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Qualities Of Mathematics Teachers Valued By Pupils

Lim Lee Hean

Abstract

In this study, pupils' perspectives on qualities which they valued in their mathematics teachers were gathered through focused group interviews involving high achieving, medium-achieving and low-achieving pupils. The qualities of *Caring, Skilful* and *Humorous* emerged among the top three qualities of all the groups interviewed.

Introduction

In the *Fleischmann Report on the Quality, Cost and Financing of Elementary and Secondary Education in New York State* (1973), the following findings were reported:

> *Teachers' perceptions of the school situation were substantially different from those of students. Teachers appear largely unaware of the negative feelings of their students. When asked to rate school morale as "positive", "average", or "negative", 52 percent of students picked "negative" while 64 percent of the teachers picked "positive". Asked to assign the same ratings to the overall educational process, 52 percent of the teachers chose "positive" compared with only 28 percent of the students. (Vol. 1, pp. 46-47)*

With reference to the above, overseas studies that compare teacher and student perspectives on classroom teaching or studies that focus on student opinion of teacher characteristics are few in quantity (e.g. Cooper & Petrosky, 1976; Wright, 1984; Batten, 1989). The local scenario is similar in this aspect. A review on the nature and scope of mathematics education research in Singapore (Chong et al., 1991) reveals that there is only one study out of the forty-two studies that is

related to the research on the identification of the characteristics of an effective mathematics teacher. However, the subjects of the study were not the students of such teachers, but the trainee teachers and practising teachers (Lim & Wong, 1989).

The dearth in research on pupil perspectives does not diminish its significance. There is acknowledgement that description of mathematics teaching and learning would be inadequate and incomplete unless it includes consideration of the beliefs and intentions of students (Grouws, 1992).

This study is part of a larger study on the identification of the qualities of good mathematics teachers (Lim, 1993). Data for the study were generated from three sources: administration of a school-wide pupil survey, classroom observations, and in-depth qualitative interviews for data on pupil perspectives. This article presents that part of the study which involved quantifying the interview data.

We believe that knowledge of pupil perceptions is an integral part of mathematics teaching. Such knowledge provides useful information for researchers and practitioners, as teaching is fundamentally *for* the pupils and they are the reason for its existence. Information with regard to pupil perceptions is an invaluable source in enabling teachers to reflect on their existing practices. Greater awareness of pupil perceptions can help enhance professional growth. With clearer insight into teacher qualities that appeal to pupils, decision-making in classroom settings can be better effected and this can contribute to an improvement in mathematics teaching.

Research Questions

This study is guided by the following three research questions:

1. What are the qualities of mathematics teachers valued by pupils?
2. What are the top three qualities of mathematics teachers valued by pupils in each of the focused groups of high, medium and low mathematics achievers?
3. What are the overall top three qualities of mathematics teachers valued by pupils?

Methodology

Sixty pupils in a government secondary school identified by mathematics teachers as high-achieving, medium-achieving and low-achieving were the subjects in this study. Three groups of 5 pupils each representing the better mathematics pupils from the top quarter, the weaker mathematics pupils from the bottom quarter and the middle group of average mathematics pupils were identified by their respective mathematics teachers. The interviews with pupils were conducted through focused group discussions in the school. The researchers did not know any of the interviewees at a personal level.

At the interviews, the pupils were asked the following questions: "Can you share with us what you like about XX's mathematics teaching?" and "Can you share with us how you find XX as a person?" Audio-recordings of the interviews were made and the respondents were given the assurance that the recordings were basically for assisting the researchers in accurate recall. It was also explicitly expressed that there were no "right" or "wrong" answers to the questions posed, and their frank opinions would be appreciated.

The focused group discussion approach had been adopted in order that the interviewees would be encouraged to be more forthcoming and spontaneous in their response. In the process, however, one drawback which became apparent was the domination of views expressed by the more vocal respondents in the group. There was conscious effort to encourage the participation of some of the pupils to share their views. Another methodological drawback in a study of this nature was that although 12 focused groups comprising a total of 60 pupils were involved, the findings might not be sufficiently comprehensive to be generalised.

However, this method was adopted as the purpose was to identify qualities of mathematics teachers based on pupil perspectives of action in practice, and not on any structured theoretical framework. The perspectives of pupils served as the directional vector, focusing on the positive qualities of teachers.

The interview transcripts were examined to determine the qualities which the pupils valued in their mathematics teachers. Similarities and differences in perspectives among the focused groups were recognised. There was quantification of the qualitative data with the use of frequency and percentage counts, and the corresponding rank position for teacher quality of the respective focused groups was tabled.

Results

Not pre-determined, but elicited from the actual expressions of the pupils, the following nine qualitative categories were employed:

Caring (Ca)	Understanding (Un)
Sense of Discipline (Di)	Fair (Fa)
Friendly (Fr)	Humorous (Hu)
Skilful (Sk)	Voice Projection (Vo)
Patience (Pa)	

Table 1 : Frequency/Percentage and Corresponding Rank Position (in brackets) for Teacher Quality Against Focused Group

		FOCUSED GROUP				
		H	M	L	Sum	Percent
	Ca	11 (1.5)	10 (2)	11 (2)	32 (1)	18.9 (1)
	Un	3 (7)	3 (8)	0 -	6 (8)	3.6 (8)
Q	Di	8 (4)	6 (6)	6 (4.5)	20 (5)	11.8 (5)
U	Fa	2 (8.5)	1 (9)	1 (7)	4 (9)	2.4 (9)
A						
L	Fr	6 (6)	11 (1)	6 (4.5)	23 (4)	13.6 (4)
I	Hu	11 (1.5)	8 (3.5)	9 (3)	28 (3)	16.6 (3)
T						
Y	Sk	10 (3)	8 (3.5)	12 (1)	30 (2)	17.8 (2)
	Vo	2 (8.5)	7 (5)	0 -	9 (7)	5.3 (7)
	Pa	7 (5)	5 (7)	5 (6)	17 (6)	10.1 (6)
	\	CaHuSk ~~~~	FrCaHuSk ~~~~	SkCaHu	CaSkHu	

Legend

H : High-achieving group
M : Medium-achieving group
L : Low-achieving group

~ : Similar Placing
\ : Qualities arranged in descending order

Quantifying the qualitative data reveals that the qualities which appeal to pupils, in descending order of frequency, are as follows: Caring, Skilful, Humorous, Friendly, Sense of Discipline, Patience, Voice Projection, Understanding and Fair (Table 1).

For each of the focused groups, the qualities of Caring, Skilful and Humorous emerged among the top three qualities. The high achievers considered Caring and Humorous of equal importance, followed by Skilful. The medium achievers had the opinion that being Friendly was the most important, followed by Caring as the second quality, whereas Skilful and Humorous were considered third in placing. For the low achievers, the quality of Caring was placed second only to Skilful, the third quality being Humorous. Overall, the top three teacher qualities are Caring, Skilful and Humorous.

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