

Article Citation Format

G.O. Edu , U. Nkpubre & B.A. Oko (2017): Perception of Challenges Inherent In The Implementation Of “Assessment For Learning (AFL)” Among Primary School Mathematics Teachers In Calabar Municipality, Cross River State, Nigeria
Journal of Digital Innovations & Contemp Res. In Sc., Eng & Tech.
Vol. 5, No. 2. Pp 15-22

Article Progress Time Stamps

Article Type: Research Article
Manuscript Received: 10th August, 2017
Review Type: Blind
Final Acceptance: 17th November, 2017
DOI Prefix: 10.22624

Perception of Challenges Inherent In The Implementation Of “Assessment For Learning (AFL)” Among Primary School Mathematics Teachers In Calabar Municipality, Cross River State, Nigeria

***G.O. Edu (PhD), U. Nkpubre & B.A. Oko**

Department of Curriculum & Teaching
University of Calabar,
Calabar, Nigeria

*edudave56@yahoo.com

ABSTRACT

Assessment is an integral part of learning. It gives room for feedback and improvement in learning. Mathematics is a subject that needs regular practice and assessment for effective teaching and learning. There is therefore, need for regular assessment of pupils if this subject is to be effectively taught and learnt. This calls for assessment that is formative in nature. However, despite the importance of the formative form of assessment for effective learning, there tends to be a gap between what it should be and what teachers actually practice in class, especially in Middle Basic Mathematics. Formative assessment is what the concept of ‘Assessment for Learning’ is about. This study therefore, sought to find out the perception of Middle Basic Mathematics teachers on the influence of the use of AFL for effective learning and teaching of the subject and the perceived challenges inherent in the use of this form of assessment. The study adopted the expost facto research design. The study area was Calabar Municipality of Cross River State, Nigeria. Two hypotheses and one research question were formulated to guide the study. The population consisted of all Middle Basic Mathematics teachers in the study area. The stratified and simple random sampling techniques were used to select 3 private and 12 public schools for the study. The respondents for the study consisted of a sample of 150 Middle Basic Mathematics teachers (30 from private schools and 120 from public schools) selected using the simple random sampling technique. A four-point Likert type scale researcher designed questionnaire, comprising twenty items on teachers’ perception of “Assessment for learning,” and of the challenges inherent in its use, was used to collect data for the study. Data was analyzed using the Independent t-test analysis and Pearson product moment correlation techniques for the hypotheses and descriptive analysis for the research question. Findings showed that Middle Basic Mathematics teachers have high perception of the influence of use of AFL on pupils’ effective learning of the subject and that among other challenges, lack of adequate time and large class sizes were responsible for ineffective use of the assessment strategy. Based on these results, it was recommended among others that adequate time should be allotted to the teaching and learning of Basic mathematics in basic schools.

Keywords: Assessment for learning, basic mathematics, teachers, implementation & challenges



The AIMS Research Journal Publication Series Publishes Research & Academic Contents in All Fields of Pure & Applied Sciences, Environmental Sciences, Educational Technology, Science & Vocational Education, Engineering & Technology
ISSN - 2488-8699 - This work is licensed under **The Creative Commons Attribution 4.0** License.

To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>

. All copyrights, privileges & liabilities remains that of the author.

1. INTRODUCTION

Assessment is an integral part of learning. Assessment, teaching and learning are associated as each informs the others. There are different purposes for which pupils' work is assessed. An assessment activity provides information which is used by teachers as feedback, thus, enhancing learning. Also, pupils use the result from assessment to judge their own performances and those of their peers. These help to transform the teaching and learning process for the better. The evidence from assessment is used to adapt teaching situations to learning needs. Thus, when assessment becomes formative and the evidence used to improve teaching/learning process, it is termed "assessment for learning."

The Assessment Reform Group (ARG) (2000) defines 'Assessment for Learning' as any assessment for which the first priority in its design and practice is to serve the purpose of promoting pupils' learning. This assessment is different from assessment designed primarily to serve the purposes of accountability, or of ranking, or of certifying competence, which is summative in nature. Unlike summative assessment that takes place after the learning and tells us what has been achieved, ARG further explains that assessment for learning means seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there. Thus, assessment for learning is very useful for supporting low-achieving pupils. According to Assessment for Learning Strategy (AFLS) (2008) government, "by investing in assessment, schools can ensure that learning is meaningful for all pupils, teaching is effective and attainment of outcomes are improved" (p.3).

Assessment for learning (AFL) emphasizes learning over performance, and so, grading or ranking are deemphasized. This enhances the ability of learners to freely want to take risks and places a value on learning for learning's sake. Learners learn from mistakes, building their confidence with the expectation that they can achieve. In fact, AFL gives pupils the framework that empowers them to take charge of their learning, facilitates positive classroom environment, increases communication between the teacher and the learner, enhances relationship between them, and also gives room for quality assurance for learning goal attainment.

Decisions taken within and by schools influence the prospects and opportunities of their pupils. Therefore, a good deal of attention is now given to the use of 'assessment for learning' for effective teaching and learning. According to Harrison (2013) assessment will have a positive effect on learners if teachers focus their efforts on the formative form, which supports learning rather than judging achievement. The author further maintains that through AFL, teachers find out what students know, what they partly know and what they do not know so that the follow-on activities can advance learning. It encourages students to talk about their learning and can then determine what's needed more precisely. Students can also question their own learning and can discover small problems and misunderstandings, which will enhance their ability for effective learning.

Assessment for learning, takes into consideration pupils' previous and future performances. According to Flórez and Sammons (2013) teachers who use this form of assessment confirm and verify what their students have learnt, and also enhance a better understanding of what the necessary action to take in learning and how these actions can be pursued. They further maintained that this form of assessment helps to shape what lies ahead rather than simply to gauge and record past achievements. Black and Wiliam (1998) defined formative assessment as "encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify teaching and learning activities in which they are engaged" (p. 7).

However, with the growing evidence on the significance of ‘assessment for learning’ the question remains: how many teachers can effectively implement it? There seems to be a clear gap between what is known about assessment and what is being applied by teachers in classrooms. What is the reason for this gap? What are the challenges the teachers face in the use of AfL within the classroom? Researchers have identified several barriers to the implementation of AfL in the classroom in various study areas. Bennett (2011), in a review of AfL, has identified a number of critical issues that limit effectiveness. These include issues such as how AfL is defined, how its demands can be supported and the varying contexts in which it operates. Other challenges to the promotion of AfL are those identified by:

- Torrance & Pryor (2001) and Mabry, Poole, Redmond & Schultz (2003) who found out that time and large class sizes pose challenges;
- Brown, Kennedy, Fok, Chan, & Yu, (2009), and Hargreaves (2005) attribute the gap to teachers’ misconceptions of AfL philosophy, theory and practice;
- Gardner (2006) and MacLellan (2001) attribute this to perceived misalignment between system accountability priorities and teachers’ assessment practices; and
- Lee & Wiliam (2005) maintain that the gap is as a result of lack of effective models for professional development on assessment.

According to DeLuca; Luu; Sun and Klinger (2005) the integration of AfL is hindered by perceptions regarding the value of AfL to support teaching and learning. Both students and teachers may hold negative perceptions based on their previous experiences with AfL integration or earlier notions of formative assessment. Also, Harrison (2005) noted that teachers’ negative perceptions of AfL may be formed by the ways they were assessed when they were students. With these challenges, comes the quest for strategies for the effective integration of AfL into the classroom for effective learning. James and Pedder (2006) assert that a potential way forward in realizing the promises of AfL is to research structures for educating teachers, both in-service and pre-service, about the complexities, challenges and possibilities for integrating ‘assessment for learning’ within the educational context in which they work. Flórez and Sammons (2013) opine that the main strategies considered important for ‘Assessment for Learning (AfL)’ are sharing learning goals, formative feedback, peer and self-assessment, and the formative use of summative tests. These are overwhelmingly positive in terms of their potential to promote improvements in teachers’ classroom practices for effective learning.

Middle Basic Mathematics is Mathematics taught to pupils in the middle Basic level of education (Primary classes 3-6). Mathematics is a subject that needs constant and regular practices. Thus, Mathematics demands the use of ‘assessment for learning’ to enable the teachers drill the pupils through the teaching/learning process, provide feedback and look forward to learning improvement. Basic Mathematics is the foundation for the study of the subject at all other levels of education. The subject is very important as it is one of the compulsory subjects at the basic and secondary level of education, and for entry into institutions of higher learning in Nigeria. There is therefore need for effective teaching of this subject at the basic level, and assessment for learning is a strategy that could help in its effective teaching and learning. The Nigeria school system implements what is called continuous assessment, a concept which tends to be quite close to “assessment for learning.” However, its implementation in schools may have been misinterpreted. From personal experience, teachers administer, most times, a one slot written test to pupils, midway to the end of the term and the grades obtained are used for continuous assessment. However, changing the way students are assessed can improve teaching effectiveness. Thus, this study sought to investigate teachers’ perception of the influence of the use of AfL on pupils’ effective learning of the subject, and the perceived challenges inherent in the implementation of AfL for the teaching of Mathematics at the Middle Universal Basic Education level in Calabar Municipality of Cross River State, Nigeria.

1.1 Hypothesis

H₀₁: There is no significant perception of the use of “Assessment for Learning” (AfL) among Basic Mathematics teachers.

H₀₂: There is no significant relationship between perceived challenges and the utilization of AfL among Basic Mathematics teachers.

1.2 Research Question

What are the challenges inherent in the implementation of AfL in Middle Basic Mathematics?

2. METHODOLOGY

The study adopted the ex post facto research design. The study area is Calabar Municipality Local Government Area of Cross River State, Nigeria. Two hypotheses and one research question were formulated to guide the study. The population consisted of all Middle Basic Mathematics teachers in the study area. The stratified and simple random sampling techniques were used to select 3 private and 12 public schools for the study. The respondents for the study consisted of a sample of 150 Middle Basic Mathematics teachers (30 from private schools and 120 from public schools) selected using the simple random sampling technique. A four-point likert type scale researcher constructed questionnaire, comprising twenty items on teachers’ perception of the utilization of “Assessment for Learning” (AfL) in Basic Mathematics, and of the challenges inherent in its implementation, was used to collect data for the study. Data was analyzed using the Independent t-test and Pearson product moment correlation analysis techniques for the hypotheses, and descriptive analysis to answer the research question.

3. ANALYSIS OF DATA

Data was analyzed using the Independent t-test and Pearson product moment correlation analysis techniques and descriptive statistics to answer the research question. The analysis was done hypothesis-by-hypothesis:

Hypothesis One

There is no significant perception of the use of “Assessment for Learning” (AfL) among Basic Mathematics teachers.

To test this hypothesis, the Independent t-test analysis technique was adopted. The result of the analysis is presented in Table 1.

TABLE 1: Independent t-test analysis of Basic Mathematics teachers’ perception of utilization of AFL
 (N = 150)

Variable	N	X	SD	t-value
Teachers with high perception of AFL	90	22.63	10.72	7.31
Teachers with low perception of AFL)	60	14.47	5.24	

Significant at 0.05 level, df = 148, critical t = 1.96

Hypothesis one sought to investigate the teachers' perception of the implementation of "assessment for learning" strategy on pupils' learning effectiveness in Middle Basic Mathematics. Result of data analysis in Table 1 showed that mathematics teachers with high perception of the use of assessment for learning strategy had a higher mean score of 22.63 while the teachers with low perception had a mean perception of 14.47. The calculated t-value of 7.31 was also found to be greater than the critical t-value of 1.96 at 0.05 level of significance and with 148 degrees of freedom. Therefore, the null hypothesis was rejected and the alternate restated. This means that, there is a high teacher perception of the use of AfL's influence on the learning of Middle Basic Mathematics. Invariably, Middle Basic Mathematics teachers agreed that the use of AfL is important for effective teaching and learning of the subject.

Hypothesis Two

There is no significant relationship between perceived challenges and the utilization of AfL among Middle Basic Mathematics teachers. The hypothesis was analyzed using the Pearson product moment correlation coefficient technique. The result is presented in Table 2.

TABLE 2: Pearson product moment correlation analysis of the relationship between the challenges and utilization of AfL in Basic Mathematics

(N = 150)

Variable	\bar{x}	SD	$\sum x \sum y$	$\sum x^2 \sum y^2$	$\sum xy$	r
Perceived challenges	16.93	9.65	635.1	5963921		
Teachers' perception of AfL utilization	14.76	7.44	486	49824	698.21	0.000*

Significant at 0.05 level, df = 148

Hypothesis two sought to investigate the challenges perceived by teachers on their utilization of AfL in teaching Middle Basic Mathematics. Finding showed that the calculated r-value of 0.00* was statistically significant at 0.05alpha level. This means that there is a strong relationship between the teacher perceived challenges and utilization of AfL in teaching Middle Basic Mathematics. Therefore, the null hypothesis was rejected at 0.05 level of significance and the alternate re-stated. Thus, there is a significant relationship between perceived challenges and utilization of AfL in teaching Basic Mathematics.

Research Question

What are the challenges inherent in the implementation of AfL in Basic Mathematics?

The research question sought to find out the challenges inherent in the implementation of AfL in Upper Basic Mathematics. Percentages were used to analyze the data. A score of 50% and above were considered significant for inclusion of a challenge among those inherent in the implementation of AfL in teaching Basic Mathematics. The result of the descriptive analysis is presented in Table three. Result of the descriptive analysis in Table 3 on the next page showed that the following challenges contribute significantly to the difficulty Middle Basic Mathematics teachers encounter with the implementation of AfL: Congested Curriculum (56%); insufficient lesson time (79%); lack of understanding of the concept of AfL (68%); class sizes; lack of technology aiding AfL; lack of teacher motivation; and the burden of teaching multiple subjects. On the other hand, the following challenges had no significant influence on teachers' utilization of AfL: lack of effective model for professional development on assessment (28%); perceived misalignment between system accountability priorities and teachers' assessment practices (32%); and lack of technology for aiding AfL (45%). These three challenges have less than 50% score. Thus, these were regarded as having insignificant influence on teachers' implementation of AfL.

TABLE 3: Descriptive analysis of the challenges inherent in the implementation of Assessment for learning in Middle Basic Mathematics

S/n	Item	%	\bar{x}
1	Congested Curriculum	65	9.91
2	Insufficient lesson time	79	
3	Lack of understanding of the concept of AFL	68	12.04
4	Class Size	75	13.27
5	Lack of effective model for professional development on assessment	28	4.96
6	Perceived misalignment between system accountability priorities and teachers' assessment practices	32	5.66
7	Lack of technology for aiding AFL	45	7.96
8	Teachers' negative attitude towards assessment	79	13.98
9	Lack of adequate teacher motivation	85	15.05
10	The burden of teaching multiple subjects	62	10.97

4. DISCUSSION OF FINDING

4.1 Teachers' perception of the influence of the use of AFL on pupils' effectiveness in learning Mathematics

The result of the analysis of data for hypothesis one showed that Middle Basic Mathematics teachers have high perception of the utilization of AFL. This result confirms the observation of Assessment for Learning Strategy (AFLS) (2008) that government, by investing in assessment, schools can ensure that learning is meaningful for all pupils, teaching is effective and attainment of outcomes are improved. Also, DeLuca; Luu; Sun and Klinger (2005) observe that the integration of AFL is hindered by perceptions regarding the value of AFL to support teaching and learning. Both students and teachers may hold negative perceptions based on their previous experiences with AFL integration or earlier notions of formative assessment. Also, Harrison (2005) noted that teachers' negative perceptions of AFL may be formed by the ways they were assessed when they were students.

Also, according to Harrison (2013) the goal of AFL is not just to motivate students to work hard on challenging problems, but also to develop their identities as capable learners. The author further maintained that, for students who are low performers, AFL changes their attitude towards assessment. They see assessment as a strategy that can help them in their learning and not just a process that portrays their weaknesses. For high achievers, AFL gives them the opportunity to access more challenging contents that will lead to their progress. The result obtained from this analysis is an indication that AFL is indeed a strategy that could foster pupils' ability for effective learning of Middle Basic Mathematics. Teachers' high perception of the utilization of AFL for teaching/learning Middle Basic Mathematics is an indication that giving the enabling environment, Middle Basic Teachers would make use of this assessment strategy to enhance the teaching of mathematics at this level of education.

4.2 Relationship between perceived challenges and teachers' utilization of the AFL

The result of the analysis of this hypothesis showed that there is a significant relationship between teachers' perceived challenges and utilization of AFL. This result is in Bennett (2011), in a review of AFL, who identified a number of critical issues that limit effectiveness in its utilization. These issues - how AFL is defined, how its demands can be supported and the varying contexts in which it operates. This is an indication that there is actually, a relationship between perceived challenges and utilization of AFL among teachers.

If this assessment strategy is not effectively used, though teachers have high perception of its utilization, one can easily conclude that there are perceived challenges inherent in it, that relate with the level of utilization.

4.3 Challenges inherent in the implementation of AfL among Middle Basic Mathematics teachers

The result of the descriptive analysis showed that there is significant relationship between the challenges Middle Basic Mathematics teachers are confronted with in the use of AfL. These challenges are: Congested curriculum; insufficient lesson time; lack of understanding of the concept of AfL; Class sizes; lack of technology aiding AfL; lack of teacher motivation; and the burden of teaching multiple subjects. This result is in line with Torrance & Pryor (2001) and Mabry, Poole, Redmond & Schultz (2003) who found that time and large-class sizes posed challenges to AfL; Brown, Kennedy, Fok, Chan, & Yu, (2009) and Hargreaves (2005) attributed the gap to teachers' misconceptions of AfL philosophy, theory and practice; Gardner (2006) and MacLellan (2001) attribute this to perceived misalignment between system accountability priorities and teachers' assessment practices; and Lee & Wiliam (2005) maintain that the gap is as a result of lack of effective models for professional development on assessment. The result of the present study shows that it is actually difficult to implement AfL as a result of eminent challenges perceived in the course of teaching Basic Mathematics in the study area.

5. CONCLUSION

Assessment for learning (AfL) is an assessment strategy that is bound to enhance the learning of Middle Basic Mathematics. Though there are identified challenges in the course of the implementation of AfL, when given the enabling environment, this strategy could be used by teachers for the effective teaching and learning of Middle Basic Mathematics.

6. RECOMMENDATIONS

Based on the findings from this study, the following recommendations were made:

1. Given that teachers are in a position to effect change in their use of assessments, we believe that developing teachers' capacities for integrating various forms of assessment into their teaching/learning process remains an important strategy for this form of assessment.
2. The use of expert-based workshops could be a method for helping Upper Basic Mathematics teachers integrate "Assessment for Learning" into the classroom. This we consider one of the most viable way to enhance the use of AfL.
3. The issue of class size should be prioritized by the Nigeria government. Large class sizes are a result of lack of infrastructure and possibly, lack of teaching personnel. Thus, the government should provide needed infrastructure and teaching personnel so that class sizes could be cut down to meet the required 33:1 ratio as stipulated by the National Policy on Education.
4. Enough time allocation to the teaching of Mathematics should be considered with urgency. This is to enable teachers implement the most needed AfL for effective teaching and learning of the subject.
5. The subjects in the Middle Basic Education curriculum should be streamlined to accommodate only the important subjects. This will help to restructure the curriculum to avoid congestion.
6. This level of education requires multiple-subject teaching by all teachers. Thus, it becomes very difficult to them to give enough time to the teaching of a particular subject. However, mathematics is a subject that needs adequate time, commitment and formative assessment. We thus, recommend that this level of education should have specialist teachers for the teaching of Mathematics.
7. The supervisory agency for this level of education should monitor assessment practices by teachers and make them accountable.

REFERENCES

1. Adams, J. E., & Kirst, M. W. (1999). New demands and concepts for educational accountability: Striving for results in an era of excellence. In J. Murphy & K. S. Louis (Eds.), *Handbook of research on education administration* (2nd ed., pp. 463–489). San Francisco: Jossey-Bass.
2. Allen, D. W., & LeBlanc, A. C. (2005). *Collaborative peer coaching that improves instruction: The 2 + 2 performance appraisal model*. Thousand Oaks, CA: Corwin Press.
3. Argyris, C., & Schön, D. A. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco: Jossey-Bass.
4. Assessment Reform Group. (2002). *Assessment for learning: 10 principles*. Cambridge: Author. Available at www.guardiannews.com . Retrieved 29th August, 2013.
5. Assessment Strategy for Learning Strategy (2008). Available at <http://www.wiltshire.gov.uk/assessment-for-learning-strategy.pdf>
6. Bennett, R. E. (2011). Formative assessment: A critical review. *Assessment in Education: Principles, Policy & Practice*, 18(1), 5–25.
7. Black, P., & Wiliam, D. (1998a). Assessment and classroom learning .*Assessment in Education: Principles, Policy & Practice*, 5 (1), 7-74.
8. Brown, G. T. L., Kennedy, K. J., Fok, P. K., Chan, J. K. S., & Yu, W. M. (2009). Assessment for student improvement: Understanding Hong Kong teachers' conceptions and practices of assessment. *Assessment in Education: Principles, Policy & Practice*, 16, 347–363.
9. DeLuc, C. Luu, K. Sun, Y. & Klinger, D. A. (2012). Assessment for learning in the classroom: Barriers to implementation and possibilities for teacher professional learning. *Assessment Matters* 4, 5-33
10. Department for Children, Schools and Families (2008). *The Assessment for Learning Strategy*
11. Flórez, M. T. and Sammons, P. (2013). *Assessment for learning: effects and impact*. Oxford: CEFT Education Trust.
12. Gardner, J. (2006). Assessment for learning: A compelling conceptualization. In J. Gardner (Ed.), *Assessment and learning* (pp. 197–204). London: Sage.
13. Hargreaves, E. (2005). Assessment for learning? Thinking outside the (black) box. *Cambridge Journal of Education*, 35, 213–224.
14. Harrison, C. (2013). Assessment for learning: are you using it effectively in your classroom?
15. Harrison, C. (2005). Teachers developing assessment for learning: Mapping teacher change. *Teacher Development*, 9, 255–263.
16. James, M., & Pedder, D. (2006). Professional learning as a condition for assessment for learning. In J. Gardner (Ed.), *Assessment and learning* (pp. 27–44). London: Sage.
17. Lee, C., & Wiliam, D. (2005). Studying changes in the practice of two teachers developing assessment for learning. *Teacher Development*, 9, 265–283.
18. Mabry, L., Poole, J., Redmond, L., & Schultz, A. (2003). Local impact of state testing in southwest Washington. *Education Policy Analysis Archives*, 11(22). Retrieved 10 April 2010, from <http://epaa.asu.edu/epaa/v11n22/>
19. MacLellan, E. (2001). Assessment for learning: The differing perceptions of tutors and students. *Assessment & Evaluation in Higher Education*, 26, 307–318. doi: 10.1080/02602930120063466 Nottingham: DCSF Publications.
20. Torrance, H., & Pryor, J. (2001). Developing formative assessment in the classroom: Using action research to explore and modify theory. *British Educational Research Journal*, 27, 615–631.