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# MATHEMATICS TEACHERS' AND PRINCIPALS' PERCEPTION AND PRACTICE OF CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) IN GEDEO ZONE

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## ABSTRACT

The study was conducted to assess mathematics teachers' practice of continuous professional development. The subject of study was first cycle junior schools Mathematics teachers in Gedeo Zone, Ethiopia. In Gedeo Zone there are eight Woredas. Among eight Woredas three of them selected by random sample method. Parameters of population for this study were all first cycle junior schools mathematics teachers in each selected junior schools. Sampled respondent of teachers were from each total population of junior schools following random sampling based on probability proportional to size of the number of the junior schools in the three woredas. Participated mathematics teachers were selected without considering sex and age. There were 72 mathematics teachers of sampled junior schools were participated for this study. The design selected for this study is quantitative study in the view of mathematics teachers' practice of continuous professional development. The tools used to collect the data for this study were questionnaires in the form of likert scale. The results of questionnaires of likert scale items regarding questions for mathematics teachers concerning implementation of CPD is 2.61 (mean) which indicate that almost once in a semester. Most teachers are carrying out sixty hours of CPD on paper but, they have limitation on engaging CPD throughout their careers, mainly consulting with others and putting CPD into practice in the classroom. Even there is a significance difference (Sig 0.00) in implementing CPD among Woredas). School principals should be responsible for regularly monitoring the effectiveness of the changes to teaching and learning, ensuring the quality of engagement of teachers in CPD activities, monitoring and assessing the content of individual professional portfolios' and giving constructive feedback.

**KEYWORDS:** Mathematics Teachers' Practice of Continuous Professional Development

## 1. INTRODUCTION

### Background of the Study

Changes in the educational system of a nation and global requirements demand staff development activities. In a major initiative to address problems related to access, equity, and quality of educational provision, the Transitional Government of Ethiopia (TGE) introduced the Education and Training Policy (ETP) in 1994. The ETP, supported by articles in the Ethiopian constitution, sought to decentralize educational authority to all states and called for new paradigms of education based on relevant, active, and student-centered teaching and learning (Desalegn C 2010).

The take-up of formal and informal learning opportunities for teachers has been the subject of much debate in education research internationally. Moreover, attracting, retaining and developing teachers across the professional life-cycle have become policy priorities in many countries (OECD, 2005). The aim of continuous professional development is to improve the performance of teachers in the classroom and raise student achievement (Desalegn C 2010). Studies show that formal and informal professional developments are essential for improved instructional practices,

pedagogy and student outcomes (Day et al., 2007). Much of the focus has been on the outcomes of Continuous Professional Development (CPD), such as teacher skills and instructional practices; the effectiveness of various processes for adult learning; and whether professional development has an impact on children. Although some of this research recognizes that teachers have powerful effects on student outcomes, there has been relatively little attention given to the role played by CPD in overall teacher effectiveness and, more specifically, the factors influencing CPD take-up by teachers (Choy et al., 2006).

In the context of lifelong learning, CPD is a key issue, going far beyond the traditional concept of In-Service Training, which up to now has been the only place for teacher further education in some European countries. Policy makers and participating institutions in Teacher Education and Training are aware of the need to support teacher professional development which aims at the auto- and co-construction of knowledge and know-how as well as enhancing the individual choice of teachers meeting their need to further develop or strengthen their personal competences. Teachers are thus regarded as recipients of knowledge transfer as well as inventors, researchers and analysts (Ursula U **2007)**.

The Ministry of Education has given priority for continuous professional development (CPD) believing that it is the right of teachers as well as of a great value for national development. The school staff must have the necessary subject professional support to bring about changes in the classroom. At school level professional development programs should include school principals/directors, teachers and technical and administrative personnel.

The new approach promotes active learning, problem solving, and student-centered teaching methods. With the expansion of education and large class size teachers still rely on the teacher centered methods with limited opportunities for CPD. In Ethiopia, CPD focuses on improving the teaching-learning process, with the priorities of introducing active learning, practicing continuous assessment, and managing large classes.

According to MoE (2005) in Ethiopian: (1) compulsory requirement for those who teach in all educational establishments, (2) CPD is the civic and professional duty of all educators, (3) All schools are required to produce school improvement plans in order to improve the quality of teaching and learning, (4) CPD is an essential part of school improvement which is divided into four domains. These domains are: learning and teaching, student environment, leadership and environment, and community involvement (5) each institution must have a CPD plan which outlines the CPD priorities for the year.

In Ethiopia continuous professional development can be placed into two categories (MoE, 2009b): the first category is updating continuous process in which every professional teacher participates during their career as a teacher. It focuses on subject knowledge and pedagogy to improve classroom practice. And the second category is upgrading the process by which teachers can choose to participate in additional study outside their regular work as teachers at appropriate times in their career, e.g., convert a certificate diploma to a diploma of the first degree or first degree to master's degree. But here researchers focused only on the first category.

**Statement of the Problem**

The Performance and Development Culture Self-Assessment process provides an opportunity for schools to engage their teachers in highly effective professional learning. The significant benefits of this process to schools, including enhanced student outcomes, can be maximized by the provision of effective professional learning to address areas for improvement of individual teachers' professional practice. The collaborative nature of effective professional learning,

combined with the enriching, supportive and motivating environment that a performance and development culture generates, has the capacity to realize significant school improvement, Melbourne (2005).

Though structured provision of CPD is new phenomenon in Ethiopia (MoE, 2005), and local research reports on CPD are scanty, there are few on the positive effect of CPD on different school matters like student-teacher relationship, sharing idea and experience among teachers, working in collaboration and the like. Amare, Daniel, Derebsa and Wana (2006) reported that CPD has laid fertile ground to build strong academic achievement. On the other hand, Gizaw (2006) for instance found out that CPD has little effect on teachers' classroom practice, utilization of participatory approach of teaching, improved professional knowledge and skills.

It was the findings of the above scholars and other people with similar views inspired us to look into the problem closely. In addition, we, being instructors at Dilla University, got a good opportunity to visit schools that run CPD due to HDP Based Training Program and various researches that the university runs in collaboration with the surrounding community and schools. Thus, we decided to explore mathematics teachers' and principals' understanding and practices of school based continuous professional development (CPD) because teachers' understandings and belief leads to change.

**General Objective**

The general objective of the study is to assess the understanding and practices of Mathematics Teachers' and their Principals Continuous Professional Development in Gedeo Zone, SNNPR.

**Specific Objectives**

In line with the identified knowledge gap about understanding and practices of Teachers

Professional Development, the study aimed to achieve the following three specific objectives:

- To identify practices that promotes Teacher Professional Development;
- To identify the major obstacles to implement CPD at school level.
- To identify the deference of level of understanding and practice of CPD among Woredas in Gedeo Zone.

Therefore, this study is designed to find out answers to the following research questions.

The questions to be answered by this research are:

- What are the practices of teachers in CPD?
- What are the major obstacles to implement CPD at school level?
- Is there a significant deference of practice of CPD among Woredas in Gedeo Zone?

**Positive Hypothesis**

-There is a significant deference of understanding and practice of CPD among Woredas in Gedeo Zone.

## Significance of the Study

There is agreement among scholars about the importance of the teacher and her/his competence in the teaching-learning process. The teacher is the heart of classroom instruction (Galabawa 2001; URT 2007). The effectiveness

of the teacher depends on his competence (academically and pedagogically) and efficiency, (ability, work load, and commitment), teaching and learning resources and methods; support from education managers and supervisors. Teacher Professional Development provides opportunities for teachers to explore new roles, develop new instructional techniques, refine their practice and broaden themselves both as educators and as individuals.

The significance of this study is for the teachers as well as for the students in junior school. The study will try

- To identify understanding of mathematics teachers toward CPD.
- To help the teachers in the schools on the right steps to be taken in curtailing those factors would be identified after the research.
- To help, to conduct workshop based on their deficiencies and limitations as regard the CPD.

## 2. RESEARCH METHODOLOGY

### Design of the Study

The research designed survey by using quantitative method to view practices of junior schools Mathematics teachers toward CPD in Gedeo Zone. A survey design may be used to learn about aspects such as people's behavior, attitudes, believes, values, habits, ideas, and opinions (Macmillan & Schumacher 2001:304-305). This type of research design is popular in education due to efficiency and generalizability. Accurate information for large population can be obtained with a small sample at relatively low costs (Macmillan & Schumacher 2001:304-305).

Quantitative data was analyzed based on descriptive and inferential statistics.

Descriptive statistics: - Data obtained from the participants initially it examined to obtain the percentage, mean, and standard deviation.

Inferential Statistics:-Using the ANOVA the data was analyzed to determine whether there are significant differences of perceptions/ understanding and practices of CPD of mathematics teachers and their principals, among sample schools in each Woreda.

The positive hypothesis related to each questionnaire was tested at the 0.05 level of significance.

### Materials and Instruments

In order to study practices of CPD in Gedeo Zone, two kinds of questioner were prepared one for teachers and other for principals.

Since self-report measurements in which the individuals are asked to respond to questions are the most common method of evaluation (Morgan, 1986). According to the educator, although such instruments have their own short comings they are unavoidable. In order to study perceptions/ understanding and practices of CPD on mathematics teachers and their principals in Gedeo Zone, questionnaire were prepared by translating into Amharic language, in order to get answer easily for the research question under this study.

The questioner had two major parts. The first part of the questioner was used to get background information of Mathematics teachers' and their principals.

The second part of the questioner was used to gather relevant information on perceptions and practices of CPD

from Mathematics teachers and their principals in Gedeo Zone. Each item of the questionnaire was prepared based on the Likert-Scale, having five alternative responses.

Validity of questioner was measured by consulting experienced staff researchers. In order to test the reliability of the questioner a pilot test was conducted in selected junior schools.

**Data Analysis Technique**

All prepared questionnaires were distributed by the researchers and then collected for analyses. Thus, the collected data were organized, interpreted and analyzed using a percentage, mean, standard deviation and ANOVA, and then followed by analyses from which summary and conclusions were drawn.

Numerical values were multiplied by corresponding values assigned to the degree of agreement.

To obtain the rating mean the sum of the products of the value and frequency were divided by the total number of the respondents. Then all rating means within a category that will add and then divided by the number of cases to determine the ground mean. Based on the ground mean interpretation made and conclusions was drawn on the basic questions.

The standard division was used to show how far responses where it has been scattered from grade mean.

Dependant variable is perception /understanding and practices of mathematics teacher and their principals toward CPD. Independent variables were the Woreda junior schools

## 3. PRESENTATION AND ANALYSIS OF DATA

As to experience of principals' indicated that (Table 4.4) 61.9% of principals' have working experience from 1-5 years.

**Analysis of Teacher's Responses**

The teachers were given close-ended items. Below, analyses of teachers' response to close-ended items are presented.

**Presentation and Analysis of Data Obtained Through Questionnaire to Investigate Implementation of CPD**

In analysis of Questionnaire to Investigate Implementation of CPD, data obtained from elementary junior secondary school Mathematics teachers in Gedeo Zone. Responses of closed ended items are analyzed. These items were intended to elicit the respondents' degrees of agreement per item. The degree of agreement ranged from '**once in a week** to '**not at all where 1= once in a week, 2=once in a month, 3=once in a semester, 4=once in a year, 5=not at all.**

**Table 3.1: Questions for Mathematics Teachers Concerning Implementation of CPD**

| Item | N | Rating Scale with Value | | | | | | | | | | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | % | 2 | % | 3 | % | 4 | % | 5 | % | | |
| How often do you engage in your own CPD throughout your careers? | 72 | 31 | 41.9 | 18 | 24.3 | 6 | 8.1 | 8 | 10.8 | 9 | 12.2 | 2.2500 | 1.43154 |
| How often do you consult with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies? | 72 | 13 | 17.6 | 28 | 37.8 | 14 | 18.9 | 6 | 8.1 | 11 | 14.9 | 2.6389 | 1.30336 |
| How often do you work collaboratively with colleagues to improve teaching and learning activities? | 72 | 27 | 36.5 | 18 | 24.3 | 9 | 12.2 | 7 | 9.5 | 11 | 14.9 | 2.3194 | 1.25402 |
| How often do you put CPD into practice in your classroom? | 72 | 33 | 44.6 | 12 | 16.2 | 11 | 14.9 | 8 | 10.8 | 8 | 10.8 | 2.2500 | 1.42166 |
| How often do you being committed in supporting the wider CPD needs of your school? | 72 | 27 | 36.5 | 18 | 24.3 | 9 | 12.2 | 7 | 9.5 | 11 | 14.9 | 2.4028 | 1.45988 |
| How often do you maintain a professional portfolio to record all your CPD? | 72 | 21 | 28.4 | 22 | 29.7 | 10 | 13.5 | 10 | 13.5 | 9 | 12.2 | 2.5000 | 1.37380 |
| How often do you visit other schools and teachers to see examples of good practice? | 72 | 9 | 12.2 | 20 | 27.0 | 17 | 23.0 | 11 | 14.9 | 14 | 18.9 | 3.0556 | 1.36236 |
| -How often do you make peer observation? | 72 | 14 | 18.9 | 27 | 36.5 | 16 | 21.6 | 8 | 10.8 | 7 | 9.5 | 2.5417 | 1.20956 |
| How often do you attend various educational workshops? | 72 | 10 | 13.5 | 8 | 10.8 | 16 | 21.6 | 17 | 23.0 | 21 | 28.4 | 3.4306 | 1.38225 |
| -How often do you visit professional experts? | 72 | 24 | 32.4 | 11 | 14.9 | 11 | 14.9 | 13 | 17.6 | 10 | 13.5 | 3.1944 | 1.37009 |
| How often do you mentor other mathematics teachers? | 72 | 14 | 18.9 | 24 | 32.4 | 11 | 14.9 | 13 | 17.6 | 10 | 13.5 | 2.7361 | 1.34262 |
| How often do you informally seeking experiences of other teachers? | 72 | 13 | 17.6 | 19 | 25.7 | 14 | 18.9 | 11 | 14.9 | 15 | 20.3 | 2.9444 | 1.41311 |
| How often do you attend discussion/ meetings on CPD? | 72 | 11 | 14.9 | 18 | 24.3 | 16 | 21.6 | 16 | 21.6 | 11 | 14.9 | 2.9722 | 1.31054 |
| How often do you conduct Action Research in your class /school? | 70 | 11 | 14.9 | 12 | 16.2 | 16 | 21.6 | 14 | 18.9 | 17 | 23.0 | 3.2000 | 1.39979 |
| **Total** | | | | | | | | | | | | | |

As it can be seen from the above Table 4:5, the first item educes information on the degree which teachers engage in their own CPD throughout their careers. To this item 31 teachers (41.9%) have responded that they engage in their own CPD throughout their careers **once in a week**. 18 teachers (24.3%) have responded that they engage in their own CPD throughout their careers **once in a month**. 6 teachers (8.1%) have responded that they engage in their own CPD throughout their careers **once in a semester**. 8 teachers (10.8%) have responded that they engage in their own CPD throughout their careers **once in a year**. 9 teachers (12.2%) have responded that they engage in their own CPD throughout their careers is **not at all**. The mean of respondent teachers regarding to engage in their own CPD throughout their careers is 2.2500 (almost **once in a month**).

The second item educes information on the degree which teachers consult with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies. To this item 13 teachers (17.6%) have responded that they once in a week consult with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies. 28 teachers (37.8%) have responded that they consult once in a month with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies. 14 teachers (18.9%) have responded that they consult once in a semester with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies. 8 teachers (10.8%) have responded that they consult once in a year with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies.6 teachers (8.1%) have responded that they consult not at all with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies is. The mean of respondent teachers regarding to consult with others (such as mentors, principals and supervisors) in identifying personal CPD needs in the light of the school's annual CPD Plan and individual Professional Competencies is 2.64 (almost once in semester).

The third item educes information on the degree which teachers worked collaboratively with colleagues to improve teaching and learning activities. To this item 27 teachers (36.5%) have responded that they once in a week worked collaboratively with colleagues to improve teaching and learning activities. 18 teachers (24.3%) have responded that they worked **once in a month** collaboratively with colleagues to improve teaching and learning activities. 9 teachers (12.2%) have responded that they worked once in a semester collaboratively with colleagues to improve teaching and learning activities. 7 teachers (9.5%) have responded that they worked **once in a semester** collaboratively with colleagues to improve teaching and learning activities. 9 teachers (12.2%) have responded that they worked once in a semester collaboratively with colleagues to improve teaching and learning activities. 7 teachers (9.5%) have responded that they worked **once in a year** collaboratively with colleagues to improve teaching and learning activities.11 teachers (14.9%) have responded that they do **not worked at all** collaboratively with colleagues to improve teaching and learning activities. The mean of respondent teachers regarding to working collaboratively with colleagues to improve teaching and learning activities is 2.32 (**once in a month)**

The fourth item educes information on the degree which teachers put CPD into practice in their classroom. To this item 33 teachers (44.6%) have responded that they put CPD once in a week into practice in their classroom. 12 teachers (16.2%) have responded that they put CPD once in a month into practice in their classroom. 11 teachers (14.9%) have

responded that they put CPD once in a semester into practice in their classroom. 8 teachers (10.8%) have responded that they put CPD once in a year into practice in their classroom. 8 teachers (10.8%) have responded that they do **not worked at all** collaboratively with colleagues to improve teaching and learning activities. The mean of respondent teachers regarding teachers put CPD into practice in their classroom is 2.25 (**once in a month)**

The fifth item educes information on the degree which teachers being committed in supporting the wider CPD needs of their school. To this item 27 teachers (36.5%) have responded that they being committed in supporting the wider CPD needs of their school once in a week. 18 teachers (24.3%) have responded that they being committed in supporting the wider CPD needs of their school once in a month. 9 teachers (12.2%) have responded that they being committed in supporting the wider CPD needs of their school once in semester. 7 teachers (9.5%) have responded that they being committed in supporting the wider CPD needs of their school once year. 11 teachers (14.9%) have responded that they being committed in supporting the wider CPD needs of their school not at all. The mean of respondent teachers regarding being committed in supporting the wider CPD needs of their school is 2.4 (almost once in a month).

The sixth item educes information on the degree which teachers maintain a professional portfolio to record all their CPD. To this item 21 teachers (28.4%) have responded that they maintain once in a week professional portfolio to record all their CPD. 22 teachers (29.0%) have responded that they maintain once in a month professional portfolio to record all their CPD. 10 teachers (13.5%) have responded that they maintain once in a semester professional portfolio to record all their CPD. 10 teachers (13.5%) have responded that they maintain once in a year professional portfolio to record all their CPD. 9 teachers (12.2%) have responded that they maintain not at all professional portfolio to record all their CPD. The mean of respondent teachers regarding to maintain a professional portfolio to record all their CPD is 2.5 (b/n once in semester).

The seventh item educes information on the degree which teachers visit other schools and teachers to see examples of good practice. To this item 9 teachers (12.2%) have responded that they visit once in a week other schools and teachers to see examples of good practice. 20 teachers (27.0%) have responded that they visit once in a month other schools and teachers to see examples of good practice. 17 teachers (23%) have responded that they visit once in a semester other schools and teachers to see examples of good practice. 11 teachers (14.9%) have responded that they visit once in a year other schools and teachers to see examples of good practice. 14 teachers (18.9%) have responded that they visit not at all other schools and teachers to see examples of good practice. The mean of respondent teachers regarding to visit other schools and teachers to see examples of good practice is 3.05 (once in semester).

The eight item educes information on the degree which teachers made peer observation. To this item 14 teachers (18.9%) have responded that they made peer observation once in a week. 27 teachers (36.5%) have responded that they made peer observation once in a month. 16 teachers (21.6%) have responded that they made peer observation once in a semester. 8 teachers (10.8%) have responded that they made peer observation once in a year. 7 teachers (9.5%) have responded that they made peer observation not at all. The mean of respondent teachers regarding to peer observation is 2.54 (almost once in semester).

The ninth item educes information on the degree which teachers attended various educational workshops. To this item 10 teachers (13.5%) have responded that they attended various educational workshops once in a week. 8 teachers (10.8%) have responded that they attended various educational workshops once in a month. 16 teachers (21.6%) have responded that they attended various educational workshops once in a semester. 17 teachers (23.0%) have responded that

they attended various educational workshops once in a year. 21 teachers (28.4%) have responded that they attended various educational workshops not at all. The mean of respondent teachers regarding to attend various educational workshops is 3.43 (once in semester).

The tenth item educes information on the degree which teachers visited professional experts. To this item 24 teachers (32.4%) have responded that they visited professional experts once in a week. 11 teachers (14.9%) have responded that they visited professional experts once in a month. 11 teachers (14.9%) have responded that they visited professional experts once in a semester. 13 teachers (17.6%) have responded that they visited professional experts once in a year. 10 teachers (13.5%) have responded that they visited professional experts not at all. The mean of respondent teachers regarding to visited professional experts is 3.2 (once in semester).

The eleventh item educes information on the degree which teachers mentor other mathematics teachers. To this item 14 teachers (18.9%) have responded that they mentor other mathematics teachers once in a week. 24 teachers (32.4%) have responded that they mentor other mathematics teachers once in a month. 11 teachers (14.9%) have responded that they mentor other mathematics teachers once in a semester. 13 teachers (17.6%) have responded that they mentor other mathematics teachers once in a year. 10 teachers (13.5%) have responded that they mentor other mathematics teachers not at all. The mean of respondent teachers regarding to mentor other mathematics teachers is 2.73 (almost once in semester).

The twelfths item educes information on the degree which teachers informally seeking experiences of other teachers. To this item 13 teachers (17.6%) have responded that they informally seeking experiences of other teachers once in a week. 19 teachers (25.7%) have responded that they informally seeking experiences of other teachers once in a month. 14 teachers (18.9%) have responded that they informally seeking experiences of other teachers once in a semester. 11 teachers (14.9%) have responded that they informally seeking experiences of other teachers once in a year. 15 teachers (20.3%) have responded that they informally seeking experiences of other teachers not at all. The mean of respondent teachers regarding informally seeking experiences of other teachers is 2.94 (almost once in semester).

The thirteenth item educes information on the degree which teachers attended discussion/ meetings on CPD. To this item 11 teachers (14.9%) have responded that they attended discussion/ meetings on CPD once in a week. 18 teachers (24.3%) have responded that they attended discussion/ meetings on CPD once in a month. 16 teachers (21.6%) have responded that they attended discussion/ meetings on CPD once in a semester. 16 teachers (21.6%) have responded that they attended discussion/ meetings on CPD once in a year. 11 teachers (14.9%) have responded that they attended discussion/ meetings on CPD not at all. The mean of respondent teachers regarding attended discussion/ meetings on CPD is 2.97 (almost once in semester).

The thirteenth item educes information on the degree which teachers conducted Action Research in their class /school. To this item 11 teachers (14.9%) have responded that they conducted Action Research in their class /school once in a week. 12 teachers (16.2%) have responded that they conducted Action Research in their class /school once in a month. 16 teachers (21.6%) have responded that they conducted Action Research in their class /school once in a semester. 14 teachers (18.9%) have responded that they conducted Action Research in their class /school once in a year. 17 teachers (23.0%) have responded that they conducted Action Research in their class /school not at all. The mean of respondent teachers regarding conducted Action Research in their class /school is 3.2 (once in semester).

**Presentation and Analysis of Data Obtained through Questionnaire to investigate Null Hypothesis**

**Table 3.2: Teachers Implementation of CPD**

| Descriptive Statistics | | |
|---|---|---|
| | N | Mean |
| G1 | 384 | 2.5443 |
| Y1 | 384 | 2.7005 |
| w1 | 384 | 2.5625 |
| Valid N (list wise) | 384 | |

**Table 3.3**

| Anova Table | | | | | |
|---|---|---|---|---|---|
| | | | df | F | Sig. |
| G1 * w1 | Between Groups | (Combined) | 4 | 73.831 | .000 |
| | Within Groups | | 379 | | |
| | Total | | 383 | | |
| | | | 4 | 107.296 | .000 |
| Y1 * w1 | Between Groups | (Combined) | | | |
| | | | | | |
| | | | | | |
| | | | 4 | 194.750 | .000 |
| G1 * Y1 | Between Groups | (Combined) | | | |
| | Within Groups | | 379 | | |
| | Total | | 383 | | |

As table 4.10 shows that sig 0.00 Null Hypothesis is rejected i.e there is a significant difference among those three woredas.

The aim of Continuous Professional Development is to improve the performance of teachers in the classroom and raise student achievement. It is a career-long process of improving knowledge, skills and attitudes centered on the local context and, particularly, classroom practice. According to MOE (2009b) all teachers must be actively engaged in: (a) their own learning process, (b) working with their colleagues, (c) identifying their own needs and (d) the wide range of activities, formal and informal, that will bring about improvement of their own practice and the practice of others. As the table 4:10 shows that the mean of practicing/ implementation of CPD in those three woredas are almost approached to 3 (once in a semester) which are not satisfactory. Even though table 4:10 shows that there is a significance difference (Sig 0.00) in implementing CPD among Woredas all of them needs more engagement of practices.

**Table 3.4: Perception of Mathematics Teachers and Hindrance of CPD**

| Descriptive Statistics | | | |
|---|---|---|---|
| | N | Mean | Std. Deviation |
| Gedeb | 312 | 2.8526 | 1.35288 |
| Y/Cheffe | 312 | 3.1442 | 1.39419 |
| Wonago | 312 | 3.0288 | 1.34037 |

## 4. SUMMARY, CONCLUTIONS AND RECOMMENDATION

Summary of the study

The purpose of the study was to gain insight into the practices of mathematics teachers towards CPD. Data was collected from mathematics teachers using a Questionnaire instrument. The researchers design this research in the form of quantitative case study in the view implementation of elementary junior schools' Mathematics teachers toward continuous

professional Development in Gedeo Zone. Questionnaire data reveal apparent inconsistencies that suggested teachers may be moving slowly towards a continuous professional development.

## IMPLICATIONS OF FINDINGS

The findings from this study have a lot of implications for mathematics teachers. It was discovered from this study that teachers' main hindrances of CPD are; Lack of the culture within the school in involving all teachers in planning for school development, Lack of motivations that drives the teachers towards professional development, Less support from school management in promoting teachers CPD, Less commitment of Principal as a leader of CPD, Lack of agreement that new approaches are needed, Beliefs that support for implementing new strategies will not be adequate. Lack of Toolkit (knowledge) what to do in that 60 hrs, where their mean is greater than or equal to three.

## CONCLUSIONS

From the major findings of the study, the following conclusions have been drawn:

For mathematics teachers, few have attempted to practice CPD and partly because of perception constraints. In most cases, teachers have the interests of planning to fill their gaps on given 60hrs per year but they lack understanding and expertise CPD. As is evident from the findings, half of teachers' perceptions towards CPD are positive agree). Indeed, teachers and school principals are appear to have some reservations about implementing CPD rather than planning on the paper. Many teachers lack the understanding of basic principles and advantage of CPD.

They appear to have doubts about how CPD will contribute to students' achievement and doubts about their own role in the classroom in the new system. With these doubts, it could be difficult for CPD to achieve its aims. To overcome teachers' reservations, lack of stakeholders support has been found out to be insufficient in the implementation of CPD. Meanwhile there is significance difference of perception and implementation of CPD among those Woredas.

## RECOMMENDATION

Based on the data analyses, the following recommendations are forwarded:

Teachers should be encouraged to regularly attend CPD workshops, staff meeting, discussion group or seminars related to deepening teachers' CPD. Professional development activities should be coherent and not loose standing. Also, training on how to efficiently use different teaching strategies can be included in the professional development activities. This will enable the teachers and principals to be efficient in using these strategies in their CPD.

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