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Role of Emotional Intelligence in Verbal Behaviour Patterns in the Classes of Primary School Teachers: a Comparative Study

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Abstract

The purpose of the study was to see role of Emotional Intelligence (EI) in verbal behaviour pattern of primary school teachers. Verbal behaviour pattern was measured by FIACs (Flanders Interaction Analysis Category System). Teachers were categorised in four groups– EHE (Extremely High EI), HE (High EI), ME (Moderate EI) and LE (Low EI) groups as per their level of EI. Various interaction ratios were computed as indices of verbal behaviour pattern. It was observed that teachers high on EI asked diversified questions in classroom teaching and ensure active participation of students as compared to teachers low on EI.

Key words: Emotional intelligence; Verbal behaviour pattern; teacher question ratio; teacher response ratio; per cent silence or confusion; per cent pupil talk; pupil initiation ratio.

1. Introduction

Emotional Intelligence (EI) implies that humans are both rational and emotional beings but they are predominently neither rational beings nor emotional beings. Hence, adaptation and coping abilities in life are dependent on the integrative functioning of both rational and emotional capacities (Salovey, Bedell, Detweiler and Mayer, 2000). Peter Salovey and John Mayer (1990) had defined EI as a mental ability that consists of "ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189). Goleman (1995) however has defined EI in a different way. His model of EI includes (a) knowing one's emotions, (b) managing emotions, (c) motivating oneself, (d) recognising emotions in

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others, (e) and handling relationship. Later Mayer and Salovey (1997) revised their theory a bit to emphasise the cognitive components and talked about a hierarchy of mental abilities. In contrast, Raven Bar-On (1997) defined EI as "an array of non-cognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures" (p.14).

Survey of literature related to Emotional Intelligence (EI), shows paucity of researches to study role of EI in teaching behaviour. A perusal of findings revealed EI as significant predictor of social quality relationship, interpersonal relationship, teaching self-efficacy, and communication effectiveness, which portray importance of EI for teaching behaviour.

Teaching occurs in the social context. As such teacher is required to be efficient in interpersonal relationship. Here, EI of teachers seems to be important. EI is defined as one's ability to manage and monitor one's own emotions; recognise different types of emotions in others; distinguish the difference between one's emotions and those of others, and use that information to guide one's thinking and actions (Pinos, Twigg and Olson, 2006).Then, teacher high on EI is capable to perceive and understand feelings and emotions of students and consequently can guide his/her actions in consistent with feelings and emotions of students. EI is observed as significant predictor of quality of social relationship (Brackett, Mayer and Warner, 2004; Eisenberg, Fobes, Guthrie and Rieser, 2000; Lopes, Salovey and Straus, 2002). EI of teacher is likely to affect his or her interpersonal relationship with students. The way teacher relates himself or herself to students; it decides the conduciveness of social-emotional climate of classroom (Flanders, 1970).

Singh (2003) in his study revealed that teaching profession requires high EI. He further added that the teaching profession entails emotional competencies such as empathy, rapport, harmony and comfort while dealing with groups. Hence, teaches with high EI seem to exhibit open and free expression of ideas which lead them to creativity and mutual respect. Empathy is critical skill for both getting along with students of diversified backgrounds. Empathy is an "antidote" that attunes people to subtleties in body language, or allows them to hear the emotional message beneath the words and has a deep understanding of the existence and importance of cultural and ethnic differences (Goleman, 2004).

Ergur (2009) discussing attributes of an emotionally intelligent teacher has written that responding to learners is a great opportunity for the teacher to reflect his/her emotional intelligence while replying to a comment or a question of a student. If it is handled skillfully, it will help the motivation of the students, affect the emotional

environment, clarify what is an acceptable answer, show the learners that they are valued by the teacher and their teacher is listening to them attentively. Responding could be achieved on two levels – cognitive and affective. Informing about a specific topic, clarifying the situation, expanding the subject by giving details can be defined as "cognitive responding" whereas through "affective responding" the teacher pertains to the feelings of the questioner or the commander. In other words, the teacher has the potential to make the students feel respected, valued, belittled, dismissed or humiliated through the use of his/her affective responding skills.

Researches which have been conducted to study role of EI in teaching self-efficacy and in communication effectiveness showed that teacher higher on EI will tend to have positive believes about his/her teaching capabilities (self-efficacy), due to awareness about his/her strength and weakness. Teaching self-efficacy is one of the most important variables consistently related to positive teaching and student learning outcome (Penrose, Perry and Ball, 2007). Significant association between emotional intelligence and teaching self-efficacy appears to underscore validity of theory of emotional intelligence and its application for teachers.

Communication is culmination of all EI abilities. EI is defined as the capacity to reason about emotions, and of emotions to enhance thinking. It includes the abilities to accurately perceive emotions, to access and generate emotions to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions to promote emotional and intellectual growth (Mayer and Salovey, 1997). The high EI individual, most centrally, can better perceive emotions, use them in thought, understand their meanings, and manage emotions better than others and tends to be more open and agreeable (Mayer, Salovey and Caruso, 2004).

Each emotion conveys a unique set of identifying signals:emotional information (Mayer, Salovey and Caruso, 2004). Emotion information processing is an evolved area of communication (Mayer, Salovey, Caruso and Sitarenios, 2001). Teacher high on EI seems to be high in advantageous position in carving out conducive-social-emotional classroom climate by having capacity to reason about emotions. Teachers with EI are likely to be aware of their own feelings and those of students and are able to communicate both positive and negative emotions and internal experience when appropriate and have an impact on students' mood. Thus, possessing EI is likely to permit teacher to have a closer understanding of students and their surroundings.

Against this backdrop, it is likely to be speculated that there will be variation in interaction patterns of

teachers. Interaction patterns of teachers of high EI are likely to be different from interactions pattern of teachers of low EI. Hence, this study was conducted with purpose to study role of EI in interaction patterns of primary school teachers.

2. Objectives of the Study

The study was undertaken with the following objectives:

2.1 To compare the classroom verbal behaviour of primary school teachers having different levels of EI.

2.2 To study the verbal behaviour pattern of teachers having different levels of EI.

3. Hypothesis

In conjunction with objectives of study, research hypothesis which was framed:

H1: Teachers having higher level of EI will score higher on TQR (Teacher Question Ratio), TQR 89 (Instantaneous Teacher Question Ratio), TRR (Teacher Response Ratio) TRR 89 (Instantaneous Teacher Response Ratio) and PSC (Percent Silence or Confusion) than teachers having lower level of EI.

4. Operational Definition of Terms Used

4.1 Verbal behaviour

Verbal behaviour as it is analysed by FIACs (Flanders Interaction Analysis Category System). FIACs analyses teaching phenomenon in terms of the 10 categories that are broadly subsumed under teacher talk, pupil talk and silence (Table 1). Interaction ratios which were computed for studying teaching behaviour were:

4.1.1 Teacher Question Ratio (TQR)

This ratio, as the nomenclature indicates, points to the tendency of the teacher, to ask questions during the more content oriented part of the class discussion. It is computed by formula:

$$TQR\ (Teacher\ Question\ Ratio) = \frac{(Category\ 4) \times 100}{(Categories\ 4{+}5)}$$

4.1.2 Instantaneous Teacher Question Ratio (TQR 89)

It indicates the tendency of the teacher to respond to student talk with questions based on his/her own ideas instead of lecture. Formula for computing this interaction ratio is:

$$TQR\ 89 = \frac{Cells\ \{(8{-}4){+}(9{-}4)\}}{Cells\ \{(8{-}4){+}(8{-}5){+}(9{-}4){+}(9{-}5)\}} \times 100$$

4.1.3 Teacher Response Ratio (TRR)

It indicates the teacher's tendency to react to the ideas and feelings of the students. The ratio provides an index of the emotional climate in the classroom. Formula for computing this interaction ratio is:

$$TRR\ (Teacher\ Response\ Ratio) = \frac{(Categories\ 1{+}2{+}3) \times 100}{(Categories\ 8{+}9)}$$

4.1.4 Instantaneous Teacher Response Ratio (TRR 89)

It indicates the tendency of the teacher to praise or integrate pupil ideas and feelings into class discussion at the moment the pupils stop talking. This interaction ratio is computed by formula:

$$TRR\ 89 = \frac{Cells\ \{(8–1)+(8–2)+(8–3)+(9–1)+(9–2)+(9–3)\}}{Cells\ \left\{\begin{matrix}(8–1)+(8–2)+(8–3)+(8–6)+(8–7)+(9–1)+(9–2)\\(9–3)+(9–6)+(9–7)\end{matrix}\right\}} \times 100$$

4.1.5 Per cent Pupil Talk (PPT)

It refers to the ratio of verbal activities of the pupils in response to teacher. Formula for computing this interaction ratio is:

$$PPT\ (Per\ cent\ Pupil\ Talk) = \frac{(Categories\ 8+9)\times 100}{Total\ of\ all\ categories}$$

4.1.6 Per cent Silence or Confusion (PSC)

This interaction ratio can be computed by using formula:

$$PSC\ (Percent\ Silence\ or\ Confusion) = \frac{(Category\ 10) \times 100}{Total\ of\ all\ categories}$$

4.2 Emotional intelligence

Emotional intelligence is the ability of an individual to appropriately and successfully respond to a vast variety of stimuli being elicited from the inner self and immediate environment. Emotional intelligence constitutes three psychological dimensions– emotional competency, emotional maturity and emotional sensitivity– which motivate an individual to recognise truthfully interprets honestly and handles tactfully the dynamics of human behaviour.

Each dimension contains four skills which are as follows:

(A) Emotional Competency

(a) Tackling emotional upsets

(b) High self-esteem

(c) Tactful response to emotional stimuli

(d) Handling egoism

Table 1 : Flanders Analysis Category System.

(a)	Teacher Talk	
	Indirect Influence	1. Accepts feelings
		2. Praises or encourages
		3. Accepts or uses pupil ideas
		4. Asks questions
	Direct Influence	5. Lecturing
		6. Giving Directions
		7. Criticising or justifying authority
(b)	Pupil Talk	
	Response	8. Pupil talk response
	Initiation	9. Pupil talk initiation
(c)	Silence/Confusion	10. Silence or confusion

(B) Emotional Maturity

(a) Self-awareness

(b) Developing others

(c) Delaying gratification

(d) Adaptability and flexibility

(C) Emotional Sensitivity

(a) Understanding threshold of emotional arousal

(b) Empathy

(c) Improving interpersonal relation

(d) Communicability of emotions

5. Methodology

Descriptive research method was used in this study.

6. Population and Sampling Technique

All the primary school teachers of Government, Government aided and private schools constituted the population of the study, 'Multi-stage random sampling technique' was employed for selection of sample. 91 primary school teachers were randomly drawn for this study.

7. Tools used

7.1 Flanders Interaction Analysis Category System (FIACS)

Flanders Interaction Analysis Category System (FIACs) (1970) was used to observe the classes. For ensuring reliability of data on FIACs inter-observer and intra-observer reliability were established by using Scott's coefficient. Inter-observer reliability was obtained to be 0.78 and intra-observer reliability was found to be 0.86. As pointed out by Ober and others an r of 0.60 is frequently established as an acceptable level (Pandey, 1981).

7.2 The EQ Test

The EQ Test (developed by Professor N. K. Chadha and Dr Dalip Singh) was adapted in Hindi by the investigator for the measurement of EI of primary school teachers. Reliability of the tool has been established by 'test-retest method' and 'internal consistency method'. Stability coefficient was found to be 0.89. Cronbach-alpha coefficient (α) was computed for each dimension of EI-emotional sensitivity, emotional maturity and emotional competency, which were obtained to be 0.76, 0.69 and 0.74, respectively.

Content validity was established with expert judgements and for ensuring empirical validity of the tool, it was correlated with 'Bhattacharya Instrument of EI' (BEIS-In).The validity was found to be 0.58, which indicates that the present test is valid.

8. Data Collection and Analyses

Procedure of data collection and categorisation of teachers in different groups as per their level of EI:

8.1 Phase 1

8.1.1 Observer Training

Prior to observation of each sampled teacher by FIACs, the investigator received comprehensive training in observing teachers in classroom situations. The categories (FIACs) were memorised thoroughly. By the end of the training period the inter-observer reliability, using Scott's coefficient correlation was consistently near about 0.78.

8.1.2 Procedure of observation and data collection

Each teacher was observed once, for 35 minutes by using FIACs.

8.2 Phase 2: Categorisation of teachers in different groups

On the basis of scores on 'EI Test', teachers were classified into four groups; as per established norms of the test,

- Teachers who scored 285 or above were grouped as EHE (teachers having extremely high EI);
- Teachers who scored in the range of '250-284' were grouped as 'HE' (teachers having high EI);
- Teachers who scored in the range of '200-249' were grouped as 'ME' (teachers having moderate EI);
- Teachers who scored in the range of '150-199' were grouped as 'LE' (teachers having low EI).

Out of 91 primary school teachers, 14 teachers were identified as having extremely high emotional intelligence (EHE), 16 teachers were identified as having high emotional intelligence (HE), 32 teachers were identified as having moderate emotional intelligence (ME) and 19 teachers were identified as having low emotional intelligence (LE). Group-wise distribution of teachers is given in Table 2.

Table 2: Groups of teachers

Serial No.	*Groups*	*No. of teachers*	*Range of scores*
1.	EHE	14	285 or above
2.	HE	16	250-284
3.	ME	32	200-249
4.	LE	19	150-199

8.3 Phase 3: Treatment with data obtained by observation of each teacher by FIACs tabulating interaction analysis matrices

After observing each sampled teachers, 10×10 matrices were complied. After classifying teachers in four groups according to their level of EI, master matrix was compiled for each group of teachers. Four master 10×10 matrices were compiled. Later on, the cell frequencies of these four master 10×10 matrices were converted into percentages to get the percentage matrices.

9. Results and Discussion

For studying classroom verbal behaviour of primary school teachers *vis-à-vis* their level of EI, performance of teachers grouped on the basis of

their level of EI is given in this section. For meaningfulness of interaction ratios, performance of each group of teachers is compared with established norms on these interaction ratios for Indian classroom context and American classroom context.

9.1 Interaction Ratio: TQR (Teacher Question Ratio) and TQR 89 (Instantaneous Teacher Question Ratio)

From perusal of Figure 1, it appeared that teachers of EHE group got highest value on TQR and LE group teachers got lowest remaining groups tended to lie in between these two groups. Regarding percentage values on TQR (Teacher Question Ratio) scenario which emerged depicts following ranking of groups: EHE group > HE group > ME group > LE group. When percentage value on TQR of each group is compared with norm (16.32) set for Indian classroom setting, EHE and HE groups succeeded to cross this norm and for remaining groups their percentage values are observed to fall short of this norm. While comparing each percentage value on TQR with norm (26) set for American classroom setting, scenario which emerged showed that no group of teachers succeeded to exceed this norm.

When each group of teachers was compared to one another pertaining to percentage value on TQR 89 (Instantaneous Teacher Question Ratio), emerged results, figured out same rankings of group of teachers:

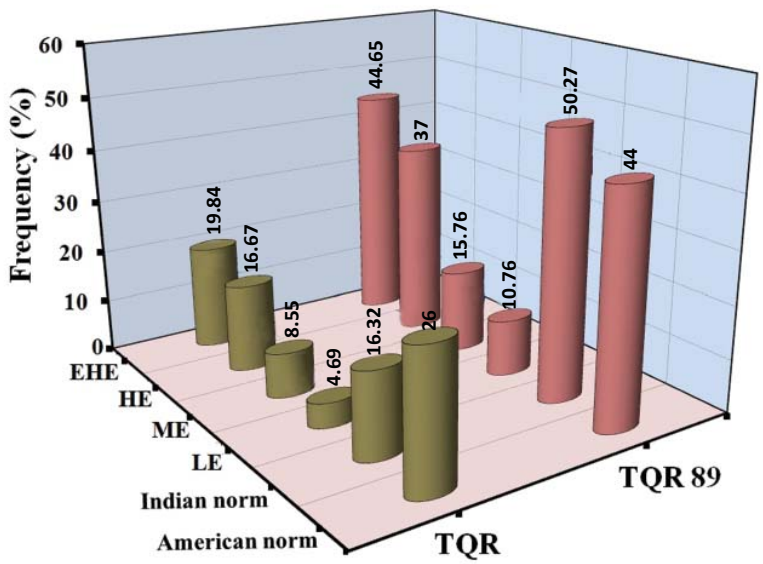

Figure 1: Performance of teachers on TQR and TQR 89 interaction ratios

EHE group > HE group > ME group> LE group. It means performance of all groups of teachers on TQR replicated itself on TQR 89. For meaningfulness of each percentage value on TQR 89, it was compared with established norm in Indian setting and American classroom setting, results which were obtained, revealed that percentage value of teachers of EHE group surpassed norm (44) set for American classroom setting. Remaining percentage values of teachers of HE, ME and LE groups fell short of this norm. Percentage value of HE group on TQR 89 appeared to fall short of either Indian norm or American norm. However, they managed to create huge difference in leaving teachers of ME and LE groups behind pertaining to performance on TQR 89.

When all obtained values on TQR and TQR 89, teachers of EHE, HE, ME and LE groups were deliberated in conjunction with their levels of EI, emerging picture denotes if teachers are higher in their level of EI, their observed percentage values on these interaction ratios tended to be higher in magnitude than teachers whose level of EI is observed to be comparatively lower. So, it appears that there exists association between TQR, TQR 89 and level of emotional intelligence of teachers.

Kernel based on the foregoing discussion is that EI appears to be paramount in "Asking Questions". Emotionally intelligent teachers appeared to cut edge over their counterparts pertaining to asking questions. It means higher performance on these two interaction ratios is likely to be preceded by higher level of EI. Here, it is likely to be said that higher EI seems one coherent antecedent pertaining to higher performance on

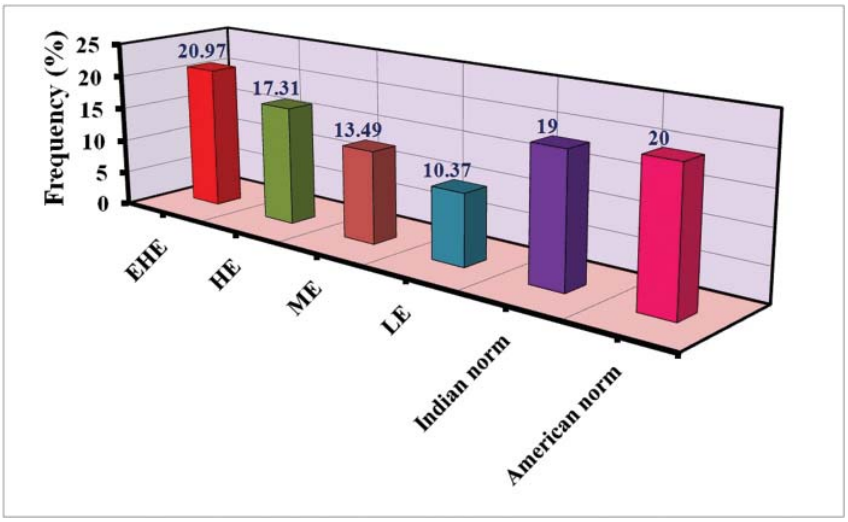

Figure 2 : Performance of teachers on PPT interaction ratio

these two norms. There is a much professional consensus that teacher questions have a major impact on the quality and quantity of student achievement. Indeed, in an earlier review of the research on teacher questions, Gall (1970) labeled this belief a truism (as cited in Winne, 1979). Asking questions implies that teacher intends to ensure active participation of students, over and above, asking questions following students' response or ideas shows teacher's concern about the expanding thinking horizon of the students.

From Figure 2, it is revealed that percentage values on PPT (Per cent Pupil Talk) for teachers of EHE, HE, ME and LE groups are obtained to be 20.97, 17.31, 13.49, and 10.37, respectively.

Percentage values on PIR (Pupil Initiation Ratio) are obtained to be 20.26, 15.15, 5.95 and 6.54, respectively (Figure 3). For drawing meaningful inference, it needs to see performance on these interaction ratios in conjunction with performance of these groups of teachers on TQR and TQR 89. One having logical mind will see that teachers higher in their relative performance on TQR and TQR 89 tended to secure higher magnitude on PPT and PIR. It implies that TQR and TQR 89 contribute in active participation of students which is confirmed by higher magnitude of PIR and PPT.

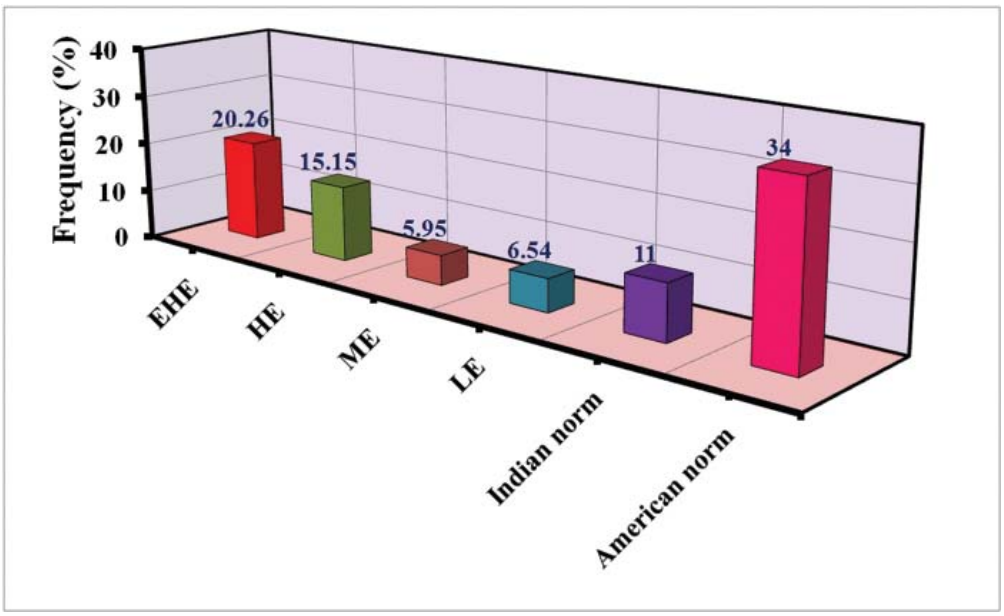

Figure 3 : Display of performance of teachers on interaction variable 'PIR' having different levels of emotional intelligence

Higher values on PPT and PIR are likely to occur when higher percentage of teacher-pupil talk fall in category 8 (Pupil responding following closed-ended questions or narrow questions) and 9 (Pupil initiation following open-ended questions or divergent or thought-provoking questions) of FIACs. Questions can be classified in four categories according to cognitive level as per model of Newcomb-Trefz (1987), which are — remembering (knowledge level of Bloom's Taxonomy of cognitive domain), processing (comprehension, application and analysis levels of Bloom's Taxonomy of cognitive domain), creating (synthesis level of Bloom's Taxonomy of cognitive domain) and evaluating (evaluation level of Bloom's Taxonomy of cognitive domain) (Ewing and Whittington, 2007). Lower cognitive level questions require students to recall information learned in the past, whereas higher cognitive level questions require students to process and potentially evaluate the subject matter. Higher PIR in the classes of teachers of EHE and HE groups is likely to be due to thought-provoking questions or higher cognitive level questions. When teacher asks higher cognitive level questions, as such, students need to be required to think critically about the subject by creating their own responses and evaluating criteria pertinent to the questions being asked by teachers. The use of various levels of questions is recommended during class sessions for greater development of cognitive skills.

Teachers who use multiple types of questions during class sessions are allowing students to become engaged in the content. Blosser (2000) contends that, a higher potential for engagement occurs if the teacher is sensitive and is aware of and understands the types of questions being asked during class sessions. Teacher's attempt to bolster and strengthen the students' abilities by asking questions of different cognitive levels, is result of sensitivity of teachers towards their students. Emotional sensitivity is one dimension of EI (Singh, 2003). An emotionally intelligent teacher senses the right juncture in the process of teaching, when to ask questions of lower cognitive levels and when to ask questions of higher cognitive levels (Sengupta and Bhattacharya, 2007). Hence, emotionally intelligent teachers who are sensitive towards their current use of question types and cognitive levels of questions, have greater potential making changes that enhance student learning during class sessions (Ewing and Whittington, 2007).

9.2 Interaction Ratio: TRR (Teacher Response Ratio) and TRR 89 (Instantaneous Teacher Response Ratio)

TRR indicates the teacher's tendency to react to the ideas and feeling of the students. This ratio is an index of the emotional climate in the classroom (Mangal, 2011) and TRR 89 is an index of teachers' tendency to praise

or integrate pupil ideas and feeling into the class discussion when pupil stops talking (Mangal, 2011).

Figure 4 displays percentage values pertaining to TRR and TRR 89 of teachers of EHE, HE, ME and LE groups. Sequence of groups of teachers which emerged on the basis of their performance on TRR interaction ratio is like EHE > HE > ME > LE groups. Highest value on this interaction ratio is secured by EHE group and lowest value on this interaction ratio is secured by LE group, percentage values secured by HE and LE groups fall in between these two extremes. Percentage value on TRR of EHE group is observed to exceed norm (42) set for American classroom set by Flanders, but, could not succeed to cross norm (55.42) set for Indian classroom. Others TRR values of HE, ME and LE groups could not cross both norms either norm (42) set for American classroom or norm (55.42) set for Indian classroom.TRR of HE group is found to be slightly below than American norm and it is considerably higher than TRRs of ME group and LE group.

TRR is the proportion of positive and affective categories 1 (accepting and clarifying the feeling tone of students in non-threatening

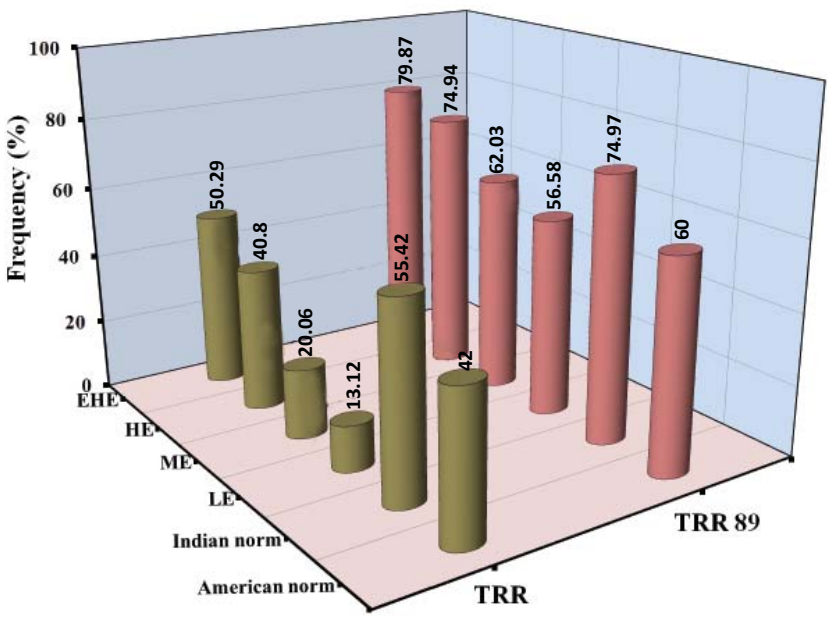

Figure 4 : Performance of teachers on TRR and TRR 89 interaction ratios

manner), 2 (encouraging and appreciating viewpoints of students) and 3 (integrating pupil express in explanation) of FIACs to total of categories 1, 2, 3 including 6 (giving direction) and 7 (criticising behaviour and viewpoints of students and justifying authority) which are restrictive categories (Flanders, 1970).

Category 1 of FIACs implies abilities of the teacher to be sensitive toward the feeling of the students and consequently to communicate showing due importance of students' feeling (the whole process entailing being sensitive and communicating his/her sensitivity is called empathy) (Bhattacharya and Sengupta, 2007), the more occurrence of this category might be attributed to the 'empathy' sub-component of the social skill cluster of the emotional intelligence, because foregoing abilities are identified to be embedded in this subcomponent (Bhattacharya and Sengupta, 2007). Category 2 refers the ability of the teacher to appreciate the feeling, viewpoints and ideas of the students. Appreciating the feeling, perspective and viewpoints of the students require on the part of the teacher 'ability to empathise', which is grounded in the emotional intelligence of the teacher (Bhattacharya and Sengupta, 2007). Category 3 of the FIACs refers developing or building on the ideas expressed by the students, for these foregoing activities; teacher is required to be a good listener, to increase empathy and sensitivity to others' feelings and to understand others' perspectives, points of view and feelings. These foregoing abilities are identified to be deep-rooted in the EI of the teacher (Bhattacharya and Sengupta, 2007).

If the TRR (Teacher response ratio) tends to be low for any teacher, it will be due to increasing frequencies of categories 6 and 7 inter alia decreasing frequencies of categories 1, 2 and 3. Categories 6 and 7 refer exercising extreme self-reference or own authorities, discouraging students or neglecting feeling of students. Utilities of these two categories lie in the modifications of students' behaviour from acceptable to non-acceptable, but extreme uses switch over to poison emotional climate of the classroom (Pandey, 1997).Occurrence of higher frequencies of these categories, conversely, confirmed the lack of emotional intelligence abilities on part of the teacher.

Figure 4 depicted that highest percentage value on TRR 89 (Instantaneous Teacher Question Ratio) was secured by teachers of EHE group. Whereas, lowest percentage value on TRR 89 was secured by teachers of LE group. TRR 89 of teachers of HE group and ME group fall in between these two extremes. TRR 89 of EHE group tended to be greater than both norms either Indian norm (74.97) or American Norm (60). TRR 89 of HE group crossed American norm, but, could not succeed to cross Indian norm. Due to less magnitude, TRR 89 of ME group and LE group could not cross both norms either

Indian norm (74.97) or American Norm (60). Here, it appears that size of TRR 89 is tended to be synchronised with level of EI of teachers. If teacher tended to be higher in his level of EI, his percentage value on TRR 89 tended to be higher, it implies that there exist association between level of EI and magnitude of TRR 89.

TRR 89 is "the tendency of the teacher to praise or integrate pupil ideas and feeling into the class discussion, at the moment the pupils stop talking" (Flanders, 1970). The high ratio of TRR 89 is due to considerable use of praise statement (obvious from cells 8-2 and 9-2) and low critical statements (obvious from cells 8-6, 9-6, 8-7 and 9-7). As per Table 3, it appears that in the classes of teachers of EHE and HE groups, 3.05 and 2.45 percentage values of frequencies respectively occur in cell "8-2" (praising following pupil responding), 1.89 and 0.58 percentage values of frequencies respectively occur in cell "8-3" (integrating pupil express in explanation). Higher percentage frequencies in these cells tended to increase TRR 89 in the classes of these teachers, moreover, negligible percentage frequencies in cell "8-6" (giving direction following pupil responding) and "8-7" (criticising pupil responding) also contributed in higher TRR 89 in classes of these teachers. From Table 4, it appeared that percentage values of frequencies occur in cell "9-2" (praising pupil initiation) and "9-3" (integrating pupil express in explanation) are not higher in magnitude in the classes of teachers of EHE and HE groups but these values are greater than values of ME and LE groups, which tended to contribute in higher magnitude of TRR 89 for teachers of EHE and HE groups. Negligible percentage of frequencies occur in cell "9-6" (giving direction following pupil initiation) and "9-7" (criticising pupil initiation) in the classes of EHE and HE groups also contributed in higher TRR 89 in classes of these teachers. Lower TRR 89 in classes of teachers of ME and LE groups might be due to low percentage of frequencies in cells "8-2", "8-3", "9-2" and "9-3" as compared to teachers of EHE and HE groups.

On the basis of foregoing discussion, it is likely to be deduced that teachers of EHE and HE groups possess abilities to encourage students

Table 3 : Percentage of frequencies in cells related to category 8 of FIACs in the classes of Teachers of EHE, HE, ME, and LE groups

Cells in Category 8 of FIACs	*8-1*	*8-2*	*8-3*	*8-4*	*8-5*	*8-6*	*8-7*
EHE	0	3.05	1.89	1.84	3.21	0.57	0.71
HE	0	2.45	0.58	1.33	1.52	0.38	0.64
ME	0	1.47	0.42	1.11	4.86	0.78	0.35
LE	0	0.57	0.07	0.46	3.69	0.2	0.31

(category 2 of FIACs), to appreciate their view-points (category 3 of FIACs), to be sensitive towards students' feeling tone and attitude (category 1 of FIACs). Sensitivity towards feeling tone of students requires abilities on the part of teachers to perceive emotions of students, to use emotions to guide their actions and to manage emotions reflectively (Mayer and Salovey, 1997).

Only sensitive teacher takes interest in students and consequently encourage their students, appreciates pupil express and integrates pupil express in his/her explanation. Communication of this sensitivity is called empathy. Empathy competence comes under social competency of emotional intelligence (Sengupta and Bhattacharya, 2007). Hence, TRR and TRR 89 of teachers are likely to be affected by level of EI of teachers.

(40.92) and for EHE group, it is found to be lowest (10.88). If these values are compared to the norm value set for Indian classroom (13) and American classroom (11), one can say that except for EHE group all the groups crossed the Indian and American norm. Here, productivity or non-productivity of PSC can be analysed with the help of TQR (Teacher Question Ratio) and TQR 89 (Instantaneous Teacher Question Ratio).

From Table 5, it appears that magnitude of TQR and TQR 89 is higher in classes of teachers of EHE group, but, magnitude of PSC in their classroom is obtained to be lowest (10.88) among all groups of teachers. On contrary to it, magnitude of TQR and TQR 89 are found to be lowest in classes of teachers having

Table 4 : Percentage of frequencies in cells related to category 9 of FIACs in the classes of Teachers of EHE, HE, ME, and LE groups

Cells in Category 9 of FIACs	*9-1*	*9-2*	*9-3*	*9-4*	*9-5*	*9-6*	*9-7*
EHE	0	0.28	0.09	0.06	0.39	0.03	0.03
HE	0	0.23	0.09	0.03	0.17	0.03	0.06
ME	0	0.04	0.07	0.04	0.31	0	0.03
LE	0	0.02	0.01	0.02	0.29	0	0.01

9.3 Interaction Ratio: PSC (Per cent Silence or Confusion)

Figure 5 depicts that teachers belonging to LE group excel their counterparts in performance on this interaction ratio. The value of PSC for LE group is found to be highest

low emotional intelligence (LE), but, magnitude of PSC is higher most of all groups of teachers. Here, one question arises, "What does it denotes if TQR, TQR 89 and PSC of any group of teachers are deliberated as a whole, not in fragmented manner?"

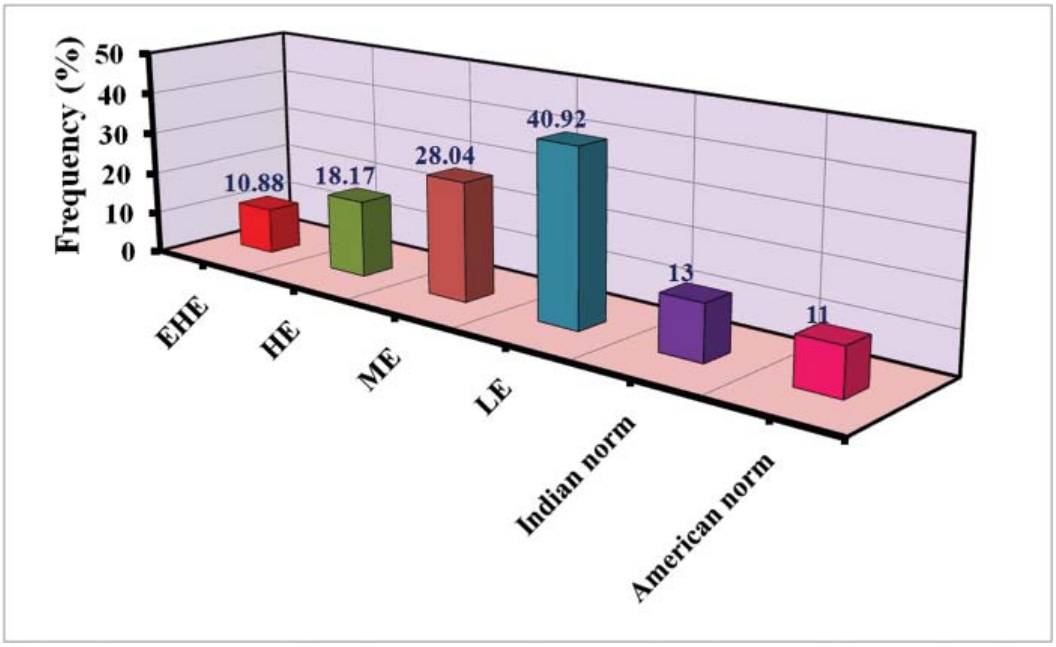

Figure 5 : Performance of teachers on PSC interaction ratios

Table 5 : TQR (Teacher Question Ratio) and TQR 89 (Instantaneous Teacher Question Ratio) of teachers of EHE, HE, ME and LE groups

Interaction Ratio	*EHE*	*HE*	*ME*	*LE*
TQR	19.84	16.67	8.55	4.69
TQR 89	44.65	37	15.76	10.76

Least magnitude of TQR and TQR 89 and highest magnitude of PSC in classroom of LE group do not seem to be plausible. Here, it appears that highest magnitude of PSC is due to lack of command over classroom activities by teachers and pervasive mismanagement in classroom. Hence, highest PSC in classes of teachers of LE group is an indicative of unproductive use of time duration meant for teaching, which seems to be a matter of concern. In classes of teachers of EHE, HE and ME groups there seems association between magnitude of TQR and TQR 89 on one side and magnitude of PSC on other side. Magnitude of PSC in their classes seems consistent with magnitude of TQR and TQR 89. Silence in classes of teachers of EHE, HE and ME groups is likely to due to quality of questions asked. TQR indicates attempt of teacher to ask questions related to

subject matter being taught to deepen understanding of students and TQR 89 denotes attempt of teachers to ask questions following pupil responding and pupil initiation so that their thinking can be broadened properly. Hence, silence in classes of teachers of EHE, HE and ME groups seems to be due to low cognitive level and higher cognitive level questions being asked by teachers.

10. Conclusion

On the basis of performance of teachers on interaction ratios TQR, TQR 89, TRR, TRR 89, PPT and PSC, it is likely to be deduced that performance of teachers on these interaction ratios are in consistent with level of EI. Teachers of EHE and HE groups asked diversified questions. Here, diversified questions refer right balance of thought provoking or critical questions and narrow questions. For intellectual development of primary school students, it is essential that teachers should ask diversifies questions. If the questions asked are unto the task, creative, thought-provoking, critical and contextually correct, they assist the process of knowledge construction. It is desirable to have more number of higher order questions trying to probe the deep understanding. EHE and HE groups teachers allow students to actively participate in their learning versus the traditional idea of passively receiving information. Instead of giving lectures and expecting students to regurgitate what has been lectured, teachers show students how to listen to others and question ideas when they are unknown. Classroom discourse is socially meaningful activity because it creates a situation in which all students are encouraged to participate. Students' participation during classroom discourse allows students to practice problem-solving and decision-making skills. At the same time it helps to build the students' self-confidence to voice their own view and be able to justify their ideas to the class.

Teachers of EHE and HE groups accept and use of students' ideas or opinions, ask diversified pattern of questions (blend of narrow and thought-provoking questions), encourage active participation of students, appreciate students' responding and initiation, deal feelings and emotions in friendly manner and promote flexibility of teachers influence in the classroom interaction pattern than their counterparts of teachers of ME and LE groups.

Constructivist compatible elements are observed to be embedded in verbal behaviour patterns of teachers of EHE and HE groups. Like constructivist teachers, these teachers ensure active participation of students and ask diversified questions (low cognitive level questions and higher cognitive level questions or open ended-question or thought-provoking questions). Asking diversified questions disturb stage of equilibration (balance between assimilation and accommodation), which is likely to result into intellectual

development of child through modification of existing cognitive structure or creation of new cognitive structure.

Initiations of students are found to be higher in classes of teachers of EHE and HE groups than that of their counterparts of teachers of ME and LE groups. Students' initiation refers social constructivism embedded in teaching styles of teachers of EHE and HE groups. Due to this, teachers promote active participation of students in learning. Asking questions based on students' answers refers attempt of teachers of EHE and HE groups to broaden students' thinking. This attempt of teachers implies scaffolding (under concept of zone of proximal development). When teachers of EHE and HE groups try to ask higher cognitive level questions, this refers to their role of cognitive apprenticeship in classroom teaching, through which these teachers try their best to cultivate critical thinking in students' related to the subject-matter being taught.

In various studies, these teaching patterns are found to be positively related to pupil achievement in different content areas, as well as to a number of other variables like attitude, independence and self-direction, verbal recall, creativity, manipulative skills, etc.

11. Educational Implications of the study

The conclusions based on the findings of the present study lead to some educational implications for teacher educators and for curriculum developers of teacher training programme. They are:

- Social skills of classroom interaction as per FIACs (1970) are found to be very frequent in the classes of emotionally intelligent teachers; these skills are ingredients for stimulation of intellectual development of students. So, training of EI of teachers is likely to facilitate reflection of these skills in classroom interaction.
- Findings of the study stamp validity and importance of theory of emotional intelligence for teachers, EI is likely to enrich armory of skills and facilitate social cognition required to be better in socio-cultural matrix of classroom interaction.

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