

TEACHING COMPETENCY AT PRIMARY SCHOOLS IN SOUTH ASIA IN MATHEMATICS: MORE PREDICTOR VARIABLES WERE FOUND AT PUPILS? LEVEL FOR READING AND MATHEMATICS THAN AT TEACHERS? AND SCHOOL LEVELS IN INDIA AND THE OTHER SOUTH ASIAN STATES

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Abstract

In India eight of the variables had effects on pupil performance in reading, namely one allocated to the school head, five to pupils, and two to teachers; and in mathematics three were allocated to teachers, two to school heads and three to pupils. In the South Asian states 23 variables had positive or negative effects on pupil performance in mathematics, of which two were related to the school head, six to the teachers, 12 to the pupils and three at school level. In reading 22 variables had positive or negative effects on pupil performance, namely two related to the school head, nine to pupils, eight to teachers and two to schools. As explained in , the cognitive domain (teacher academic education) is a predictor of pupils? performance in mathematics in the SOUTH ASIAN states, but is not one of the 10 main predictors.

Introduction

This result means that subject knowledge has more effect on pupil performance in mathematics than in reading. In other words, pupils? results in mathematics depend on teachers? competence: that is, the more effective the teachers, the better the pupils? results in mathematics. Pre-existing pupils? characteristics, the behavioural domain, and teacher training are the main predictors of pupil performance in reading and in mathematics in India, with the behavioural domain being the main predictor of pupil performance. In SOUTH ASIAN, the behavioural domain is the main predictor of pupil performance in reading, while pre-existing pupils? characteristics is the main predictor of pupil performance in mathematics. Recommendation: It seems that

mathematics teachers had a greater impact than teachers of reading on pupil performance, but there is a need to improve the professional qualification of mathematics teachers in the SOUTH ASIAN states.

For teacher competence, more predictor variables were found related to teachers? academic qualifications than directly to teachers? training levels.

This finding was the case for India in reading and in mathematics, and overall for SOUTH ASIAN states in reading and in mathematics. Teachers? academic level, teachers? subject knowledge (teachers? performance in the SOUTH ASIAN tests), and teachers? professional training (pre- and in-service) are the most important

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variables emphasised in the literature as having to be taken into consideration with teacher competence (Westera, 2001, Grossman, 1995, Shulman, 1986, Mendel and Shannon, 1999). Darling-Hammond's (1999) findings indicate a consistent and significant positive relationship between the proportion of well-qualified teachers and student achievement on the National Assessment of Educational Progress (NAEP) reading and mathematics assessment. This result is confirmed by Vlaardingerbroek and Taylor (2003) in the TIMSS study, in which they found evidence to reinforce the view that primary teacher training ideally occurs in a university, and involves a 4-year degree programme. The relationship between teacher competence and teachers' subject knowledge is emphasized by some studies. In the TIMSS study, Vlaardingerbroek and Taylor (2003) stress that teachers' attainment at high school emerged as a principal correlate with TIMSS rankings. Better rankings were also associated with the existence of mandatory science „content? studies as part of teacher training. These observations are consistent with the axiom that teachers' competence in primary science arises largely from their own mastery of scientific concepts (pp. 429-438). Grossman et al. (1989) insist that without the essential base of subject matter knowledge, primary teachers are simply unable to provide effective instruction. The level of confidence in subject matter affects teaching and the way the teachers teach (Shulman, 1986). Recommendations:

1. The results of teacher performance in the reading and mathematics tests indicated the need for better selection criteria for teacher training programmes in India and in the other SOUTH ASIAN states. The examination to select the candidate must include subject knowledge assessment and investigation into the mastery of primary education content, to ensure that the candidate has the knowledge requisite to teaching in primary education. It is acknowledged that the purpose of teacher training courses is to provide professional training for the candidate in the disciplines of Psycho-Pedagogy and Didactics rather than to provide academic knowledge. However, if it is necessary, teacher training colleges should organize extra sessions to improve the students' knowledge of the subjects taught in a primary school and then submit the students to examination. It is important to stress that if teachers do not have the knowledge of

each subject, it is not possible for them to teach at primary level. The candidate must be competent in primary education subjects before being able to be an effective teacher. Primary school subject knowledge must therefore be a pre-requisite for entering a teacher training course. The most important factor to stress is that professional training is as important as may be of lesser importance than subject knowledge no nevertheless essential subject knowledge. The combination of the two is pre-requisite to training a competent teacher. 2 - As noted in Chapter 2, since India achieved its independence in 1976 the Ministry of Education and Culture has implemented many teacher training models, but at present it does not have an ideal model for teacher training. One of the problems with teacher training is the frequency with which the Ministry of Education and Culture makes and implements curriculum changes. The changes that take place do not take into consideration the educative process as a whole, and the aims and objectives of the change are not stated. The Ministry's decision makers do not take research findings into account when implementing changes. Some additional recommendations and suggestions can be offered for the teacher training process as "curriculum plans, instructional materials, elegant classrooms and even intelligent administrators cannot overcome the negative effects of weak teaching or match the positive effects of positive teaching. The entire formal and informal curriculum of the school is filtered through the hearts and minds of classroom teachers, making the quality of school learning dependent on the quality of teachers" (Holmes Group, 1986, p.2323 in Kanu, 1996, p.174). From a review of the literature, one can conclude that the concept of competence is complex and that there are many factors that contribute to teacher competence. The literature reviewed overlooks two important aspects which one could consider in developing teacher competence in teacher training institutions. The first is the competence of the trainers in the institutions, and the second is the availability and quality of the staff of annexe schools.

In India, for example, no single factor is sufficient to develop competence in teacher trainees. The MEC should approach all of the processes and the factors involved as a whole. For instance, the fact that the factors illustrated in Figure 5.2 below are balanced is of paramount importance.

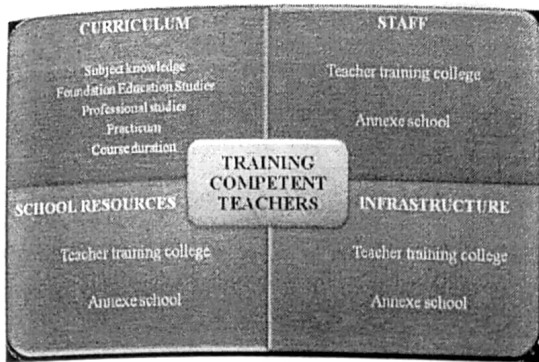


Figure 5.2 A model for developing teachers training competence in India (Passos, 2009) Figure 5.2 seeks to specify the factors that may be involved in the development of teacher training competence, and to establish relationships among them. In training competent teachers it is important to consider not only the curriculum for teacher training but also the other components that play a vital role in the process of teacher training, like the members of staff, the school's resources and teacher training colleges and annexe schools, as shown in the figure. All of these components must be considered as a whole. Training competent teachers may depend on factors such as the quality of the curriculum, staff competence and expertise in teacher training institutions, the availability of resources and funding and the relationship of teacher training institutions with annexe schools to allow successful practica to be completed.

The quality of the curriculum, particularly taking into consideration the four elements referred to by Ben-Peretz (1995, p.543), which are: the Subject-matter to be taught, Foundation of Education studies, Professional studies, and Practicum. Subject knowledge is a pre-requisite for entry into the teacher training college, because if subject knowledge is part of the teacher training programme, it would be overloaded at the expense of the foundation and professional studies, as Dzvimbo and Lima's study (1994) revealed. The curriculum should be designed and developed in accordance with the level of education in which the trainees are to be trained to teach - in this case, primary education - in order to develop the competence of the students to teach. In this way, the curriculum should be aligned with the education needs of the state and take into account good school practices. The staff competence of the teacher training institution should match the

curriculum goals and practices. The teacher training curriculum, whether primary or secondary, should be directly linked with the qualifications and experience of the staff in both the teacher training colleges and the annexe school, as staff competence and qualifications play an important role in developing teacher competence. Besides other qualifications (a first degree or postgraduate degree), they must have professional training and experience at the same level in which they are training (primary or secondary education). The teacher is the key to educational quality School resources are determined by the curriculum in terms of material and amount of financial support. Even though quality teaching and good results can be achieved with poor curricula, materials or infrastructure, lack of school resources and financial restraints affect the training of teachers as well as the standard of education in a state. This aspect is particularly important in the Indian context where, even if the infrastructure is lacking and resources are scarce, teacher competence could ensure the delivery of quality education (Alberto and Mahumane,). However, the lack of infrastructure, the lack of school resources and the poor conditions that prevail in Indian schools have to be taken into consideration, as well as the internal (e.g. books, time in the class, class resources) and external teaching contexts (e.g. the school building, the library, the school's equipment) as these have a huge impact on teaching and learning. But note should be taken of the specific resource and financial needs, implemented in the teacher training curriculum, which would differ, depending on whether the training is for primary or secondary education. Infrastructure - in order for the practicum to be successfully implemented, teacher training colleges must be aware of the annexe schools with whom they align themselves. Annexe schools are an integral part of teacher training and an essential aspect in the teacher training process, and a relationship must therefore be developed between the two institutions. Aspects to consider are the size of school, the number of pupils, the school year and the timetable, so that they can conveniently accommodate the student teachers and implement the teacher training curriculum, as all of these factors are important in promoting good teacher training. The staff of the annexe schools and the conditions under which they receive student teachers must be organized to achieve the teacher training goals as well as the school's own objectives.

As stressed by Carr (2006), teachers are the front line of the education system, and intuition tells us that improving their quality should improve the quality of the service they provide.

Conclusion

Dealing with the role of the teacher in pupil performance, which is emphasized by many researchers, such as Chapman and Mählck (1997), Chau (1996), Darling-Hammond (1999) and Kanu (1996), this study is intended to be a modest contribution made to the ministries of education in south Asian states, although it has particular relevance for the ministry of education and culture in India. This contribution is made in the knowledge that the ministry has conducted few studies in primary school related to the pupils and teachers performance, and in the knowledge that India, as an English-speaking state, has a unique history, tradition and system of education different from that of any others of the states that participated in the south Asian study. A comparative analysis using a cross-national study is important for the ministry of education and culture in order to have an overview of the performance of teachers and pupils in other school systems within the south Asian states. By identifying the weaknesses and the strengths in each system, all south Asian states can learn from one another. However, the results of this thesis should be used with caution, taking into consideration the history, location, economy and culture of each state. South Asian is one of the few known research projects that carried out a cross-national study in India using a truly representative sample. Generally, the studies carried out in the field of education in India are restricted in scope and do not employ truly representative national data. South Asian provided valid and reliable data on which important decisions could be based. Specifically, south Asian provided relevant, high-quality data about the academic profile of teachers, the level of performance in the areas assessed, school management, and other factors that are relevant for policy making.

Many benefits are apparent within the educational context of the region. The data collected through south Asian can be considered to be of extreme importance for India's education system, since it provides the state with important data to promote a

reflection on its primary education sector, to identify the position of India's education system within the region, and to work towards its improvement

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