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What motivates mathematics teachers?

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Abstract:

The purpose of this study is to determine factors of mathematics teachers' motivation. 19 female and 23 male mathematics teachers participated in the study. Data were obtained with the help of semi-structured interviews. Data were coded by doing content analysis and themes were reached. Coder balance analysis was found .75. It was concluded that internal motivation was more effective than external motivation and female mathematics teachers were more motivated. Four factors which motivated internally were; their students, their teaching, their attitude towards mathematics and teaching profession, and their beliefs. It was concluded that as external motivation the school management did not motivate mathematics teacher enough. Necessary attempts should be done by both school managements and provincial directorate of education to increase mathematics teachers' internal ad external motivation.

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1. Introduction

Motivation is a key issue in education system. Motivation in schools that are hard to be realized by students, like mathematics, is an element that should not be abandoned. Teacher motivation is much related to the do with teachers' attitude to work and work environment, classroom climate. Teacher motivation, is anything done to make teachers happy, satisfied, dedicated and committed in such a way that they bring out their best in work so that everyone such as both students, parents and the society will greatly benefit from their services. Teachers have two kinds of needs such as intrinsic and extrinsic needs. A teacher who is intrinsically motivated may be showed too carried out a task for its own sake, for the satisfaction it provides or for the feeling of accomplishment and self-actualization. After that, an extrinsically motivated teacher may perform the activity and duty in work in order to obtain some reward such as salary may be reward. Extrinsic motivation plays a key role in people's life. It is pre-eminent in influencing a person's behavior. Hence, the aim of the organization should be to make and enhance the intrinsic motivation for teachers to teach effectively and at the same time, to supply some extrinsic motivation along the way for school improvement (O'neil, 1995).

Review of Literature

Motivation defined as "all those inner striving conditions, described as wishes, desires, and urges to inspire the interest of a person in an activity. It is therefore an inner state that stimulates and triggers behavior (Berelson and Steiner, 1964; Tracy, 2000). Ukeje (1991), asserted that, "motivation could make a mule dance". The relative incidence of specific behaviors, such as teaching and learning, discipline and control in schools could be undermined if teachers were not motivated. Kerlinger (1973) also defined as internal and psychological processes that were not directly noticeable but which in turn accounted for behavior. Robin (1989) tells motivation as the eagerness to exert high levels of efforts towards organizational goals conditioned by the efforts ability to satisfy some personality needs. Motivation could be included such as decrease tension, stress, worries and frustration arising from a problematic situation in a person's life. Teacher motivation could be referred to as those factors that operate within the school system which if not made available to the teacher could obstruct performance, cause stress, unhappiness and frustration all of which would subsequently reduce classroom effectiveness and student quality output. This means that teacher motivation includes effect that cause, channel, sustain and influence teachers' behavior towards high management and academic achievement standards in schools.

2. Method

The purpose of this study is to determine the sources of motivation of mathematics teachers working in primary and secondary schools. By determining these sources, how a better mathematics education can be done will be discussed.

2.1. Participants

In the study, qualitative data collection was used. Sampling was formed by purposed sampling (Patton,1990). 15 primary school mathematics teachers from 5 different schools and 27 secondary school mathematics teachers from 7 different schools participated in the study. Of those, 19 are female and 23 are male teachers. Table 1. show the profile of the teachers who participated in the study.

Table 1. Teacher Demographics

Years of Taching	1-5	6-10	11-15	16-20	21-25	26-30	Total
Sex							
Male	2	5	2	2	6	6	23
Female	5	2	1	6	3	2	19
Total	7	7	3	8	9	8	42

2.2. Data Collection Instruments

The instrument, designated Mathematics Teacher Motivation Questionnaire (MTMQ) used to collect data for the study had two parts: The first part was demographic data which sought information of variables such as gender, qualification and experience of teachers, location and type of schools. The second part contained directional response of semi closed items. The semi-structured question were asked through face-to-face interviews and the answers given were recorded. The role of the interviewer in the interviews was to listen to the people being interviewed, be flexible to non-verbal behaviors and ask questions at the end where necessary. The open-ended questions used in the study are as follows; 1)How long have you been teaching?

2. Which faculty and university did you graduate from?

3. (a) Why did you choose teaching ? Who guided you? (your teacher, your family, educations methods, school management, your beliefs? Etc.)

(b) Were you successful in mathematics with your high school teacher?

4. Who were effective to make you choose teaching profession?

5. Do the school management think you are a well- motivated teacher?

6. What were the reasons which motivated you to become a teacher?

2.3. Data Analysis

Content analysis was used for the answers given to the sixth question. For this: 1)Identify topics in data, 2) Cluster topics into categories, 3) Form categories into patterns, 4) Make explanations from what the patterns suggest (Charles&Mertler, 2002). Themes were reached through coding the answers according to the codes formed from paragraphs, literature and the codes formed by the researchers. Examples about every theme were used. Coder balance analysis was applied and the result was found .75.

3.Results and Discussion

19 female and 23 male teachers participated in the study. According to Lortie (1975) and Chapman& Lowther (1982) female teachers are more motivated than male teachers. These researchers emphasized that female teachers are inclined in teaching roles than others works.

The sixth question was coded 102 and was answered and these answers were clustered 13 categories. Afterwards, these 13 categories were joined under 4 general themes. The factors that motivate teachers were found as follows:

The teachers are motivated by their students (N=52). (N is the number of coded answers)

Their teaching motivates the teachers (N=14)

The teachers are motivated by the attitude they have towards teaching occupation. (N = 18)

The teachers are motivated by their beliefs (N = 8).

It can be seen that the teachers were motivated most by their students. According to this theme, teachers are more motivated in these times:

When their students show progress in their students (N = 14)

When they wanted to see their students in good positions (N = 12)

When they wanted to be remembered by their students (N = 9)

When they establish good relationship with their students (N = 7)

When they love their students (N = 6)

When they got answers/feedback from their students (N = 4).

The relationship between teacher's motivation and the academics performance of the students is a fact that must be drawn attention to. Of the data collected in this study, students' academics progress or success was the factor which primary motivated teachers. Teachers consider themselves sufficient seeing the student' progress and are encouraged to give more to their students. The teachers' views are as follows:

“ For me, to see students' excitement of as a result of learning and the happiness they have when they comprehended a subject is very important” (Male mathematics teachers with 24 years of experience).

“ The glitter in children’s eyes I taught them something makes me motivated, It is very elating for me to see that they have learnt and as a result of those, to see their success are situations which motivate me. (Female mathematics teacher with 24 years of experience)

“ To teach new things to my students, and to see that they have learnt and as a result of those, to see their success are situations which motivate me (Female mathematics teacher with 5 years of experience).

The teachers feel happy when their students are successful and when they reach the goals they prepared for their students. Their can be regarded as a meaning of their values that should be satisfied. According to Vroom (1964) and McClelland (1985), the motivated teachers directly try to achieve their goals. The continuation of this motivation directs and excites them (Maehr, 1984). A research for the teachers who saw their students’ good progress showed that motivated teachers affected students’ performance and success in appositive way (Ashton, 1984). This study supports the opinion that there is a positive relationship between teachers’ motivation and students’ academics performance (Brumback, 1986; Menlo&Low, 1988). This relationship is not directly in cause-effect relationship but in motivational effect. Highly motivated teachers try hard to create the environment which will help their students’ academics progress.

Another motivating element for teachers is the happiness which results from the expectation to their students in good positions in the future (N=12). There are some of their views:

“ To be teacher of some students who will be successful and in good positions makes me very happy. (Female mathematics teachers with 1 year of experience)

“ To ensure our future by education our youth, new generation well motivates me. (Male mathematics teacher with 10 years of experience)

Another factor motivating teachers is their wish to be remembered after years by their students.(N=9). Teachers’ views on this are like this :

“ However there are some negative things, a student’s smiling face; a student who calls after graduation makes me forget all the negative things.” (Male mathematics teacher with 22 years of experience)

“ Students’ thanking us when they are at university and remembering me are factors which make me love my profession.” (Male mathematics teacher with 17 years of experience)

Teachers are motivated when they establish good relationships with their students as well (N=7). Their views are as follows:

“ It is very nice feeling to be with students and help them. (Male mathematics teacher with 26 years of experience)

“ You must have a good communication with your students so that the education can be successful. Because raw material is the same everywhere, the better you process it, the more quality it has. (Female mathematics teacher with 17 years of experience)

Holdaway (1978), indicated that having good relationship and communication with students, other teacher and school management is the most satisfying condition for teachers.

The second most motivating theme for teachers was found to be teaching. Their distribution of given 23 answers to sub-categories is like this:

Teachers like teaching. (N=9).

Teachers have self-sacrificing opinions related to teaching. (N=7).

Teachers believe they can reach their goals with the help of teaching. (N=5).

Teachers like the subject they are teaching. (N=3).

Teacher feel satisfied by defining themselves with their job and finding a place in it and they feel that they are rewarded (Nias,1989). There are some of their views:

“ Dealing with mathematics, teaching mathematics are factors motivating me. (Female mathematics teacher with 19 years of experience)

“ I believe teaching something I know to someone is a very good thing.” (Female mathematics teacher with 16 years of experience).

“ Students’ wishing to learn something from me and their coming to me open to learn motivate me very much.” (Female mathematics teachers with 1 year of experience)

According to McClelland(1985) the motivated teachers focus directly on the activities for success goals. Barbera (1980) emphasized the following which provide motivation: Challenging work, personal interesting the work itself, wish to be highly praised, being rewarded for the performance. Teachers want to teach (Lortie,1975). This becomes a need for the most of the teachers, especially when they get the education they are going to teach. This motivates them. People are motivated in their job with an instinct towards self-actualization.

deCharms (1984), takes this instinct as people’s inner motives to do the best. The teachers who are motivated as the necessity of their nature do not need external motives since they are driven to present positive behaviors. There are some views of supporting this:

“ My wish to do best is the thing that motivates me teaching profession.” (Male mathematics teacher with 16 years of experience).

“ I am always proud to be the best in my job. I feel satisfied when I do my job in the best way. This can be any other job, If feel it mine, I try hard to do the best and feel happy at the end.” (Female mathematics teacher with 23 years of experience)

The third theme, being motivated by positive attitude towards teaching profession, was coded with 18 answers. There are 2 sub-themes of this theme:

Their love for mathematics motivates the teachers. (N=10)

Teaching profession motivates the teachers. (N=8).

Some of their views are as follows:

“ Working in mathematics gives me pleasure.” (Male mathematics teacher with 17 years of experience)

“ I love mathematics and working on mathematics.” (Female mathematics teachers with 16 years of experience)

“ My love for mathematics is the reason why I became a teacher and which motivates me to teach mathematics. / Female mathematics teacher with 5 years of experience)

The teachers’ of choosing teaching profession are likes this:

“Teaching is not only to teach scientific thing but also to be a good role model in every one of your behaviors (speaking, gestures, clothing etc.)(Female mathematics teacher with 14 years of experience)

“ What motivates me is my love for education. Actually, I do not believe this profession can not be done without love.” (Male mathematics with 10 years of experience)

“ The importance I feel about mathematics drove me to become a teacher. In addition, I feel happy to teach and be useful. This motivates me to teach.” (Male mathematics teacher with 1 year of experience)

Teachers’ attitude towards teaching and their fields is vital. Because according to Hallinger & Murphy (1985) teachers’ motivation for their profession and working environment affect students’ success.

Their beliefs was found to be the fourth theme which motivates teachers, 8 answers were coded for this theme. There are their views of their beliefs :

“ I choose teaching with love and on purpose. I believe I was guided by my family and belief. My beliefs are still affective on my motivation. (Female mathematics teacher with 10 years of experience)

“ My family, teachers and my beliefs as well guided me for this profession. The beliefs I bear in me are one of the helping factors in my continuing this profession. (Male mathematics teacher with 24 years of experience)

These teachers consider teaching rather a responsibility to be carried out for the community. They feel responsible against higher authority and therefore they desire the best for themselves.

4. Conclusion and Remarks

According to the results concluded in this study, teachers have the kinds of motivation: intrinsic and extrinsic motivation (O’neil, 1995). As intrinsic motivation, they are motivated by the students, teaching techniques, their attitude towards teaching profession and their belief. Tin, Hean & Leng (1996) similar study showed similar results of teachers’ motivation. But in their study, it was concluded that the school management did not motivate the mathematics teachers. It was found that teachers’ intrinsic motivation is higher.

Sex is also affective factor in motivation. It was concluded that female teachers were motivated and also they were more suitable for teaching.

Motivation is defined as the individual's desire to do something. In that respect, motivation, in mathematics education, is an intrinsic factor. Teachers' intrinsic specialties are important in mathematics teaching, teachers' wish to teach mathematics in mathematics teaching. Teachers' wish to teach mathematics is affected by their attitudes towards mathematics, beliefs and their anxiety about education. If teachers are willing to teach mathematics, the quality of education will increase and the goals which mathematics education intends to reach will be reached more easily. As a result of determining the motivating sources for mathematics education the education programs can be shaped according to these sources. Some precautions to increase mathematics teachers' motivation in and out of the classroom can be taken. The school managements should do activities to motivate mathematics teachers.

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