

An Investigation into the Utilization of Research Findings among Secondary School Mathematics Teachers in Katsina

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Abstract

The study investigated the awareness and utilization of research findings in Mathematics among secondary school Mathematics Teachers. A Questionnaire was designed and administered to 300 Mathematics Teachers in the 30 Senior Secondary Schools across the State. The data collected was analyzed using frequency and percentage. The results of the analysis indicated that the teachers do not read Mathematics Journals and do not attend Learned Conferences and as such, they do not keep pace 'with and not make use of latest developments of research efforts in Mathematics in Katsina. This study recommended among the other thing that Government should adequately finance schools, so that they can provide Educational Journals for their libraries.

Introduction

Education is the key to national and self-development. For this purpose to be fulfilled and for education to be sustainable, there is need for meaningful research activities. These will serve as the tools for not only solving problems facing the educational sectors but also improving the educational standard (Nwosu, 2004). Meaningful educational research therefore must add value to the system. It must propel sustainable development, and improvement.

Akunyili (2004) described that any research that falls short of the above function is futile. However, the utility function of research lies in the appreciation and application or implementation of the findings at the appropriate sectors. There is therefore the

need to disseminate and apply research findings appropriately and adequately.

Nwosu(2004) cited Ivowi (1985), in Akpan (2001) noted that research findings in Nigeria are more often in the libraries of universities, research institutions and individuals as well as in government files, without much regards to their various uses. This according to him, gives the impression that either such findings are worthless or unimportant. However, this is not the case with many STAN/MAN and other STM-based research findings. Ivowi made this observations about twenty years ago. Things should have so much changed for the better. The 21st century has been aptly described as an information age. Transmission and flow of information have been engendered in this century. It is therefore necessary to find out the extent of awareness, dissemination and application of these STM related research findings (especially STAN/MAN's), in our various schools, where these findings should be appropriately applied. This study therefore was aimed at finding out the extent of teacher involvement in STAN/MAN and STM-related conferences and workshops as well as the availability and use (and factors involved in these) of STAN/MAN research information in secondary schools in Katsina education zone.

On the problems of Educational research in Nigeria, Chike-Okoli (2003) wrote "Nigeria has achieved quantitative expansion of publications in Education issues that end with mere presentation of facts and knowledge



without the ability to apply them to the problems of the society"(Egede, 2004).

The STM Education aims at providing opportunities for the acquisition of appropriate skills, abilities and competencies both mental and physical as equipment for the individual to live in and contribute to the development of his society. This is one of the national educational aims of Nigeria as a developing nation FME (2004). STM education research in Nigeria will assume a right focus if it becomes an instrument for achieving the laudable aim of providing knowledge to enable individuals contribute to the development of the society, at such a time. One essential ingredient of development is the solving of teething problems in a nation. In this vein, the meaning of research must come into view. The words chosen by Onwioduokit (2003) to describe research suits the emphasis considered in this paper as he wrote:

"It is a systematic and objective intellectual activity undertaken for the purpose of either solving a known problem or expanding the body of existing knowledge" (Onwioduokit, 2003).

It is also a variable tool that brings about progress and development in all spheres of human existence (Dogara and Ahmadu, 2002). No wonder countries of the world that devoted a lot of resources to the conduct of research and utilization of findings especially in STM education are leading others in economic development today.

Science and Technology has long been identified as an important factor in socio-economic development (Ibukun, 1979). Ajeyalemi (1991) buttresses this point when he states that Science and Technology is a potent source for social and economic changes in the history of mankind. It is as a result of the above that research works are being done every day in order to improve the teaching and learning of Mathematics in Schools. Seminars and Conferences are also

being organized by professional bodies to improve the teaching and learning of the Mathematics.

Despite the above, there is still a poor scenario in Mathematics education in our primary and secondary schools, judging by poor results of achievement tests and examination taken by students at various levels of the educational system in Nigeria.

A lot of research works have been carried out on factors responsible for students' underachievement in the Mathematics (Okebukola and Jegede, 1986; Onocha, 1986; Akpan, 1999) to mention just a few.

In a research similar to our own conducted by Nwasu (2004) on Science teaching, he found that Science teachers were not using research findings in Science subject in their teaching, the same also was observed by Ibrahim (2004) on English teacher in Kano.

With all the above, students performance in the Mathematics is still poor. What is responsible for this state of affairs in this 21st century? Are the secondary school Mathematics teachers getting the necessary support in their work by using the findings of the researches that have been carried out all these years on Mathematics teaching and learning? Are the Mathematics Teachers in Secondary Schools keeping abreast of research findings in Mathematics Education? These are the questions that the present study will attempt to answer.

Research question

The study attempts to answer the following question:

1. Are the Science Teachers in Secondary Schools keeping abreast of research findings in Mathematics Education?
2. Are the secondary school Mathematics teachers getting the necessary support in their work by using the findings of the researches that have been carried out all these years on Mathematics teaching and learning?

Purpose of the study

The study aimed at finding out the extent of Mathematics teacher involvement in conferences and workshops as well as the availability and use of research information in secondary schools in Katsina.

Methodology

A survey design was used for this study. The subjects consisted of all the 300 Secondary School Mathematics Teachers in the 30 Secondary Schools Katsina State. The only data collecting instrument was a Teacher Questionnaire designed to

investigate the extent to which Secondary School Mathematics Teachers are abreast of research findings in Mathematics. The instrument was given to three Mathematics Educators from tertiary institutions for face validity and two Measurement and Evaluation Experts. Kuder Richardson Form 20 (KR 20) gives reliability index of 0.78.

Results and Discussion

The results of the study are presented mainly in Tables 1-5

Table 1: Responses of the Subjects with Regards to Reading Mathematics Education Journals

"Yes" Respondents		"No" Respondents		Total	
No	%	No	%	No	%
20	6.67	280	93.33	300	100

Table 1 shows that more than 90% of the Mathematics Teachers do not read Science Journals. In order to ascertain why the "No" respondents do not read Journals; they were asked whether they are aware of the existence of Mathematics Journals. More than half of them 55% (N165) answered in the affirmative, while 45% (N135) answered in the negative.

This is an indication that the teachers are not bothered about keeping abreast of the latest developments in Mathematics teaching and learning or that they do not have access to the Journals. This state of affairs definitely does not augur well for the teaching and learning of the Mathematics in Katsina.

The "Yes" respondents (Table 1) were asked to mention the journals they read. None of them was able to do so. Since all of them claimed to be members of Science Teachers Association of Nigeria (STAN/MAN), it was expected that they will be familiar with the Journal of STAN/MAN. The implication of this is that those who claimed to be reading journals are not telling the truth. Similar result for Science teachers was confirmed by Ibrahim (2004)

Table 2: Responses of the Subjects as Regards Attendance at Conferences/Workshop

	Frequencies and Percentage		
Attendance	"Yes" Respondents	"No" respondents	Total
Conference	8(2.67%)	292(97.33%)	300(100%)
workshop	168(56%)	132(44%)	300(100%)

Only 8 (2.67) have attended conference while encouraging number (56%), (168) have attended workshop. This is encouraging because of the complementary role of attendance to new method of teaching. It can be said then, tentatively that the respondents seem to have some other means of obtaining knowledge of the newest developments in Mathematics teaching and learning. A closer look at the frequencies of attendance at these workshop shows that 20 % attended once , 8 % attended once a year, 12% attended twice a year, and 16.% attended once in every two years. These attendance rates are rather low especially since majority of the teachers have between 8-14 years of teaching experience. A further scrutiny of the types of workshop attended by the

respondents indicated that they are those workshops organized by Conference of Principals, Ministry of Education, Universal Basic Education / MDGs and not by professional bodies. The above clearly indicated that the respondents are not keeping pace with the new developments in Mathematics teaching and learning.

Table 3: Responses of the Subjects as Regards Sponsorship to Conferences and workshop

Conference	"Yes" Respondents		"No" Respondents		Total	
	No	%	No	%	No	%
	0	0	300	100%	300	100
Workshop	160	53.33%	140	46.67%	300	100

From Table 3 above no Secondary School Mathematics Teachers have ever been sponsored to attend a Conference, no wonder why they are not attending Conferences. 140(46.67%) have been sponsored to attend workshops. This situation is not good enough for the teachers need to attend conferences for them to be abreast of new developments in the teaching and learning of the Mathematics.

Table 4: Teachers responses on the extent of availability of STM Research materials in School

Type	Frequency					Total
	Many	Few	Very few	None	No responses	
Mathematics Journal	0(0%)	0(0%)	10(3.33%)	201(67%)	89(29.69)	300(100%)
Other Science Journal	0(0%)	0(0%)	15(5%)	218(72.67%)	67(22.22%)	300(100%)

From Table 4 above only 10(3.33%) school have mathematics Journals, 281(67%) they don't have. This situation shows that Mathematics in Secondary school in Katsina are not aware of new developments in the teaching and learning of the Mathematics.

Table 5: Respondents as regards to Reading of Journals and Attendance at Conference

Rank Order	Variable	Frequency	Percentage
1.	Poor financial situation of Schools.	103	34%
2.	Lack of awareness about organized seminars/conferences	53	17.67
3.	Lack of motivation by the Mathematics Teachers	44	14.67
4.	Lack of good libraries in the Schools.	33	11.00
5.	Lack of sponsorship to Conferences	67	22.33
	Total responses	300	100%

Table 4 revealed that the respondents ranked poor financial situation of Schools as the major constraint against their reading Mathematics Journals and attendance at learned conferences. This poor financial situation does not make schools to subscribe for journals and to sponsor their staff to conferences. In many States of Nigeria Federation, teachers' salaries are not paid as at when due. When the salary is paid, it is hardly sufficient to keep body and soul together; this may be why the teachers cannot afford to spend their money "carelessly" by subscribing to journals or attending conferences.

Recommendation

The results and the discussion in this study showed clearly that secondary school Mathematics teachers are not keeping

abreast of current developments and latest research findings in Mathematics Teaching and learning in Nigeria. This situation is partly due to the fact that essential materials



such as journals are not procured for the teachers and also, that they do not attend conferences regularly. As a result of the above the students in the Secondary Schools are at the receiving end because the teachers are not giving their students all the help needed in their efforts to learn the subjects. The teacher's inability to acquire new methodologies and resources among other things, in teaching will negatively affect the teaching and learning of the Mathematics in Katsina. No wonder there is poor performance of students in Senior Secondary School Examination over the years in the state.

Mathematics teachers in secondary schools need to take the reading of Mathematics Journals and attendance of Conferences seriously. Government should adequately finance schools, so that they can provide Educational Journals for their libraries. Authorities of the School should ensure that teachers are sponsored for Learned Conferences even if it is once a year. It is only when this is done that the quality of Mathematics teaching and learning in the Schools can improve.

Conclusion

The findings of this study indicate major flaw in our educational system as it relates to the use of Research materials in Katsina. For educational sustainability and for the improvement of the learning-teaching process, research findings must be adequately and properly utilized. This is not the case in Nigeria. MAN/STAN have made remarkable impact on STM education in Nigeria. They should continue to use their important office and position to ensure the dissemination and use of valuable research findings, to teaching and learning in the STM classrooms.

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