

Classroom applicability of blooms mastery learning as perceived by teachers

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Abstract

This study investigated the applicability of mastery learning in public senior school as perceived by teachers. The study used descriptive survey research type. Two hundred and thirty teachers were sampled from public senior secondary schools in Kosofe local government area of Lagos. Teachers' perception on the applicability of Mastery Learning (TPABML) was designed by the researcher to measure teachers perception, the instrument was validated with reliability index of 0.74. Data collected was analysed using mean score, percentages and independent t-test of significance. Findings showed on the whole, teachers' perception does not favour the use of blooms mastery in public senior secondary. Result also showed significant difference between teachers with post-graduate qualification and teachers with Bachelor degree, but no significant difference was found based on teachers' experience. The result also finds no significant difference on the basis of gender. The study recommends that Government should re-orientate teachers to change their views and make efforts to apply mastery learning as it has recorded positive results.

Keywords: blooms mastery learning, perception, practicability

INTRODUCTION

The impetus for mastery learning comes from trying to reduce achievement gaps for students in average school classrooms. During the 1960s (Carroll and Bloom) pointed out that, if students are normally distributed with respect to aptitude for a subject and if they are provided uniform instruction (in terms of quality and learning time), then achievement level at completion of the subject is also expected to be normally distributed. Mastery learning approach is a set of group-based, individualized, teaching and learning strategies based on the premise that students will achieve a high level of understanding in a given domain if they are given enough time (Anderson, 1975). This approach to learning maintains that students must achieve a level of mastery (e.g., 90% on a knowledge test) in prerequisite knowledge before moving forward to learn subsequent information. In mastery learning, when content is taught and a student does not achieve mastery on the test (after formative), such students should be given additional support or enrichment (re-teaching) in learning and reviewing the information and then tested again. This cycle continues until the learner accomplishes mastery before moving on to the next stage.

Mastery learning approach (MLA) suggests that the focus of instruction should be the time required for different students to learn the same material and achieve the same level of mastery. This is very much in contrast with classic models of teaching, which focus more on differences in students' ability and where all students are given approximately the same amount of time to learn the same set of instructions. In addition, in this pattern of learning, student's failure is either due to instruction or time and not necessarily lack of ability on his or her part (Ainsworth, & Viegut, 2006). Hence, the primary challenge in mastery learning environment becomes providing enough time and employing appropriate instructional strategies so that all students can achieve the same level of learning (Bloom, 1981). Mastery Learning approaches propose that, if each student were to receive most favourable quality of instruction and as much learning time as they require to learn, then a majority of students could be expected to attain mastery. Bloom, when first proposing his mastery learning strategy in 1968, was convinced that most students can attain a high level of learning capability if the following conditions are available (Bloom, 1976): instruction is approached sensitively and systematically; students are helped when and where they have learning difficulties; students are given sufficient time to achieve mastery.

In many situations teachers assumes the normal curve for grading students where few students perform brilliantly well, majority on the average and few will fail. However, Bloom mastery learning, this idea is condemnable because it creates expectation by the teachers that some students will naturally be successful while others will not. This tends to reduces teachers' pro-activeness to ensure that every student perform brilliantly and attain mastery. Under such condition, students who require just a little further assistance are likely to be neglected. Hence in the opinion of Bloom, (1976) the best way to tackle such misconception is through Mastery Learning. The assumption is that by this approach, the majority of student s (more than 90 percent) would achieve successful and rewarding learning (Bloom, 1968). As an added advantage, Mastery Learning was also thought to create more positive interest and attitude towards the subject learned if compared with usual classroom methods (James, 1971).

Bloom (1974) argued further that individualized assistance offered early in an instructional sequence would drastically reduce the time needed for remediation in later units. This is because corrective instruction guarantees that students have the learning prerequisites for subsequent units, initial instruction in later units can proceed more rapidly, allowing teachers to cover just as much material as they would using more traditional methods (Guskey, 2008). In the approach, diagnostic process should be immediately followed by a prescription and the result of formative assessment. However expressing the report in grades might not be necessary in this regard. Hattie and Timperley (2007) maintained that the use of regular formative assessments systematically monitor student progress and gives students prescriptive feedback. These brief classroom assessments (formative) measure the most important learning goals from an instructional unit. It reinforces precisely what students were expected to learn, identify what they learned well, and describe what they need to learn better.

In science related subjects, Wambugu and Changeiywo (2008), Olunfumilayo (2010) and Akinsola (2011) in separate studies reported that MLA is effective in improving the achievement of students in the sciences. Mitee and Obaitan (2015) investigated the effect of mastery learning on students' cognitive learning outcome in quantitative chemistry. The study found that mastery learning is a very effective method of teaching and better than the conventional teaching method. Though these studies were carried out at senior secondary

level of education, but the effectiveness of the strategy was also tested at junior secondary level. Agboghoroma (2014) study was carried out at junior secondary level. The study used quasi-experimental research design to study the effect of MLA on students in integrated science, the results of the study showed that MLA resulted in higher achievement of students in Integrated science.

Benjamin and Iji, (2014) examined the effect of mastery learning approach (MLA) on senior secondary school students' achievement in geometry. The sample comprised of 270 of students from three out of 26 secondary schools and the results shows that mastery learning approach improved students' achievement in Geometry. The result also shows that MLA narrowed the gap between students with high and low ability in Geometry. In another study by Abakpa and Iji (2011) and Awofala and Nneji (2012) also reported that MLA enhanced students' achievement in Mathematics.

Considering past studies on the effect of mastery learning on students academic achievement, one may easily come to conclusion that the strategy is indeed very helpful in making students learn maximally. However, the practicality of this approach in the modern conventional public school classrooms might pose challenge in Nigeria. The conventional classrooms in most public schools are overcrowded, giving room for diverse individual differences and different learning time span. It is germane to re-emphasis that mastery learning gives room for students to learn content at their own pace. Similarly, in the conventional classroom, each subject has been allocated time on the time table (in most cases 40 minutes) for lesson to be taught while mastery learning propose that students must learn a particular content to mastery level (90%) before moving to the next content. Since some students take much longer than others to learn a particular objective (Slavin, 1987) then one of two things must happen. Either corrective instruction must be given outside of regular class time, or students who achieve mastery early on will have to spend considerable amounts of time waiting for their classmates to catch up. But in reality, first option, extra time, may seem expensive and difficult to arrange, as it requires that teachers be available outside of class time to work with the non-masters and that some students spend a great deal more time on any particular subject than they do ordinarily. The other option, giving enrichment activities to students who reached mastery while corrective instruction is given, may or may not be beneficial for these students. It may often be the case that even for low achievers, spending the time to master each objective may be less productive than covering more objectives (Cooley

& Leinhardt, 1980). Hence, the problem of this study was to investigate the practicability of mastery learning approach in the modern day classroom. The study was delimited to public secondary schools in Lagos state.

Research Question

1. What is the perception of teachers on the practicability of mastery learning approach in Lagos state public secondary schools?
2. Do teachers perceive practicability of mastery learning approach differently according to qualification (post-graduate qualification and Bachelor degree) in Lagos state public secondary schools?
3. Will teachers differ in their perception on the practicability of mastery learning approach according to gender (male and female) approach in Lagos state public secondary schools?

METHODS

The study adopted descriptive survey research type. The research type allowed the researcher to explore the perception of public secondary school teachers on the practicability of MLA. The population of the study consisted of all the teachers in public secondary schools in Kosofe local government area (under educational district II) of Lagos state. Eighteen secondary schools (Junior and Senior) were randomly sampled. Simple random sampling was used to select 250 teachers while stratified sampling was used to put the teachers into teachers with post graduate degree (education) and teachers with first degree only. To collect data from the sampled respondents, self-constructed questionnaire reliability coefficient of 0.74 (Crombach Alpha) was used to collect data from the teachers (Teachers Perception on Practicability of MLA).The instrument was administered with the permission of the principal of the selected schools. However, only 230(92%) questionnaires were usable as a result of attrition (8%). Data was analysed using mean, median and independent sample t-test.

Data Analysis and Results

Table 1: Descriptive statistics of respondents

Gender	Frequency	Percentage (%)
Male	105	46
Female	125	54

Total	230	100
Experience		
1-5	82	36
6-10	108	47
11-15	40	17
Total	230	100
Qualification		
First Degree	162	70
Post-graduate	68	30
Total	230	100

Table shows the descriptive statistics of respondents. The table shows that 105(46%) male and 125 (54%) female respondents. This implies that majority of the respondents are females. The table further shows that respondents with 6-10 years of experience constitute 47% while 36% of the respondents have 1-5 years of experience and 17% have 11-15 years of experience.

Research Question 1: What is the perception of teachers on the practicability of mastery learning approach in Lagos state public secondary schools?

Table 2: Cross-tabulation of Teacher Perception on Practicability of Blooms Mastery Learning Strategy

High	LEVEL OF PRACTICABILITY		Total	
	Low			
Perception	Bachelor degree	14	96	110
	Post-graduate	48	72	120
Total		62	168	230

Mean score of 32 was used as bench mark based on the score obtained from the questionnaire. Teachers who scored below the means score were categorised as low perception while teachers with the mean score and above were recorded to have high perception. The result in table 2 shows that 62 (27%) of the teachers have high perception, while 168 (73%) of the teachers in public secondary schools have low level perception on the practicability of

Blooms mastery learning in public secondary schools.. Hence, teachers have low perception of the practicability of Blooms mastery approach in classroom in public senior secondary schools in Lagos state.

Research Question 2: Will teachers differ in their perception on the practicability of mastery learning approach according to qualification (post-graduate qualification and Bachelor degree) approach in Lagos state public secondary schools?

Table 3: Difference between Post graduate and First degree Teachers on the Practicability of Blooms mastery Learning Approach

Qualification	N	Mean	SD	Std Error	df.	t	Sig. of t
Post Graduate	68	18.44	3.136	.380	228	3.620	.262
B a c h e l o r Degree	162	20.73	6.421	.504			

Table revealed a non-significant outcome ($t=3.620$, $p > 0.05$) with the mean score of 18.44 for post graduates and 20.73 for Bachelor degree teachers. This implies that the observed difference between post graduate and teachers with Bachelor degree on practicability of Blooms mastery learning strategy is not significant. Hence, there is no significant difference in the perception of teachers based on qualification.

Research Question 3: Will teachers differ in their perception on the practicability of mastery learning approach according to gender (male and female) approach in Lagos state public secondary schools?

Table 4: Difference Between Male and Female Teachers on the Practicability of Blooms Mastery Learning Approach.

Gender	N	Mean	SD	Std Error	df.	t	Sig. of t
Males	105	20.40	6.281	613	228	.408	.434
Females	125	19.76	5.252	.470			

Table revealed a non-significant outcome ($t=.408$, $p>0.05$) with the mean

score of 20.40 for male respondents and 19.76 for female respondents. This implied that the observed difference between male and female respondents on practicability of Blooms mastery learning strategy is not significant. Hence, there is no significant difference in the perception of respondents based on gender.

DISCUSSION OF FINDINGS

One of the functions of theories in education is to assist in understanding how students learn. The study finds that teachers in public secondary schools have low perception on the classroom practicability of Blooms mastery learning in public secondary schools in Lagos. Different reasons could have accounted for this low perception of applicability, one of such is nature of overcrowded classroom which is typical of public schools. This implies that students the time required to cater each student with difficulty may pose a challenge. Also, there is time specification for each students and scheme of work to align with. Conventionally, teachers in most cases struggle to finish the curriculum, without minding students' mastery level. The irony of the situation is that teachers are queried for not completing the curriculum but with little or no sanction for students poor academic performance. It is similar to the submission of Arlin, (1984); Mueller, (1976) and Resnick, (1977) that for all students mastery learning poses a dilemma, a choice between content coverage and content mastery.

Also the study finds no significant difference between teachers with postgraduate degree and teachers with first degree. In this study, this may suggest that academic qualification of the teachers plays no role in teachers perception on the applicability of mastery learning. Perhaps this may be because, they are both exposed to classroom experience. However, one will expect teachers with post graduate degree in education to perceive the strategy more practicable since they have under gone courses that should have better equipped them with values of theories in education and probably should be more knowledgeable on theories now better than undergraduate days.

CONCLUSION

Finally, the study finds no significant difference in the perception of teachers based on gender. This means that the teachers do no differ in their perception base on gender. This could be because both male and female teachers operate in the same environment and probably faced with similar challenge on

how to improve students' performance. The result agrees with the finding of Vale (2009) and Achor, Imoko and Ajai (2010) who stated that there is no gender difference when good teaching method is used.

Based on the findings of this study, it is recommended that teachers should change their mindset and look in the direction of practicality of the approach to better enhance students learning. Also, teachers should give more time to students to learn by giving assignment that related to what students learned in school. Also, teachers should improve on the use of formative assessment to identify students area of difficulty on time.

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