

Provision of Mathematics Continuous Professional in Namibia

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ABSTRACT This paper reports on a pilot study that was carried out in the northern part of Namibia. The main purpose of the pilot study was to test the validity of the research instruments used among mathematics teachers to ascertain whether Mathematics Continuous Professional Development (MCPD) existed in the Namibian schools and what the status of MCPD is. The pilot results show that MCPD has not as yet taken root in Namibian schools as a formally established mode of improving the professional conduct and skills of mathematics teachers at the different education phases. Even though ad hoc professional development activities have taken place in the country, these have not been formalized. The newly established CPD Unit at the University of Namibia promises to be ushering the needed formalization of CPD activities and intends to provide CPD for knowledge enhancement and improvement of qualifications.

INTRODUCTION

Namibia emerged from a history of Bantu education that was characterized by segregation, racism, colonialism and apartheid. The vestiges of the colonial education still linger in the Namibian education system long after independence, which Angula (1993) described as elitist. In an attempt to address the imbalances in the education system in independent Namibia, the education system underwent major reforms encompassing the method of teaching, examination system and content. This reform Jansen (1995) described as rushed due to the fact that the school curriculum in Namibia was immediately after independence changed in order to break away from the South African Bantu education as soon as possible. Jansen notes, "Few curriculum reforms raised as much public outcry as the decision to reform, *with considerable speed*, (his emphasis) the Junior Secondary Curriculum (JSC) starting in 1991" (p. 254). He further notes, "...many voices from the teaching community, region education offices...and parents challenged the government on the haste followed in pushing the JSC reform..." (Jansen 1995: 254).

The reformed education system reflected the goals embodying accessibility, equity, democracy and quality, which are the pillars of Namibia's education system (Ministry of Education and Culture 1993). Despite the foregoing goals;

achieving quality in education has been a challenge in the Namibian education since independence. The government's efforts to alleviate the challenges affecting quality in the provision of education, in many schools, especially in the rural areas, do not seem to have been effective given the huge gap that existed and still exists between the urban and rural schools in terms of resources and the caliber of teachers in these schools.

Provision of Teacher Continuous Professional Development (CPD) has been found to change how teachers interact with their learners and the way they provided feedback to their learners (Van den Bergh et al. 2014). Desimone (2009) cited by Opfer and Pedder (2011: 395) notes that "change in (teachers') belief leads to change in practice (which) leads to change in students". Accordingly, teacher CPD is essential if teachers are to make an impact on learning in their classrooms. It is this assumption that teacher CPD or learning results in improved learner performance that formed the basis of this study.

Training of Mathematics Teachers in Namibia

Some CPD existed in Namibia immediately after independence in 1990, for example the In-service Training and Assistance to Namibian Teachers (INSTANT) project which ran from 1991 to 1995 (Clegg 2005; Ministry of Education and Culture 1995). This project provided in-ser-

vice training to mathematics and science teachers in the country, funded by the European Union under the European Development Fund (EDF). The aim of the INSTANT project was to: “contribute towards the improvement of the effectiveness of teaching and learning in the areas of mathematics and science in relation to the introduction of a new curriculum in the Namibian Secondary School system” (Ministry of Education and Culture 1995:1). The cascade model was used during the INSTANT project with the view that those trained would form the essential catalyst in their regions in improving the teaching of Mathematics and Science at the secondary school level. The other in-service programme aimed at the Mathematics and Science teachers in the country was the Mathematics and Science Teachers’ Extension Project (MASTEP). It provided in-service training to serve Basic Education Teacher Diploma holders who had graduated from the four Colleges of Education in the country in Mathematics and Science. The MASTEP programme started in 2005 and provided both content and professional content to serving teachers. The programme taken over by the University of Namibia after the sponsorship by the European Union was terminated. These were the main two in-service programmes that directly addressed the provision of training to Namibian mathematics and science teachers at secondary level in the country.

At primary school level, the Namibian Basic Education Support Phase III (BES III) began in 2005, funded by the USAID¹ and was directed at enhancing the mathematics, science and English teachers’ knowledge (Eises and Kasanda 2008). Some of the workshops involved training teachers on how to conduct assessment and preparation of different types of question items. In addition to these three, some Non-Governmental Organizations existed and provided some kind of Mathematics and Science in-service short courses, which were described as “intensive (but) of short duration” (Ministry of Basic Education and Culture, 1996 as quoted by Akpo, 1999). The effects of these in-service programmes were seen in improved learner performance at the primary level (Eises and Kasanda 2008).

The National Institute for Educational Development’s (2010) study of Grade 5, 6 and 7 learners’ performance in Mathematics attribut-

ed their poor performance to the way the teachers taught, how the topics were covered, teachers’ qualifications and their fields of study among others. Nambira et al. (2009) earlier found the same factors for the poor performance of Grade 5 to 7 learners in Mathematics in Okavango. They proposed the promotion of CPD of mathematics teachers to ensure enhanced teaching and learning of Mathematics at school level. They further noted that the identified factors affecting the teaching and learning of Mathematics could be adequately addressed if formalized CPD programmes were in place.

From the above it is obvious that no formal CPD programmes in Mathematics exist in Namibia. Nonetheless, sporadic CPD trainings sessions were carried out in the country to enhance the teaching and learning of Mathematics. In 2009, facilitator training on syllabus interpretation was carried out by NIED² for Upper and Junior Secondary phase teachers covering five regions in the country funded the government (Gernot Piepmeyer, Personal Communication, 5 February 2013). According to Piepmeyer, training of all advisory teachers and 67 teacher facilitators took place in 2011 and 2012. A two week monitoring and evaluation workshop took place in the Caprivi region on the implementation of compulsory mathematics as a school subject at the senior secondary level (Grades 11 and 12). In Namibia, learners in Grade 11 have to select one “field of study” from four. The four fields of study include; Natural Science and Mathematics (Mathematics, Biology and Physical Science), Technical (Design and Technology, Physical Science and Mathematics), Commerce (Accounting, Economics and Business Studies) and Social Sciences (History, Development Studies and Geography). The first two include Mathematics as a compulsory subject while the last two do not. But, learners may decide to include Mathematics as an additional subject (Ministry of Education 2010) which is usually rare. As of January 2012, all learners at senior secondary level are required to take mathematics regardless of the field of study chosen.

The above indicated CPD trainings seem to fall into what Kennedy (n.d.) and Richter et al. (2010) refer to as a “training model.” In this kind of CPD, the teachers are exposed to training that enhances their knowledge and skills to ensure effective teaching. Further Van den Bergh et al.

(2014: 805) found that a CPD that provides teachers with “concrete and practical ideas for implementing the new knowledge in their classroom” may improve the teachers’ practice of targeted classroom behaviour(s).

Since 2010 the University of Namibia has been the sole provider of teacher preparation in the country by decision of Cabinet of the Republic of Namibia. All Colleges of Education were merged with the University of Namibia. Presently teachers are being trained at five campuses around the country. At all four former Colleges of Education pre - primary and lower primary teachers are being trained, while secondary school teachers are trained on the main campus and at one of the former Colleges of Education in the north of the country. These two will become the venue for the training of science teachers in the country.

At the primary level, teachers are expected to teach all subjects while at the secondary level teachers are subject specialists. Accordingly the training of teachers for secondary school level includes integration of content and teaching strategies, with specific emphasis on learner-centred teaching. Mathematics at Grade 12 level is required for entrance to primary teaching qualification at the University. This is in recognition of the need for these teachers to teach all school subjects at this level. Both content and teaching methods are taught by lecturers in the Faculty of Education. The duration of the training is 4 years, and includes three weeks each in year 2 and 3 and 8 weeks in year 4 of teaching practice.

The training of Mathematics teachers for the secondary school phase, takes place in both the Faculty of Science and Faculty of Education. The subject content is taught by the lecturers in the Faculty of Science while professional courses are taught by lecturers in the Faculty of Education. Often the Mathematics content courses are up to third or fourth year level, in order to leave space for professional courses from the Faculty of Education and a two month long teaching practice. Students with a pure Bachelor of Science degree may become professionally trained teachers by doing a one year Postgraduate Diploma in Education (PGDE). The PGDE programme exposes Bachelor of Science degree holders to developmental psychology, sociology and philosophy of education, communication and technology in the classroom and teach-

ing methods in the subjects they took in their undergraduate programme.

Provision of Continuous Professional Development (CPD) to Teachers in Namibia

The Ministry of Education continues to face significant challenges in responding to the needs and demands of the pre and in-service teachers in the country. The ministry tried to upgrade the qualifications of teachers up to at least a Basic Education Teachers’ Diploma (BETD) starting in 1995 until the phasing out of this programme in 2010. Many teachers have benefited from this incentive and improved their qualifications to a diploma level. Despite this upgrading of the qualifications teachers still face challenges during their classroom teaching (Ugwanga et al. 1999).

Most teachers receive the Continuous Professional Development support from the Ministry of Education through its advisory service. However, there is no Unit specifically targeting Continuous Professional Development for teachers in the country. The CPD of teachers is a relatively new concept in the Namibian context. The newly established CPD Unit at the University of Namibia (UNAM, CPD 2013) is an attempt to bridge this gap in the provision of CPD courses and skills upgrading of the Namibian teachers in all school subjects. Prior to this development, the Namibian teachers in general and the mathematics teachers in particular had not been exposed to continuous professional development or benefitted from it.

Starting in 2013 the Ministry of Education established the Continuous Professional Development Unit within its ministerial structure. Schools were also tasked to establish Continuous Professional Development committees to spearhead the provision of teaching skills and content to the teachers. Mathematics Continuous Professional Development (MCPD) does not seem to have been singled out from the overall CPD of teachers. In addition, no research has been carried out on the extent of provision of MCPD in Namibia. This study is an attempt to address this gap and the findings of this pilot study may be viewed as an initial phase in assessing the status of CPD of mathematics teachers in Namibia.

Questions of the Study

The following questions were addressed in this study:

1. To what extent is the mathematics serving teachers aware of the existence and benefits of MCPD in Namibia.
2. What CPD activities are taking place at the Schools in this study?
3. What are the perceptions of principals and mathematics teachers regarding the strengths and weaknesses of MCPD in Namibia?
4. What type of MCPD activities do mathematics teachers perceive as necessary in improving their practice?

METHODOLOGY

The researcher used both qualitative and quantitative research design to obtain information from the school principals, teachers and advisory mathematics teachers in the northern part of Namibia. This part of the country was chosen for the pilot study because of the large number of schools and hence the teachers and principals able to provide appropriate information to the research questions.

A questionnaire comprising both closed and open ended questions was used to interview the participants of this study. The use of interviews to collect data from the respondents was viewed as appropriate given the small number of respondents involved in this pilot study. Even though the number was smaller, their comments were very useful and enhanced the quality of the instruments that will be used in the main study.

RESULTS AND DISCUSSION

Biographical Information of the Participants

A total of 14 respondents took part in the pilot study. Five of these were school principals (four males and one female), seven Mathematics teachers (four males and three females) and two advisory teachers (one male and one female).

1. Principals' Perceptions of MCPD in the Schools

Existence of CPD Activities

All five school principals indicated that CPD activities were taking place at their schools. The

types of CPD activities that took place at the schools according to the principals were:

- to liaise with the regional office on the CPD needs of the teachers at school;*
- to identify CPD areas that need to be remedied;*
- organise workshops for teachers;*
- to request for professional advice.*

Nonetheless, all five school principals indicated that CPD Programmes once implemented would improve the teaching of Mathematics at schools. This view seems to reflect the fact that CPD activities in Mathematics were actually not yet in place. The school principals explained that CPD once implemented in their schools would improve the teaching and learning of mathematics. The reasons given are indicated below:

- education is not static, new materials develop and teachers need to be continuously exposed to these;*
- as strategies of teaching also come into existence, teachers need to be exposed to such new and innovative teaching strategies;*

- It analyses the weaknesses of teachers and orients itself to the internal school's needs;*
- it calls for self-evaluation and once implemented will assist in enhancing teaching and learning.*

Support Offered to Teachers in the Schools

The school principals listed the following as the kinds of supports at their schools that they offered related to the MCPD at their schools:

- Mobilizing teachers to do self-reflection and identify their areas of weaknesses.*

- Avail resources and finances to aid the rectification of areas of weaknesses among the teachers.*

- Encourage teachers to design new materials, to simplify the contents on their own and research on their own.*

- Helping colleagues with content related problems.*

Areas in Which CPD is Needed for Mathematics Teachers

The principals further indicated the following kinds of assistance that teachers needed in Mathematics to improve their teaching:

- To a great extent my teachers need help in Mathematics at extended level.*

At our school there is an open door policy where teachers can get help once they find areas they need assistance.

Teachers at our schools need help on how to interpret syllabi and carrying out Mathematics projects.

2. Support Received from Advisory Teachers

Advisory teachers in the Namibian education system are expected to provide expert advice to teachers in a particular subject area. Nonetheless, usually these are few in number and often do not manage to pay a visit to all teachers within a particular education area. The principals were asked to indicate the support the mathematics teachers received from the advisory teachers in improving the Mathematics content and pedagogical skills of the mathematics teachers in their schools. They listed the following as the support:

- ♦ *The Ministry of Education through its advisory department organizes workshops and makes provisions for the right channels to be followed for example, school, cluster and then regional level.*
- ♦ *The Ministry of Education provides resources for example, computers, internet.*

From the principals' responses it seems as if the advisory teachers are not contributing much to enhance the pedagogical and content knowledge of the Mathematics teachers.

Strengths and Weaknesses of the MCPD Activities Taking Place in the Schools

The five principals listed the following as perceived strengths and weaknesses of the MCPD activities in their schools:

Identified Strengths of the MCPD

- ♦ *Improves teaching and learning.*
- ♦ *Improved professional contacts among staff members.*
- ♦ *I can hardly comment on the strengths of CPD since it is relatively a new concept to our school.*

Identified Weaknesses of the MCPD

Teachers are in fear especially the teachers who are "senior citizens".

Teachers are hesitant to reveal that they need help.

Some staff members do not seem to be interested in MCPD and CPD at large.

CPD is relatively a new concept at our school, I can therefore hardly comment on its strengths and weaknesses.

The educational services to alleviate the weaknesses of teachers might not be available due to budgetary constraints and other problems.

Some schools only have "virtual CPD" that is, it is just there on paper but not practically.

Budgeting, since CPD is only budgeted at regional level but not at school level, school activities that have to do with CPD may end up crippled.

It is important to note that by identifying the weaknesses as identified by the principals of the running of CPD programmes in the country currently would ensure that these needs can be addressed. Indeed as indicated by one of the principals, it is important to make teachers aware of what MCPD is all about and the benefits accruing from attending CDP programmes when on offer.

Needed Improvements in the MCPD Provided to the Teachers in Schools as Perceived by the Principals

The principals also gave the following as suggestions for improving the provision of MCPD in the schools:

- ♦ *CPD should be strengthened at cluster and circuit level.*
 - ♦ *There should be monitoring and evaluation of CPD activities at regular intervals from the Ministry of Education.*
 - ♦ *There should be a platform where the teachers can come together to deliberate on issues of CPD.*
 - ♦ *Teachers should have a forum to discuss issues directed to topics in Mathematics and best strategies of how to convey them to the learners.*
 - ♦ *Teachers should work collectively to ensure the best education for the Namibian child.*
 - ♦ *There should be provision for budgeting to be availed for CPD so that schools can benefit at grass root level.*
- Suggestions about improving CPD will be based on the strengths and weaknesses of*

CPD, being new to CPD it will not be fair for me to comment on how to improve on it as it is a new concept.

3. Perceptions of the Mathematics Teachers of the MCPD Offered at their Schools

A total of seven Mathematics teachers also took part in this study. The teachers were asked to indicate their qualifications. The knowledge of the teachers' qualifications is important if appropriate MCPD is to be provided. The results are given in Table 1.

Table 1: The qualifications and institution of training of the Mathematics teachers (N=7)

Qualification	Number	Institution of teacher training
Diploma	1	Former College of Education
Bachelor Degree	3	University of Namibia
Bachelor Honours	3	University of Namibia.
Total	7	

The qualifications of the mathematics teachers varied (Table 1) from a diploma, to an honours Bachelor's degree. Six of the seven mathematics teachers have a university first degree as shown.

It was also deemed necessary to find out the major subjects of the mathematics teachers were qualified to teach. Table 2 gives this information. The majority of the teachers in this pilot study were trained to teach Mathematics. Although three of them majored in Biology, Chemistry and Physics, they were teaching Mathematics at the moment. This often happens in Namibian schools. In the absence of a mathematics qualified teacher amongst the staff members in the school, the principal may ask any member of staff who had taken some mathematics modules in his or her studies.

Table 2: Teachers' subject majors (n=7)

Major	Number of teachers
Mathematics	4
Physics	1
Biology	1
Chemistry	1
Total	7

The number of years of teaching experience was also deemed necessary to gather as part of the data for this study. Table 3 illustrated the teaching experience for the teachers that were sampled.

Table 3: Teaching experience in years (n=7)

Number of years of teaching experience	Frequency
0-3	4
4-6	2
7-9	1
Total	7

Four of the mathematics teachers are recent graduates and have been teaching for three years or less. One may be forced to conclude that given their "recent" status as mathematics teachers MCPD was probably not essential at the moment (See Table 3).

The teachers were asked to define CPD in their own words. This was necessary in order to ascertain whether they all had the same understanding of MCPD. Their responses are given below:

- ✓ *Programme that get new and relevant information about the changes in the areas of specialization.*
- ✓ *An ongoing enrichment of teachers in their profession; continuous gaining of skills and techniques in the profession.*
- ✓ *Programme that enhances and provides teachers with adequate knowledge on some of the changes that may have occurred in the education system.*
- ✓ *Is a structural approach where people or professionals are helping each other in improving and developing skills and knowledge.*
- ✓ *Learning for enhancing content and conduct in one's area of specialization (Mathematics) in terms of content, teaching and handling students as well as subject assessment.*
- ✓ *Is a record of what you experience, learn and apply e.g. in a workshop, congress or even in the classroom.*
- ✓ *Ongoing learning of teachers in order to grow professionally.*
- ✓ *The platform for enriching those that is in the profession with necessary "tools" and skills so that they develop in their career.*

The meaning of CPD to the teachers seems to suggest that they receive support and train-

ing that will afford them the necessary skills that are relevant to their professional growth. This is in line with Uugwanga (2012) who indicated that CPD is effective if it enables individuals to reach greater heights of their professional careers.

MCPD Participation by Teachers and the MCPD Providers

Teachers were further asked to indicate if they had participated in any continuous professional development programmes. Six of the teachers indicated that they had participated in some kind of professional development programmes despite the fact that the Ministry of Education lacked a formal platform of MCPD.

With regards to the MCPD programmes providers they had attended, the teachers indicated the following as the service providers of MCPD activities that they had participated in, with the frequencies in brackets: Ministry of Education (7), Higher Education Institutions (5), and private organizations or partners (3). It appears therefore that most of the MCPD activities are provided by the Ministry of Education, often provided by consultants or “experts”, such as the Namibian Institute of Mathematics (NIM) and others. The idea is to enhance the teachers’ knowledge and skills, which is in line with the training model of CPD referred to by Kennedy (nd) and Richter et al. (2010), which “...provides teachers with the opportunity to update their skills in order to be able to demonstrate their competence”. The establishment of the UNAM CPD Unit may prove useful in the provision of CPD activities that will enhance the content knowledge and skills of all educators in Namibian schools.

The mathematics teachers also listed the following activities that they participated in that had to do with MCPD:

- ✓ *Using syllabi to develop scheme of work.*
- ✓ *Different assessment methods.*
- ✓ *Setting relevant questions*
- ✓ *Solving equations*
- ✓ *Year plan development*
- ✓ *Interpreting the syllabi*
- ✓ *Writing reports and giving feedback*
- ✓ *Writing reports to the subject advisors*

These aspects are directly relevant to the teachers’ work and reflect what teachers are expected to do to ensure that effective teaching and learning takes place in their classrooms.

The Mathematics teachers also indicated the following as strengths and weaknesses of the MCPD activities they had attended:

Strengths of the MCPD Training Attended

- ✓ *It gives the teachers opportunities to interact with each other.*
- ✓ *The MCPDs are very educative to both the teachers and stakeholders.*
- ✓ *Materials are sometimes provided for thereby enabling us to make reference.*

Weaknesses of the MCPD Training Attended

- ✓ *Lack of adequate materials.*
- ✓ *Some of the training contents possess no relevance to the school curriculum.*
- ✓ *Sometimes the groups were too big and we could not interact with the facilitators freely.*
- ✓ *Time is sometimes inadequate.*

Even though the Mathematics teachers referred to the fact that relevant materials were given to them during the MCPD training, others indicated that these were sometimes not relevant to the school curriculum. Indeed the perception of relevance of the training materials to the teacher may breed reluctance in attending these programmes if not mandated by the state (Richter et al. 2010). The weaknesses of the MCPD attended by the Mathematics teachers in this study seem to hinge on relevance of materials to their work and the duration of these MCPDs.

Assessment of Effectiveness of MCPD Provisions Attended

It is important to assess the effectiveness of the instruction provided in order to gauge the success of the MCPD provided. Lack of formal participants’ assessment would make it almost impossible for the providers to know whether the participants had benefitted from their training and the areas that need improving. Nonetheless, five Mathematics teachers indicated that they were not evaluated during the MCPD training, while two said they were. It is important that future MCPD providers are encouraged to carry out this very important aspect of ensuring they know whether their training has been beneficial to the clients.

4. Advisory Teachers Views on the Provision of MCPD to Mathematics Teachers

As indicated earlier two advisory teachers were interviewed regarding the provision of CPD to Mathematics teachers in the country. Their responses are given in the section that follows:

Both advisory teachers indicated that the Mathematics Continuous Professional Development (MCPD) programme activities existed in the school policy. To the question, "In what ways the MCPD activities were carried out in the schools", the two advisory teachers had this to say:

- ✓ *Identifying areas that needed to be improved and requests for professional assistance.*
- ✓ *Continuously support the teachers to make them become reflective and effective practitioners; since a teacher is a lifelong learner.*

To the question of whether advisory teachers thought the implemented MCPD programmes at school improved the teaching of Mathematics, the two advisory teachers responded "Yes".

The explanations given to their response to the question above were:

- ✓ *in a way the MCPD analyses the weaknesses related to teachers.*
- ✓ *MCPD is directed towards the school needs as opposed to some assistance from outside.*

The advisory teachers identified the following support that they usually gave to the teachers when facilitating MCPD in the schools.

- ✓ *We conduct school visits where we sit in the classrooms and mentor the teachers after the lessons.*
- ✓ *We as advisor teachers can co-teach topics that appear to be challenging to the teachers.*
- ✓ *We offer induction to the novice teachers.*
- ✓ *We work hand in hand in collaboration with the facilitators at cluster and circuit levels to share ideas on how to teach some mathematical concepts.*
- ✓ *We help teachers how to organize Mathematics clubs at schools.*

On the kind of professional assistance that is needed by the teachers, that the advisory teachers indicated the following:

- ✓ *Most of the teachers especially at Grade 12 level lack Mathematical content knowledge.*

- ✓ *Some teachers get challenged by professional practices outside the classroom such as planning, filling etc.*
- ✓ *Some teachers are challenged by the continuous lesson planning.*

The responses of the two advisory teachers seem to indicate that they were actively involved in the provision of school based MCPD. This CPD often tended to be on a one to one basis. Upon observing the mathematics teacher in the classroom, they provided advice regarding the teaching of challenging topics that teachers found difficult to teach.

It should be pointed out here that MCPD and CPD are relatively new concepts in the Namibian School system. As such very few classroom teachers have been exposed to the CPD activities in the country even though the advantages of teacher CPD cannot be denied (Opfer and Pedder 2011; Van den Bergh et al. 2014). Even though there is some informal continuous professional development taking place in Namibia these need to be formalized by the Ministry of Education. It should be pointed out that currently the debate on possible licensing of teachers in Namibia is on-going. If this becomes policy, teachers will be required to attain a certain number of CPD points per year in order to maintain their licensing. If this happens, MCPD will be strengthened and MCPD providers will have to rise to the challenge of providing both content and professional courses relevant to the Namibian situation that will enhance the teachers' professional practice.

CONCLUSION

This pilot study was based on the assumption that MCPD may contribute to improved teacher classroom practice due to the fact that changes are likely to occur in their practice. Unfortunately the results in this report are from the responses of a few principals and teachers who all came from one specific region. Accordingly, these results should not be generalized to all mathematics teachers in Namibia. Nonetheless, the teachers seem to be unaware of what benefits MCPD can offer and need to be encouraged to be brought forward. The lack of awareness of the MCPD that is going on, albeit on a small scale in the country seems to point to the need for official CPD providers including the UNAM CPD Unit to be more proactive and provide teachers with relevant CPD programmes that will address the teachers' needs and address the

deficiencies that are exhibited by mathematics teachers at both primary and secondary school phases, that has made many learners fear studying mathematics, even though it is now a compulsory subject from Grade 1 to 12.

RECOMMENDATIONS

It is recommended that teachers should be made aware of MCPD and the benefits it can offer. This knowledge of MCPD seems to be lacking among the surveyed principals and teachers. It is possible that if the benefits are made explicit to them, the mathematics teachers would be more willing to set time apart for attending MCPD and that the teachers should be encouraged to take part in MCPD activities and come up with the areas that they need help in if CPD programmes are to be relevant to them.

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NOTES

1. USAID (United States Agency for International Development), Administers Civilian foreign aid to help alleviate poverty in countries outside the USA. In the case at Namibia. It was actively involved in improving quality of teachers at the primary school phase.
2. NIED (National Institute for Educational Development). Is the Ministry of Education's curriculum development Unit situated about 70km from Windhoek. Through its Subject Panels is responsible for curriculum development, and carries out teacher in-service programmes to improve quality and recommends school textbooks used in Namibian schools, and runs workshops,

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