there is a fundamental distinction between public and private schools in their ability to choose their own students and in the kind of incentives they may get from responding to market pressures. Private schools are particularly more subject to market pressures than public schools, and this may contribute to their temptation to engage in 'gaming' to improve their ranking. As a result, performance rankings have been criticized for sustaining a hierarchy of power and interests that favor established interests (Kell & Kell, 2014; Neves, Pereira, & Nata, 2014). Schools at the bottom of the rank in the school league tables attract below average students and in experienced teachers, as the best performing schools siphon the above average students and experienced teachers. Under these circumstances, rankings can be seen as a contributing factor to affirming social division, negating the redistribution of resources designed to redress inequity and social injustices (Kell & Kell, 2014)

Secondly, the validity and reliability of performance rankings have been put into question, owing to the embedded methodological and philosophical shortcomings. In particular, the rankings have been criticized for promoting unfair competition (for example, between public and private schools, or between schools and/or students from different socioeconomic backgrounds) and, therefore, reinforcing the existing inequalities. Performance rankings have also been criticized for glorifying examination results at the expense of the authentic goals of education. Indeed, performance rankings are said to use simplistic outputs as proxies for school quality, whereby the notion of efficiency is seen as unproblematic, and methods are considered to be ideology-free. For example, league tables do not consider the school's context, as some serve the underprivileged students population doubling their functions. In addition to providing good education they ensure students health is taken care of through provision of well balanced diet. This impact negatively on the time and energy such schools can dedicate to improvement of academic performance of students (Neves, Pereira, & Nata, 2014). Therefore, the low ranked schools are stigmatized and their image in the public domain is often irreversibly damaged. Instead of channeling resources to the low ranked schools for improvement purposes the low performance is often accompanied by more punitive measures, more monitoring and diminished resources. Such schools find themselves subject to uncertainty around government support and are threatened with closure (Kell & Kell, 2014).

A number of methodologies for performance rankings for schools exist; some compare school average scores, derived from students' aggregate scores in high-stakes standardized tests. Others compare schools using value-added measures of school performance, which is a measure of the progress made by an individual student or a group of students in comparison to the average progress made by similar students nationally between key stages. Still others compare schools using contextualized value-added scores, which in addition to controlling for students' prior attainment at earlier key stages, factors in a wide range of non-school factors associated students' progress such as age, gender, special educational needs, and ethnicity (Foley & Goldstein, 2012; Leckie & Goldstein, 2019).

This paper focuses on an aspect of performance rankings that is rarely considered in the literature; namely, the effect of performance rankings on students' voice and agency. Whereas the notions of voice and agency have been central to the scholarship on classroom discourse processes and participatory structures that empower learners to engage in more authentic learning (Cook-Sather, 2006; Nel, 2017; van Lier, 2008), the relationship between performance rankings, on the one hand,



and students' voice and agency, on the other has been under-researched. Cook-Sather (2006) defines voice as "having presence, power and agency, the opportunity to speak one's mind, be heard and perhaps have an influence on outcomes" (p. 5). Agency on the other hand is, according to Van Lier (2008), the ability to control one's behavior, to engage in behavior that affects other entities and the self and to produce actions that can be evaluated (p. 172). In the teaching-learning contexts, agency is an action taken by a student in controlling classroom discourse on their behalf and on behalf of other students (Nel, 2017). Hence, students' voice and agency have an emancipatory role in the classroom as they empower students to be actively engaged in the classroom discourse (Khuzwayo & Bansilal, 2012). It is thus critical for teachers to tailor their pedagogical strategies in a manner that support students' development of voice and agency in the classroom (Morgan, 2016). This can help in development of positive attitudes by students, leading to good academic performance.

Regardless of the positive effects studies have shown that, performance ranking can have several negative effects on teaching and learning. For instance, it can lead to the introduction of inequity in the classroom through the use of instructional strategies that favour or promote voice of one student over another. The favoured sections of students often perceive the classroom as being places for positive competitions, while the other section finds it as a place of discrimination (Bicknell & Riley, 2012). On the other hand, a student agency can act as an incentive or a deterrent depending on the student's position in performance rankings (Wilkins, 2012). This paper seeks to demonstrate that students are socialized to demonstrate agency and voice in ways that resonate with their position in performance rankings. The next section reviews the literature related to performance rankings as they related to voice and agency in the classroom.

Literature Review

Critics of performance rankings have argued that the rankings promote educational inequalities as some schools are viewed as better than others. This is because the rankings, though certainly not perfect, are appropriate mechanisms for picking among thousands of schools and determining learning options for children that are most in line with an individual's wants and needs. For example, rankings build an institutional reputation by providing a list of top public and private schools in the country (Hazelkorn, 2008). In this respect, prospective students and their parents identify their school of choice based on the quality of academics, resources available, future career opportunities, and even school popularity and reputation. Therefore, publication of performance ranking data may lead to schools that are perceived to be doing well to enjoy the privilege of attracting students of high levels of ability while those perceived to be doing badly attracting low achieving students (Kellaghan, 1996). It may also lead to the transfer of more able teachers, lower morale in individual schools and create a big achievement gap between secondary schools. Although Burgess, Propper and Wilson (2002) argue that, provision of information on school performance is a pre-requisite for informed parental choice, OECD (2012) observe that, where parents with social and/or economic advantage are encouraged to support schools with good results, morale and performance in poorer performing schools can be affected negatively.

Secondly, performance ranking builds the capabilities and confidence in top ranked teachers to autonomously plan their teaching in response to learner's abilities (Batra, 2005). According to Andersson and Norén (2011), any practice in teaching and learning worthy of its name should contribute to processes of subjectification that allow the teachers to become more autonomous and independent in their thinking. Their decisions are embraced by the school administrators because they have confidence in them. Being an incentive to them it encourages positive competition in that low ranked teachers design their instructional techniques in order to obtain the top rank to enjoy teacher agency in teaching. The dissemination of ranking data creates competition among teachers which in turn motivate them to design their instructional practices for students' learning (Chapman & Synder, 2000). Thus, performance ranking may help to raise academic standards, provide feedback on the teacher's effectiveness in teaching and student achievement. It also communicates to the students, parents and others what has been taught (Amunga, Amadalo, & Maiyo, 2010).



Further, performance ranking puts the Mathematics students at the center of Mathematics discussions so as to obtain the top rank as opposed to the traditional Mathematics classrooms which was the domain of the teacher (Khuzwayo & Bansilal, 2012). In the traditional classrooms the teacher decides the content and pedagogical strategies without involving the students. The picture changes when learners are granted voice and agency in Mathematics classrooms. Thus, students are provided with an opportunity to create their own knowledge and engage in strategic as opposed to executive help seeking (Karabenick & Newman, 2013).

Finally, performance ranking in secondary schools is used in informing policymaking (Downes, Vindurampulle & Victoria, 2007). For example, performance ranking data is utilized in the identification of schools and students whose achievements are below average. High performing schools can be used for benchmarking purposes and remedial efforts geared towards schools and students who are struggling in terms of education gains. Further, the practice points out the areas the schools are performing below expectations hence helps to direct resources in the schools affected to ensure they are not left behind as far as education matters are concerned.

Opponents of performance ranking observe that it invites top ranked students voice at the expense of the low ranked ones in Mathematics classrooms (Morrison, 2008). Students at the bottom of the rank are viewed as weak and lazy by both students and teachers despite the effort they put in their studies (Dunne, Humphreys, Sebba, Dyson, Gellannaugh, & Muijis, 2007). The class disrespect could lead to teachers losing control of the classroom discourse. Besides losing control of the class, teachers fear that top ranked students will not only take over learning but also deny the low ranked students' opportunities of contributing ideas in the Mathematics classroom discourse (White, 2003). Moreover, performance ranking invites the top ranked student's dominancy in Mathematics lessons making them ill prepared for the real world where they should learn to accommodate the will of others seeing their needs going unmet (Morrison, 2008).

An additional constraint of performance ranking is the conventional system of ranking used in internal and national examinations. The methodology of ranking which employs student's raw scores is blind to issues such as the socioeconomic conditions of the students, location of the schools and school management styles. Thus, deflect teachers and students from creating personal meaning towards teaching and learning instead focuses all their effort towards the incentives (Niesche & Keddie, 2016). In other words teachers may tailor their instructional strategies towards test taking skills in order to obtain a top rank because of the benefits associated with the top rank such as internal promotions. Such kind of performance orientation complicates teacher-teacher relationship in the department and in the institution at large. The low ranked teachers feel less powerful and act subserviently to avoid being reprimanded. The low ranked teachers' subservience manifests itself in not questioning or challenging the top ranked teachers' decisions (Morrison, 2008). Consequently, performance ranking renders many teachers voiceless in Mathematics matters and dependent on the top ranked ones.

Purpose of the Study

The purpose of this study was to investigate the effects of performance ranking on students and teachers voice and agency in teaching-learning process in secondary schools in Kenya in the participants' natural settings.

METHOD

Participants and Context of the Study

The study adopted a qualitative approach and a case study design. Random sampling was used to select the schools to be in the study. Mathematics students were chosen because they are directly affected by performance ranking as far as voice and agency is concerned. Teachers were chosen because they are key to major decisions as per the performance ranking outcomes.



The study was carried out in Kenya. There are forty seven counties in Kenya and in each county there two major categories of secondary schools namely; public and private. Public schools are further categorized into four groups depending on students performance and learning resources available (Makori, Onyura, Cheboiwo, Yegon, & Kandie, 2015) namely; National, Extra County, County and Sub-County schools. The study was carried out in secondary schools in Embu County which has two National, fourteen Extra County, twenty two County, one hundred and forty eight Sub-County and eight private schools. Study participants were nine Mathematics teachers and twenty six students from seven public and two private secondary schools in Embu County, Kenya.

Data Collection and Data Analysis

Multiple data collection methods were employed in this study namely; face to face semi-structured interviews, focus group discussions and document analysis. Multiple data collection methods was for triangulation purposes in order to ensure credibility and validity of the study findings (Plano Clark & Creswell, 2008). Six interviews and one focus group discussion lasting between 40 to 60 minutes were conducted with Mathematics teachers while eight interviews and three focus group discussions lasting between 30 to 40 minutes were conducted with student-participants. The interviews were audio recorded, transcribed and subjected to qualitative data analysis (Suter, 2012). Further, schools ranking data, students group organization record and teacher duties and responsibilities record documents were carefully read and re-read to trace the position in the performance data of those in leadership positions (O’Leary, 2014). The study participants were guaranteed anonymity and quotations from the interviews reported accordingly (Sim & Waterfield, 2019).

FINDINGS and DISCUSSION

The interviews and focus group discussions focused on a range of topics, from the methodology of performance rankings, to their effects on voice and agency in Mathematics teaching and learning. In brief four major themes emerged from the analysis of the interviews, focus group discussions and document analysis: while (1) performance rankings are popular in guiding resources allocation to students, (2) the ranking data guides in selection students’ group leaders since they need to be at the forefront in Mathematics learning. In addition, (3) performance ranking has greater influence on teacher promotion. Finally, (4) performance ranking present data that can be used to identify successful and unsuccessful Mathematics classes hence provides opportunities for benchmarking.

Allocation of Mathematics Revision Resources

Teaching and learning resources provide students with curiosity and independence in Mathematics classrooms (Kartika, 2018). The independence encourages arguments and disagreements in Mathematics classrooms providing learners with opportunities to increase understanding of the subject matter. Studies have shown that inadequate teaching and learning resources in secondary schools are the cause of poor performance (Kaimenyi, 2013). According to Kaimenyi (2013), in classrooms where the resources are adequate, students scored higher than in those classes which lacked the resources. Therefore, the school management should ensure that the students have the necessary materials for learning and revision during examination preparations (Kimeu, Ronoh, & Tanui, 2015). Such materials include revision books, past papers, and sample examination papers.

While equitable provision of learning opportunities may seem to be an ultimate challenge, Mathematics teachers play a crucial role in creating appropriate learning environment for students through resources allocation. Through appropriate resource allocation strategies teachers can accomplish remarkable feats thus improving students’ achievement in Mathematics. Performance ranking of students is among strategies teachers employ in the allocation of resources.

Out of the teachers interviewed majority had no particular modalities of allocating Mathematics resources. But even in the absence of any particular modalities, there are hints of problems in the practice. The top ranked students enjoyed the privilege of getting a lion’s share in the resource allocation while those who were at the bottom of the rank missed out in the allocation.



In the allocation of Mathematics textbooks, there is no particular order because I share a textbook between two students. But the revision books are given, to the top students in Mathematics. If those at the bottom of the rank are given, they just keep them, and the rest of the students will not have an opportunity to use them. In situations when those at the bottom of the rank require the revision books, I give them, and I encourage them to share with the rest of the students (Form 1 Teacher in an Extra County school).

The students interviewed had similar views to those of the teachers interviewed. In many occasions Mathematics teachers availed Mathematics revision books in the classroom and encouraged the top ranked students to pick them in order to score highly and support teachers' efforts in Mathematics teaching.

Mathematics revision resources are availed by the teacher and the best students in Mathematics pick them from the Mathematics teacher. The top students are generous with their knowledge and revision books. The majority of the students, especially the low achievers in Mathematics are against having revision books because they are afraid of losing them (Form 4 student in a Sub-County school).

...top students have the best Mathematics revision books. Immediately they learn of availability of a new revision book they pester the Mathematics teacher to issue the book to them... (Students FGD in an Extra county school).

Providing adequate Mathematics teaching and learning resources such as revision books to students at the top of the rank is a motivation for them to continue working hard to improve their rank. The practice encourages students' voice and agency in Mathematics learning. They enjoy the privilege of controlling all other students in the classroom during the Mathematics learning and group discussions.

Most importantly, students at the top of the rank are empowered in their learning through being able to access Mathematics revision materials leading to un-even allocation among the students. The lack of equity in the practice has a negative effect on Mathematics teaching and learning as the students at the bottom of the rank feel left out thereby developing negative attitudes towards Mathematics teachers and the subject (Mensah, Okyere, & Kuranchie, 2013).

Influence of Performance Ranking in Selection of Leaders in Mathematics Classrooms

In appointment of study group leaders, Mathematics teachers appoint group leaders considering their performance in Mathematics. The idea behind the practice is to give the students at the top of the rank agency in Mathematics classrooms in order to influence the other students to work hard. The move keeps students on their toes, which lead to a high concentration in Mathematics lesson translating to high scores in the subject.

In appointing study group leaders in Mathematics, I consider the performance of students in Mathematics. The one in charge of the group should be at the top of the other students in performance. This is because they have the command of the group and what they propose is taken very seriously by the rest of the members (Form 1 teacher in a private school).

....When low achievers in Mathematics are appointed leaders in study groups, they often feel insecure and threatened when told to lead in groups which comprise top achievers in Mathematics. In case the Mathematics teacher insists, the students respond by withdrawing from participation or looking to the teacher to give legitimacy to their responses within groups due to lack of confidence(Form 2 teacher in a sub- County school).

The appointment into a leadership position in the Mathematics classrooms was given to those students with leadership qualities. In most cases, students with leadership qualities were the ones at the top of the rank because they were confident and focused. The low achievers in most cases were shy and suffer from inferiority complex. Most importantly, the appointment was taken as a reward to the top achievers. In tandem with the study findings, World Bank (2001) observed that as a result of



performance ranking, the teachers and the school management are able to identify low performing students as well as those better performing which further guides them in the creation of study groups bearing in mind the differences in performance among the students.

Teachers have a belief that students at the top of the rank should have voice and agency in Mathematics learning thereby impart the spirit of working hard to other students. The result will be a formation of motivated teams in Mathematics learning, translating into high concentration in Mathematics lessons leading to an improvement of students' scores in the subject.

Appointment/Promotion of Mathematics Teachers

Internal appointments in the Mathematics department provide teachers with voice in Mathematics teaching. The policy guidelines on teacher appointment and promotion into administrative position puts into considerations on teacher academic and professional qualifications, students' performance in national examinations, participation in co-curricular activities and a teacher's professional conduct (Republic of Kenya, 2005). The promotion and appointments give teachers agency in teaching in various institutions.

Administrators use performance ranking in Mathematics in the appointment and promotion of Mathematics teachers. The Head of the Mathematics Department is required to be at the forefront in influencing the quality of Mathematics teaching among Mathematics teachers in the department. It is a challenge for a Head of Department to devote enough time and energy in preparation for their classes in addition to the administrative duties. The administrators promoted the hard-working Mathematics teacher to head the department as far as students mean score was concerned.

Sometimes, I wish I could just teach - there is so much administrative work in the Mathematics department, paperwork, and follow-up of discipline to do when you are ahead of the department in Mathematics. Teaching suffers on account of this. Therefore, in internal appointments in the department, performance ranking is considered to have the very committed head of the Mathematics department. This is because if his/her classes mean score is below those of other teachers somehow, the head of the department lacks the moral authority to monitor standards if his/her own is lacking in rigor (Form 3 teacher in a national school).

..... teacher whose classes perform better in comparison to the others is usually given privilege in any appointments not necessarily in the Mathematics department. This is because even the employers of teachers recognize and promote the teachers whose subjects are performed well comparatively (form 4 teacher in an Extra- County school).

The findings are in line with views of Pope (2019) who found that performance ranking helps in improving teacher performance and as a result, the best performing teachers are identified and promoted into their various departments. Such school practices are considered a motivation to the teacher so that they can inspire the rest of the staff to assist students in their studies creatively. Further, the teacher at the top of the rank has great influence in the school as directives they issue are taken seriously by the administrators and other teachers. They are considered to have great authority in the subject they teach and considered to have the best Mathematics pedagogical strategies. Being the leader in the department, they enjoy being at the forefront in the development of students mathematical thinking (Boyd & Ash, 2018).

Identification of Benchmarking Classes and Schools

Identification of benchmarking classes gives teachers voice in the school because they at the center in decision making as far as which direction Mathematics teaching should take in particular schools. According to Nyaoga, Mundia, and Irungu (2013), education benchmarking is a study of how other schools or classes carry out their day-to-day activities for students' academic achievement. Benchmarking, as a tool, can be utilized by secondary schools administrators to change performance from low grade to high grade (Amunga, Ondigi, Ndiku, & Ochieng, 2013). The practice enables the



schools to identify their performance gaps and address them by sharing with the best performing schools.

Performance ranking influences in the identification of the benchmarking classes in the school. It is the duty of the school administrators to ensure that all efforts are geared towards ensuring that students' performance is excellent in the subject. For instance, benchmarking with well-performing schools to learn the strategies they employ in order to have exemplary results. Therefore, performance ranking should be encouraged so that the well-performing schools are known and poor performing schools can visit them for benchmarking.

Performance ranking in Mathematics is good because, through it, one can identify the secondary schools which have a record of exemplary performance in Mathematics. Like last year, my students performed poorly in Mathematics, and this year, I am planning to take them to one of the schools which registered good performance so that they learn the tricks behind the good performance. I believe they will register good grades this year (Form 4 teacher in a sub-County school).

Learning is a continuous process, and therefore benchmarking in education is gainful to both the students and teachers. Students get an opportunity to learn from the experience of other students and teachers learn from the experience of other teachers handling the same subject. During the benchmarking process, the students and teachers assess how the best performing schools get their success. First, the process enables them to identify their performance gaps for continuous improvement. Secondly, it enables the parties concerned to develop an improvement mindset and understanding best practices for good results based on the benchmarking outcomes.

Similar to the study findings, Chemers, Hu, and Garcia (2011) opined that through performance ranking, schools stakeholders can observe the best performing schools as well as those poorly performing ones. The low performing schools get a chance to benchmark with those better-performing schools to enhance their performance. Further, the class at the top of the rank in a school with more than one stream is used for benchmarking within the school. The class enjoys agency in Mathematics teaching and control the direction in which learning should proceed.

Conclusion

The aim of this paper was to demonstrate that performance ranking has influence on the voice and agency in Mathematics teaching and learning. The paper has demonstrated that performance ranking forms a basis in which the Mathematics teachers are evaluated and eventually appointed in leadership positions in the school giving them voice in Mathematics teaching. Secondly, performance ranking guides Mathematics teachers in the appointment of discussion group leaders. They do so based on the students' abilities and leadership qualities. In most cases, the students with leadership qualities are the ones at the top of the rank because they are confident and focused. Therefore performance ranking outcomes are of help to the teachers because the leaders should be the ones to impart the spirit of working hard to the other students. Most importantly, the appointment to student leadership position is taken as a reward to the top achievers giving them agency in Mathematics learning. Therefore, using the performance ranking, the teachers and the school management can identify low performing students as well as those better performing hence forming study groups bearing in mind on the differences in performance among the students. Further, performance ranking guides teachers in allocating revision resources whereby the students at the top of the rank are provided with adequate Mathematics resources in appreciation of their good work. The practice aimed at encouraging the students to keep on working hard so that the class-mean score improves. Finally, performance ranking influences in the identification of the benchmarking secondary schools in Mathematics in the county. Benchmarking with good performing school was found to be crucial to remain competitive and to achieve better educational outcomes. In this paper, we have demonstrated that benchmarking is gainful to both the students and teachers. Students get an opportunity to learn from the experience of other students and teachers learn from the experience of other teachers handling the same subject. During



the benchmarking process, the students and teachers assess how the best performing schools acquire their success. Further the process enables them to identify their performance gap for continuous improvement as well as enabling the other parties concerned to develop an improvement mindset and understanding best practices for good results based on the benchmarking outcomes.

Recommendations

This study recommends that performance ranking should be used as a tool to give students voice and agency in teaching and learning by ranking students and classes on the basis of marks scored on continuous assessment tests, students' entry mark and value addition. The practice will help in identifying the Mathematics classes and students at the top of the rank to act as a bench-mark. During the benchmarking process, the students and teachers assess how the best performing schools acquire their success. This process, therefore, enables them to identify their performance gap for continuous improvement as well as enabling the other parties concerned to develop an improvement mindset and understanding best practices for good results based on the benchmarking outcomes.

Limitations of the study

Based on the findings from this study, the authors recommend further research to explore how contextual value-added data may be used in the newly introduced competency based curriculum in Kenya since the new curriculum de-emphasizes the standardized testing that was evident in the old curriculum. In addition, one of the limitations of this study was that it did not consider other factors that could contribute to the students' and teachers' agency and voice in the mathematics classroom, including the teaching-learning environment. As such, there is need for further research that isolates these other factors with a view to establish the actual contribution of performance ranking in the teaching-learning process.

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