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From the Editor

Due to unforeseen circumstances the second year of the NIE Researcher has Number 1 and 2 combined. The last year has been a significant year in terms of programmes and research at NIE. This short editorial comment will mention just two.

First, there was the formal announcement early this year of the establishment of the Centre for Research in Pedagogy and Practice (CRPP). The formation of this Centre was mentioned in the initial issue of the NIE Researcher and it will be "up and running" at the start of 2003. It will provide a focus on some of the key areas of Mathematics, Science and Language (English and Mother Tongue) Literacies and Information and Communication Technology. Basic information on the CRPP is available from the following website, http://www.nie.edu.sg/html/crpp.htm, and more information will be added as the Centre undertakes specific projects.

Second, the Master of Education programme was restructured to meet the needs of teachers in the current educational environment. It still consists of coursework plus a dissertation, but the coursework has been oriented to 11 specialisations, including areas such as Art Education, Chinese Language Education, Mathematics Education, and Special Education to name a few. Information on the programme and the specialisations available at the Centre can be found at http://www.nie.edu.sg/html/gpr_masterseduc_med.htm.

These are just two of the initiatives undertaken by NIE in the last year.

Essential Characteristics of Effective Teaching

Myint Swe Khine and A. Lourdusamy

This article reports findings from a recent study on the perceptions of trainee teachers regarding the constituents of effective teaching. The aim of this study was to elicit views of the pre-service trainee teachers in Singapore related to personality characteristics and teaching behaviours, which they perceived to be important to effective teaching. The results of this study provide information on the types of personality traits and teaching behaviours that the trainee teachers considered to be important. It is hope that the information will be helpful for teachers to reflect on their own approaches to teaching, interaction with students and lesson preparation.

Background

There is little argument among educators that teachers' personality factors play a
part in effective teaching. Getzels and Jackson (1963) proposed that the best teachers are those who develop ideal personality traits. Teachers are recommended to acquire "empathy," "enthusiasm," and "energy." Others have proposed that teacher should have "warmth" and "understanding." Wubbels and Levy (1993) suggest that teachers' interpersonal behaviour in the classroom is positively related to student achievement. A number of research studies show that there is a significant positive relationship between the teacher interpersonal behaviour and attitude and cognitive outcomes.

According to Arends (2001), effective teachers have personal qualities that allow them to develop authentic relationships with their students. He also believed that effective teachers command a repertoire of teaching practices known to stimulate student motivation, to enhance student achievement of basic skills, to develop higher level thinking and to produce self-regulated learners. Also, Borich (1996) has noted that there are some key teaching behaviours that can contribute to effective teaching. Among those mentioned are clearly presenting information to the class, flexibility and use of variety of techniques in delivering a lesson, and engaging students in the learning process with instructional materials and activities.

Methodology

A questionnaire consisting of 15 items on Teaching Behaviour and 15 items on Teacher Personality scales was developed based on existing instruments. The items related to Teaching Behaviour addressed actions in effective teaching such as the teacher organizing instructional materials well and planning the lesson carefully. The items related to Teacher Personality focused on the characteristics in the teacher such as being conscientious, sincere and helpful.

The items were rated on a 5-point scale, 1 for an item that they considered "completely unimportant" and 5 for an item that they considered "extremely important!" for effective teaching.

One hundred and twenty-eight trainee teachers enrolled in the Postgraduate Diploma in Education (PGDE) secondary program at the National Institute of Education, Singapore took part in this study. There were 44 male (34.4%) and 84 female trainees (65.6%). Among the sample, 60 trainee teachers (46.9%) reported that they had had a short-term teaching experience before they join the programme and 68 of them (53.1%) do not have any teaching experience prior to joining the training program. They were majoring in science and humanities subjects for teaching at secondary school level.

Results

Teaching behaviour

The five most important teaching behaviours as perceived by trainee teachers were: Gain respect of students, instructional materials are well-organized, sound knowledge of the subject matter, plan lesson carefully and use clear and precise language. These are behaviours related to interpersonal relationship, planning, organizing and delivery including knowledge of subject matter. The high ranking often given to these factors is in line with what has traditionally been acknowledged as the most important factor for teacher effectiveness.

It is interesting that trainee teachers in this study have given the highest priority to gaining respect of students rather than subject matter and pedagogical skills. Arends (2001) also considered this a very important determinant for effective teaching, that is effective teachers should have personal qualities that allow them to develop authentic human relationship with their students.

Next in importance were four behaviours including use classroom time effectively, encourage students to participate in class, regularly checks students' learning progress and provide positive reinforcement for good work done. These behaviours relate to aspects of managing student learning like time management, feedback and reinforcement. Of lesser importance were four behaviours including involve a student actively in the lesson, use a variety of teaching methods, regularly review difficult concepts and know the need of each student. These are behaviours related to pedagogy. At the lowest end of importance were two behaviours insist students to correct all their learning errors and classroom procedures are orderly and business-like. These two behaviours are also related to pedagogy. All these behaviours are related to the broad principles and strategies of pedagogical knowledge and skills that have a bearing on classroom instruction, learning and monitoring student progress.

Teacher Personality

Of the 15 teacher personality characteristics included in the questionnaire for trainee teachers to rate, teacher sincerity, fairness and enthusiasm are considered the most important characteristics of an effective teacher by the trainee teachers. These were closely followed by warm and caring, helpful, open and friendly, conscientious, enjoy teaching, understanding and sensitive to students' personal feelings. These characteristics closely fit with the views expressed by Arends (2001) that the teacher's biggest job is to develop a democratic learning community through authentic relationships with their students. Considered of lesser importance were being even-tempered, patient, intelligent, sympathetic and having a good sense of humour.

Teaching behaviour vs. Teacher Personality

Trainee teachers have given greatest importance to five teaching behaviours before any of the teacher personality characteristics namely: Gain respect of students; instructional materials are well-organized; sound knowledge of the subject matter, plan lesson carefully and use clear and precise language. These are behaviours related to interpersonal relationship, planning, organizing and delivery including knowledge of subject matter. The high ranking often given to these factors is in line with what has traditionally been acknowledged as the most important factor for teacher effectiveness.
matter, Plan lesson carefully; and Use clear and precise language. The teacher traits considered most important were being Sincere, Fair and Friendly. In general the views expressed by trainee teachers in Singapore are in line with the research findings related to effective teaching elsewhere.

Recommendations

The results of the present study suggest that the trainee teachers are well aware of the practices and personality characteristics that promote effective teaching. But knowing them is not enough. They have to be translated into practice in the actual classroom situation. Beginning teachers will have to be guided in this matter. Senior master teachers in the schools can help beginning teachers in this respect. Another approach that might be used would be to encourage beginning teachers to monitor their teaching and get regular feedback from their peers and students on their teaching.

The culture of getting feedback from peers and students needs to be cultivated in schools to improve one's practices and actions in the classroom. The ultimate goal should be to produce reflective teachers who reflect on their practices and take appropriate steps to improve their teaching quality.

References


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Computer-Supported Collaborative Problem Solving in a Primary School Mathematics Classroom

Tan Seng Chee and Ahmad Ibrahim

Introduction

Developing student's problem solving ability is one of the main concerns to many mathematics teachers. However, many students do not believe mathematics is applicable to solving real-world problems (Lesh, 1983). The use of decontextualised and simplified problems coupled with ineffective problem-solving instruction could be the underlying reasons.

One way to address this concern is to design authentic problem-rich learning environments that allow sustained exploration by the students. These authentic problem scenarios can be provided through an approach known as Anchored Instruction (Cognition and Technology Group at Vanderbilt, 1990, 1992). In essence, Anchored Instruction makes use of data-embedded digital video to represent authentic ill-structured problems that serve as the focus of problem solving for students. 111-structure problems do not have a single solution or a single best method of solving the problem. Using collaborative problem solving is more appropriate here as the learners challenge one another with questions, use evidence to support their ideas and present multiple perspectives. We believe that a Computer-Supported Collaborative Learning (CSCL) environment like Knowledge Forum (Scardamalia et al., 1989; Scardamalia & Bereiter, 1996) can complement anchored instruction by providing scaffolding for meaningful discourse. As a result of scaffolded assistance, students are able to work at a higher cognitive level within their zone of proximal development (Vygotsky, 1962) to internalise strategies and skills.

This is an exploratory study to investigate how video-based anchored instruction and computer-supported collaborative learning environment might affect student's problem solving performance.

Research Questions

This study is designed to answer the following questions:

- Does anchored instruction affect student's mathematical problem solving process?
- Does computer-supported collaborative learning and scaffolding help learners in their mathematical problem solving during anchored instruction?

Methods

The study was conducted with 18 boys and 27 girls from a Primary Six class in a neighbourhood school situated in the northern part of Singapore. The pupils were divided into high-achiever, middle-achiever and low-achiever groups according to their continuous assessment results. There were altogether 9 groups with 5 members in each group.