

Factors affecting teachers' participation in continuing professional development (CPD): the perspectives of secondary school mathematics teachers in Zambia

Maureen Kanchebele Sinyangwe, Berry Billingsley and Yota Dimitriadi

University of Reading

This paper focuses on secondary school mathematics teachers' perspectives of factors affecting their participation in Continuing Professional Development (CPD). It makes use of findings from multiple data collection methods including questionnaire, face-to-face in-depth interviews and focus group discussions. The study was conducted in a selected district of Central Zambia. The factors affecting the teachers' participation in CPD are discussed, along with the implications for CPD provision.

Keywords: Continuing professional development (CPD); perspectives; participation

Introduction

Continuing professional development (CPD) is a key element for teacher quality improvement. Literature (Dadds, 2006; Goodall, Day, Lindsay, Muijs, & Harris, 2005; Moyer-Packenham, Bolyard, Oh, & Cerar, 2011) shows that CPD has a significant role in improving teachers' teaching practices and subsequently improves learners' learning experiences and overall quality of education. Therefore, the need for CPD for teachers remains unquestionable. While it is important for teachers to continually develop as professionals, not all teachers in Zambia have been able to respond to this call and actively engage in CPD. This suggests that there are some factors affecting their participation. This study seeks to establish Zambian secondary school mathematics teachers' perspectives on what affects their participation in CPD.

Continuing professional development: Definition and importance

There is no uniformity in literature on the definition of CPD. In fact, several associated terms such as: Professional Development, Professional Learning, In-Service Education and Training (INSET), Staff Development, Continuing Professional Development and Learning (CPDL) related to CPD are used. These alternative terms are defined differently, but the meanings are often related and overlapping, difficult to disentangle, and the terms often used interchangeably (Bolam & McMahon, 2004). This paper adopts Day's (1999) definition of CPD as it is broad and embraces the many various dimensions of teachers' professional development.

Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute through these to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purpose of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives (Day 1999, p. 4)

Among the several reasons that indicate the importance of teachers' CPD are the ones discussed below. The first point is that CPD can be a means through which teachers keep abreast with knowledge and pedagogy in their subject areas and in the field of education in general. It can contribute to updating and extending their professional knowledge and skills on new developments and new areas of practice to ensure continuing competence in their teaching job (Bubb & Earley, 2007). It is also essential for the development of teachers' positive values, attitudes and beliefs regarding making a difference in pupils' lives and learning.

Additionally, even though the relationship between teacher teaching and pupil learning and attainment is difficult to establish (Muijs, Day, Harris, & Lindsay, 2004) literature (McNamara, Jaworski, Rowland, Hodgen, & Prestage, 2002) states that CPD can lead to increased teacher knowledge, positive changes on teaching strategies which can contribute to improved pupil attainment. Therefore, suggesting that it is logical to conclude that CPD is linked to improvement in learners' learning experiences and attainment.

Thirdly, CPD can help teachers to remain interested and interesting in their teaching of mathematics despite the challenges and demands on them as mathematics teachers. ACME (2002) argues that CPD can re-enthuse existing teachers of mathematics and renew their enthusiasm for the subject. Other studies such as by Onderi (2011) add that CPD can help in revitalising the general morale of teachers in the teaching profession.

In light of the aforementioned, the need for CPD is well established and teachers stand to benefit when they participate.

Context of the research

Teachers in Zambia experience difficult teaching conditions and environments including crowded classrooms and a lack of basic teaching/learning resources. This is compounded by critical shortage of mathematics teachers.

Poor pupil performance in mathematics at all levels is an issue of great concern in Zambia (ECZ, 2015). Even though there are several factors that can account for pupils' poor performance, teacher factors are certainly among them. Teachers have a significant role to play to improve performance in mathematics and are under pressure to work at improving pupil achievement in the subject

Zambia is at the point of implementing the new and revised curriculum which has specified, among other things, some changes in the mathematics content and in the way mathematics is to be taught (MOE, 2013). The new curriculum has drawn special attention not only to the acquisition of mathematical knowledge and development of relevant accompanying skills for solving mathematics related problems, but also development of important 'values' such as 'teamwork' and 'creativity'. The changes in the way that mathematics is to be taught are largely reflected in an emphasis on the use of learner-centred approaches in the teaching and learning process and linking mathematics to real life experiences, which would give learners skills to analyse and practically apply the mathematical knowledge gained.

The Ministry of Education (MOE) in Zambia envisages that the current School-Based Continuing Professional Development (SBCPD) through Lesson Study would facilitate quality teacher professional development and cushion efforts to implement the revised curriculum. This, however, would not be realised if teachers do not participate in CPD. Through this study, teachers' perspectives of what affects their participation in CPD in the Zambian context are established.

Methodology

This study was part of a PhD study on secondary school mathematics teachers' perspectives of CPD in Zambia. It used a case study research approach with data collected using questionnaire, which comprised both closed and open ended questions, face-to-face in-depth interviews and focus group discussions and document analysis. Eighty-three (83) secondary school mathematics teachers from secondary schools in Kabwe district of Central Zambia participated in the study. Data were collected in the period from April to August 2015.

Data analysis

The responses from the closed-ended questionnaire items were subjected to SPSS software and analysed using descriptive statistics. The interviews and discussions, which were tape-recorded, were transcribed. Responses gathered from the open ended questionnaire items, interviews and discussions were manually coded leading to the identification of emerging themes and grouping the identified themes under categories and further into sub-categories in a way that the responses could easily be comprehended and used in providing answers to the research questions. The identity of all the respondents in this study remained anonymous.

Findings and discussion

Teachers in this study presented a wide variety of factors affecting their participation in CPD. Table 1 below summarises teachers' responses to the questionnaire item related to factors they perceived to be affecting their participation in CPD

Table 1: Factors affecting teachers' participation in CPD

Factors affecting CPD	Frequency	Percentage (%)
Workload	55	68.8
Lack of awareness of CPD opportunities	52	64.2
Lack of incentive for participation	50	63.9
Attitude toward CPD	44	54.3
Personal circumstances	42	52.5
School management	41	53.9
No suitable CPD programme	38	50
Financial costs	37	48.1
Timing	35	43.2
Appraisal	29	36.7

The data in Table 1 above shows that workload (68.8%) was the major factor affecting teachers' participation in CPD and the least being appraisal (36.7%). Note should, however, be made here that there were differences in the numbers of teachers

presenting or not presenting their choice of factors affecting their participation in CPD on the questionnaire.

During the interviews and focus group discussions teachers provided detailed information regarding what affected their participation in CPD and also gave insight into other factors that did not appear as options to choose from on the questionnaire item, but affected their participation in CPD. Examples of teachers' comments referring to 'workload being a factor affecting their participation in CPD include:

We have too many commitments and our workloads are heavy.' There is no time for CPD (T4 FDG 2).

I have a heavy workload-more than 30 teaching periods, 40minute each single periods, and 80minutes for double periods in a week- teaching more than 55 pupils per class plus I need time to check pupils' work and prepare lessons to teach these pupils...Where would I get the time and energy to do CPD things...?(Interview 7)

Among the emerging factors affecting teachers' participation in CPD was teachers' perception of CPD. For instance, most of the teachers who participated in the interviews and FDGs viewed CPD as a directive from government and that it had to be formal and structured as directed by government. An example of a comment to this effect is:

CPD is about doing what government wants. In this case, government wants us to do Lesson Study. If I do anything that is not along those lines and which is not as prescribed by government as CPD it will not be accepted as CPD... (T1, FDG1)

One of the implications of such a view of CPD is that CPD can only be CPD when it is formal and structured. This detaches teachers' self-directed learning and informal CPD as an aspect of CPD. Activities to enhance teachers' professional development can range from informal to formal or self-directed to compulsory or planned to serendipitous (Friedman, 2013; Steyn, 2010) and can take place in multiple contexts (Borko, Perissini, Romagnano, Knuth, & Willis, 2004).

Another emerging factor affecting teachers' participation in CPD is the view pointing to lack of motivation as result of several factors among them teachers' perception of their 'short career life span' due to health related factors and the harsh realities of teaching and teaching mathematics in particular. An example of an excerpt concerning this is:

Apart from the pressures of work because of the critical shortage of mathematics teachers, when you know you do not have long to live because of 'these' illnesses some of us have it just puts you off things like CPD...(Interview 23)

Such findings point to the need for CPD to contribute toward keeping mathematics teachers motivated, interesting and interested in their work. The literature (Carroll, 2005; Hatch & Lee, 2011; Intrator & Kunzman, 2006;) states that to be able to teach well, one needs to possess knowledge and skills beyond the knowledge of subject content and pedagogical skill and competences to include that which would help them to remain inspired and vital even in the face of education reforms, challenges of teaching.

The other factor affecting teachers' participation in CPD, which emerged from the interviews and FDGs, relates to the relevance of CPD in meeting teachers' needs. The majority of the teachers' responses deliberated on the point that CPD should be designed to address teachers' needs if teachers are to actively participate. In discussing relevance of CPD to their needs, teachers also included the aspect of

monotony of CPD content and irrelevance of CPD in their context. Here are some of the examples of what teachers said:

'It is monotonous with unnecessary repetition of the same things...(Interview 19)

'...CPD is about learning, but it is boring especially because we look at the same things in the same way...' (Questionnaire)

'It is very superficial ... most of the things discussed are irrelevant to me and my situation...(Interview 45)

The point that CPD should be relevant to teachers needs is consistent with literature (Day, 1999; Muijs et al., 2004) that indicates that professional development opportunities are likely to have little impact on the teachers or their pupils if they are poorly conceptualized, are insensitive to the cognitive and socio-emotional concerns and needs of individual teacher participants.

Conclusions and implications

Zambian secondary school mathematics teachers' participation in CPD is affected by a combination of several factors including: heavy workload, perception of CPD, relevance of CPD to needs and lack of motivation. Understanding their perception of CPD and factors that affect their participation in CPD in their context is important in influencing short term or long term adjustments concerning CPD provision.

Among the implications of the findings of this study is the point that there is need for a clear understanding, among teachers, of CPD and what constitutes CPD. Secondly, CPD should be aligned with participating teachers' needs and priorities. Thirdly, teachers need to be empowered to take responsibility of their CPD. This could be accomplished through giving them relevant information regarding CPD that could meet their identified needs, priorities and interests. If teachers perceive CPD positively and are empowered to take responsibility of their CPD, then they are likely to participate in CPD that concentrates on areas in which they may feel they are deficient in or areas that they require professional growth in.

Acknowledgement

We are sincerely grateful to the Commonwealth Scholarship Commission and the Faculty for the Future for supporting the PhD research study from which this work has been drawn.

References

- ACME. (2002). *Continuing Professional Development for teachers of mathematics*. London. Retrieved from <http://www.acme-uk.org/media/1463/continuing%20professional%20development%20for%20teachers%20of%20mathematics.pdf>
- Bolam, R., & McMahon, A. (2004). Literature, definitions and models: towards a conceptual map. In C. Day & J. Sachs (Eds.), *International Handbook of the Continuing Professional Development of teachers* (pp.33-63). Buckingham: Open University Press.
- Borko, H., Perissini, D., Romagnano, L., Knuth, E., & Willis, C. (2004). A conceptual framework for learning to teach Mathematics: A situative perspective. *Educational Studies in Mathematics*, 56, 67-96.

- Bubb, S., & Earley, P. (2007). *Leading and managing Continuing Professional Development* (2nd ed.). London: Paul Chapman
- Carroll, J. (2005). Developing effective teachers of mathematics: Factors contributing to development in mathematics education for primary school teachers. *Proceedings of the Building Connections: Research, theory and practice. 28th Annual conference of the Mathematics Education Research Group of Australasia*. Melbourne.
- Dadds, M. (2006). Continuing professional development: nurturing the expert within. *British Journal of In-service Education*, 23(1), 71-84.
- Day, C. (1999). *Developing teachers: the challenges of life long learning*. London: Falmer Press.
- ECZ. (2015). *2014 Examinations Performance Review: Natural Sciences*. Lusaka: Examinations Council of Zambia (ECZ).
- Friedman, A. (2013). *Continuing Professional Development: Lifelong learning of millions*. London: Routledge.
- Goodall, J., Day, C., Lindsay, G., Muijs, D., & Harris, A. (2005). *Evaluating the impact of Continuing Professional Development (CPD)*. Research Report 659. UK: Department for Education and skills
- Hatch, G., & Lee, C. (2011). Professional Development. In S. Johnston-Wilder, P. Johnston-Wilder, D. Pimm, & C. Lee (Eds.), *Learning to teach Mathematics in the secondary school: A companion to school experience* (3rd ed.). London: Routledge.
- Intrator, S. M., & Kunzman, R. (2006). The person in the profession. Renewing teacher vitality through professional development. *The Educational Forum*, 71(1), 16-32. doi:10.1080/00131720608984564
- McNamara, O., Jaworski, B., Rowland, T., Hodgen, J., & Prestage, S. (2002). *Developing Mathematics teaching and teachers: A Research Monograph*.
- MOE. (2013). *Zambia Educational Curriculum Framework 2013*. Lusaka: Curriculum Development Centre.
- Moyer-Packenham, P. S., Bolyard, J. J., Oh, H., & Cerar, N. I. (2011). Common features of professional development activities for mathematics and science teachers. *Professional Development in Education*, 37(4), 571-589.
- Muijs, D., Day, C., Harris, A., & Lindsay, G. (2004). Evaluating CPD: An overview. In C. Day & J. Sachs (Eds.), *International Handbook on the Continuing Professional Development of teachers* (pp 291-310). Buckingham: Open University Press.
- Onderi, H. (2011). *The value of Continuing Professional Development: Head teacher and teacher perspectives*. Germany: Lap Lambert Academic Publishing.
- Steyn, G. M. (2010). Educators' perceptions of continuing professional development for teachers in South African: A qualitative study. *Africa Education review*, 7(2), 156-179.