CHAPTER SIX

MAJOR FINDINGS, CONCLUSIONS AND SUGGESTIONS

6.1 Introduction

In this section, the investigator attempted to provide the major findings of the study. Further, the scope of this section has been expanded to include conclusions, and suggestions for future research based on the study's most promising avenues of inquiry.

6.2 Major Findings

6.2.1 Gender imbalance in students' perceptions of teacher engagement in support of girls

The results of t-tests showed that girls reported better scores of three perceived teacher engagement dimensions (viz. perceived cognitive-physical, perceived socio-emotional and perceived pedagogical engagement) than boys. Hence, girls perceived that the teachers were significantly more engaged in teaching in all the engagement dimensions (viz. PCPE, PSEE, and PPE) as compared to boys. Besides, the Hedges' g coefficient values for the gender gaps in PCPE, PSEE, and PPE were .171, .139, and .231, respectively. Thus, based on Hedges' guidelines, the influence of the gender differences across all perceived teacher engagement dimensions was practically small.

6.2.2 Gender difference in student engagement in favoring girls

The results of t-tests implied that girls score better of three student engagement dimensions (viz. Cognitive, behavioral and emotional engagement) than boys. Hence, girls were found to be more engaged cognitively, behaviorally, and emotionally than boys. Further, the values of Hedges' g coefficient were .189 for CE, .200 for BE, and .218 for EE. Thus, based on Hedges' guidelines, the influence of the gender differences across all student engagement dimensions was practically small.

6.2.3 Gender inequality in academic achievement of the students favoring girls

The results of t-tests showed that female students scored better in terms of their academic achievement than boys. Hence, the results indicated that girls were found to be academically more successful than boys in terms of achievement. Further, the value of

Hedges' g coefficient for the difference was .186. Thus, the influence of the gender difference in academic achievement was practically small based on Hedges' guidelines.

6.2.4 Perceptions of teacher engagement as an explaining mechanism of gender difference in student engagement

All three sub-dimensions of perceived teacher engagement (except PPE) demonstrated significant mediation effects on the link between gender and the three student engagement dimensions. The indirect effects exerted by the teacher engagement dimensions (except PPE) significantly influenced the three student engagement dimensions (CE, BE, and EE). Thus, except PPE, the other two teacher engagement dimensions namely, PCPE and PSEE were found to be significant mediators on the association between students' gender and three student engagement dimensions. Yet the direct effects of students' gender on the three student engagement dimensions were still significant indicating these as the cases of partial mediations. Further, the indirect effect operated through PCPE was lesser than that through PSEE. Thus, PSEE was found to be a better mediator on the relationship between gender and the three student engagement dimensions as well as a better predictor of the three student engagement dimensions. However, the indirect effects exerted by the PPE did not significantly influence the three student engagement dimensions. Thus, PPE was not found to be a significant mediator on the relationship between gender and the three student engagement dimensions.

Finally, it can be said that gender gap in PPE is not a significant cause in explaining the gender gap in the three student engagement dimensions. However, it can be further said that gender gap in PCPE and in PSEE is a significant cause in explaining the gender gap in students' behavioral engagement. These findings provide evidences that the students who perceive teachers' socio-emotional and cognitive-physical engagement more are likely to be more engaged cognitively, behaviorally, and emotionally in learning.

6.2.5 The differential effect of students' perceptions of teacher engagement on boys' and girls' engagement

All three sub-dimensions of perceived teacher engagement [except perceived socio-emotional engagement (PSEE)] did not significantly mediated the association between students' gender and three student engagement dimensions. The effect of interaction

between PSEE and students' gender on the three student engagement dimensions was found to be statistically significant. Thus, students' gender was found to be a significant moderator on the relationship between PSEE and the three student engagement dimensions. As a result, presence of differential effects of PSEE on the three student engagement dimensions of boys and girls were confirmed. It can be said that PSEE influenced the three student engagement dimensions differently for boys and girls. Indeed, PSEE was found to be highly related to males' cognitive engagement than that of females' as the relationship between PSEE and CE was stronger for boys than for girls. Thus, PSEE was more important for boys in promoting their cognitive engagement as opposed to girls. Finally, it can be said that PSEE served as a protective factor for boys' cognitive, behavioral and emotional engagement.

However, the effect of interaction between other two teacher engagement dimensions (viz. PCPE and PPE) and students' gender on the three student engagement dimensions was found to be statistically not significant. These results do not permit to identify gender as a significant moderator for the relationships between two teacher engagement dimensions (viz. PCPE and PPE) and students' gender on the three student engagement dimensions (viz. cognitive, behavioral and emotional engagement). As a result, presence of differential effects of PCPE and of PPE on the three student engagement dimensions of boys and girls were not confirmed. It can be said that PCPE and PPE did not influence the three student engagement dimensions differently for boys and girls. It can be said that PCPE and PPE influenced the three student engagement dimensions to the same extent for the students regardless of their gender. Further, PCPE and PPE were found to be equally related to boys' and girls' the three student engagement dimensions. Thus, PCPE and PPE were equally beneficial for promoting the three student engagement dimensions of both boys as well as girls.

These findings provide conclusive evidences that the gender gap in PCPE and in PPE did not significantly contributed in explaining the gender gap in the three student engagement dimensions. Further, it was found that only the gender gap in PSEE significantly contributed in explaining the gender gap in the three student engagement dimensions. Therefore, it can be said that girls perceived significantly more socio-emotional

engagement of teachers in teaching and thus, become more engaged cognitively, behaviorally, and emotionally in learning than boys.

6.2.6 The role of student engagement in explaining the gender difference in academic achievement

All three student engagement components (except BE) significantly mediated the association between students' gender and their achievement. The indirect effects exerted by the student engagement dimensions (except BE) significantly influenced students' academic achievement. Thus, except BE, the other two student engagement dimensions namely, CE and EE were found to be significant mediators on the association between gender and academic achievement. Yet the direct effect of students' gender on their academic achievement was lessened but was significant in the presence of the mediators indicating this as a case of partial mediation. Further, the indirect effect operated through CE was lesser than that through EE. Thus, EE was found to be a better mediator on the relationship between gender and academic achievement as well as a better predictor of academic achievement. Finally, it can be said that gender gap in CE and in EE is the significant causes in explaining the gender gap in students' academic achievement.

However, the indirect effects exerted by BE on students' academic achievement was not found to be statistically significant. Thus, BE was not found to be significant mediator on the association between gender and academic achievement. Finally, it can be said that gender gap in BE is not the significant cause in explaining the gender difference in students' academic achievement.

These results provide evidence that the gender difference in academic achievement is significantly explained by the gender difference in student engagement dimensions (except BE). The gender imbalance in emotional engagement as well as in cognitive engagement played key roles in explaining why boys' academic achievement is significantly lesser than that of the girls'. Further, it can be said that boys are significantly less engaged cognitively and emotionally in learning which in turn resulted in their significantly lower academic achievement than that of the girls.

6.2.7 The moderation effect of gender on the association between student engagement and academic achievement

The effect of interaction between student engagement dimensions (except EE) and students' gender on academic achievement was found to be statistically not significant. On the basis of the results, students' gender was not considered as a significant moderator for the relationship among student engagement dimensions (except EE) and academic achievement. As a result, presence of differential effects of CE and BE on academic achievement of boys and girls were not confirmed. It can be said that CE and BE did not influence academic achievement differently for boys and girls. Further, CE and BE were found to be equally related to males' and females' academic achievement. Thus, CE and BE were equally beneficial for promoting academic achievement of both boys as well as girls.

However, the interaction effect between EE and gender on academic achievement was found to be statistically significant. Thus, students' gender was found to be a significant moderator on the relationship between EE and academic achievement. As a result, presence of differential effects of EE on academic achievement of boys and girls were confirmed. It can be said that EE influenced academic achievement differently for boys and girls. Indeed, EE was found to be more related to boys' academic achievement than that of girls as the relationship between EE and academic achievement was stronger for boys than for girls. Thus, EE was more important for boys in promoting their academic achievement as opposed to girls.

These findings provide conclusive evidences that the gender difference only in emotional engagement significantly contributed in explaining the gender difference in academic achievement. Girls who were more emotionally engaged in their learning than boys were found to be academically more successful than the boys. Finally, it can be said that EE served as a protective factor for boys' academic achievement.

6.2.8 The mediation effect of student engagement on the link between perceptions of teacher engagement and students' achievement

All the three sub-scales of student engagement (viz. CE, BE, and EE) significantly mediated the relationship between perceived teacher engagement (all three dimensions,

viz. PCPE, PSEE, and PPE) and academic achievement. The indirect effects exerted by three student engagement dimensions (viz. CE, BE, and EE) significantly influenced students' academic achievement. Thus, the three student engagement dimensions were found to be significant mediators on the relationship between three teacher engagement dimensions (viz. PCPE, PSEE, and PPE) and academic achievement. Yet the effect of three teacher engagement dimensions on academic achievement became less but was significant indicating these as the cases of partial mediations. Further, the indirect effect that operated through BE was lesser than that through CE, and further lesser than through EE for all three teacher engagement dimensions. Thus, EE was found to be a better mediator on the relationship between three teacher engagement dimensions (viz. PCPE, PSEE, and PPE) and academic achievement as well as a better predictor of academic achievement as compared to CE and BE. Therefore, EE is the most important factor whereas CE is the least important factor that explained the relationship between perceived teachers' engagement (all three dimensions) and academic achievement.

Thus, it can be said that gender gap in three student engagement dimensions is a significant cause in explaining the relationship between three teacher engagement dimensions (viz. PCPE, PSEE, and PPE) and academic achievement. These findings provide evidences that the students who perceive teachers' engagement more are likely to be more engaged in learning and become academically successful by achieving more. Hence, teachers' engagement in teaching motivates students to engage in their classroom learning.

6.3 Conclusions

Using student self-report and student perceptions of teacher engagement, a significant gender discrepancy in student engagement in favor of females was identified. In addition, the cognitive-physical and socio-emotional engagement of teachers largely explained gender disparities in student engagement dimensions. Significant support was found for the moderation effects of teacher engagement: perceived socio-emotional engagement emerged to be especially more important for males' engagement than for females', whereas both perceived cognitive-physical engagement and socio-emotional engagement were equally significant predictors of males' and females' engagement. Teachers and

educational institutions should be brought to the attention of the gender disparity and the relevance of many aspects of teacher engagement in understanding and integrating gender gaps in student engagement.

In addition, the self-reported gender difference in student engagement and academic success in favor of females was validated. Furthermore, cognitive and emotional involvement explained partly gender disparities in academic performance. Emotional engagement seemed to be highly essential for males' engagement as compared to females', although cognitive engagement and behavioral engagement were shown to be equally significant determinants of males' and females' academic success. This gender imbalance must be brought to the attention of schools and instructors and the significance of various student engagement components in explaining and in quenching gender gaps in academic achievement. Caution is required to avoid widening the gender difference via tailoring strategies for students instead of specifically targeted to boys only.

Finally, it was also found that the three student engagement dimensions measured using students' self-report acted as the explaining mechanism of the influence of students' perceptions of teacher engagement on their academic achievement. Moreover, all three engagement dimensions (viz. cognitive, behavioral and emotional engagement) partially explained the relationship between all three dimensions of perceived teacher engagement dimensions (viz. cognitive-physical, socio-emotional, and pedagogical engagement) and students' academic achievement. Thus, teachers, school psychologists, and policy makers should be aware of the explaining mechanism of the influence of perceptions of teacher engagement on student outcomes (viz. academic achievement) through student engagement dimensions. Additionally, teachers must be concerned about their teaching behavior in class to promote students' engagement and their academic achievement.

6.4 Limitations of the study

Importantly, the researchers should take care of the following limitations of the present studies while conducting similar related researches in this particular domain:

(1) Firstly, students' level of engagement may fluctuate day to day even measured in similar settings (Rimm-Kaufman et al., 2015; Csikszentmihalyi & Larson, 1984;

Csikszentmihalyi & Schneider, 2000). Hence, the cross-sectional designs as applied in the present study which prohibits a claim of both directionality and causation of the associations among study variables. Further, it is recommended (also suggested by Lam et al., 2012), that a longitudinal research design would appropriately determine the causality and directionality of the plausible relations among criterion variables in this type of study.

(2) Another limitation of this research is its reliance on self-reported measurements of student engagement. So, these measures of different engagement dimensions may be contaminated by over-reporting or under-reporting by the students. When variables are assessed simultaneously in time using the same subjects, it is possible for correlations to be inflated. Despite the fact that self-reports are legitimate measures of internal psychological variables, they are susceptible to response bias (McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996).

However, data collection in multiple modes (e.g. online survey, interview) for measuring teacher engagement and student engagement would contribute to cut down the method bias of the study (Podsakoff et al., 2003). Further, the robustness of the results might be increased considering multiple informants like independent observers rating teacher engagement and student engagement or including teacher report for measuring their engagement and also for rating student engagement to corroborate the student-reports (Mashburn et al., 2006). Hence, it is suggestive for further studies to include multiple modes and multi-informant approach of data collection in the research design.

(3) The present study focused on the measures of student engagement in learning, in general. However, studies found that in mathematics classes, boys reported higher engagement than girls (Meece et al., 2006; Stoet & Geary, 2012), whereas, girls were behaviorally more engaged than boys in language classes (Lietaert et al., 2015). Further, there is a huge variation in the level of engagement across different activities as well as across the subject domains. Some students, for instance, are tremendously engaged in arts classes but disinterested in mathematics, whereas other students may experience the exact reverse. Thus, studies on domain-specific engagement are worthy to compare and contrast among the empirical results (e.g. Lietaert et al., 2015). This would be highly

useful in creating a holistic knowledge that would further help the policy planners and decision-makers to intervene in the domain of secondary school education.

(4) Given that previous researches (Hafen et al., 2012) reported that unconventional models where both the mediator as well as the outcome variables were inverted demonstrated comparable model fit indices, the current study does not authorize investigating probable reciprocity between students' perceptions of teacher engagement and their engagement. The findings need more longitudinal study to establish the directionality of the observed effects.

6.5 Suggestions for further researches

The present research was conducted on perceived teacher engagement, student engagement, and their academic achievement in the context of secondary school education in West Bengal, India. The study was provides certain dimensions for further researches. These may include:

1. Perhaps, a multi-informant approach considering teachers' perceptions of students' engagement might be more meaningful. Besides, multiple methods of data collection like observation (by independent observers) of the students regarding their engagement in classroom settings, interviewing of the students regarding their experiences, and teacher-report of student engagement in class will help to produce robust findings regarding the classroom dynamics.

2. The engagement construct is dynamic in nature that may fluctuate day to day even when measured in similar settings (Rimm-Kaufman et al., 2015; Csikszentmihalyi & Schneider, 2000; Shernoff et al., 2003). Thus, it is recommended (also suggested by Lam et al., 2012), that a longitudinal research design would appropriately determine the causality and directionality of the plausible relations among criterion variables in relation to engagement construct.

3. Malleability of student engagement through several contextual factors (like teaching strategy) is a well known to the engagement researchers. Thus, some experimental studies may be planned to examine which teaching methods (e.g. cooperative, constructivist) help enhancing student engagement in classroom learning activities.

4. A qualitative design might be used to examine what instructors really do in their classrooms, how they interact with their students, what sort (pattern) of language they use in class to encourage student engagement, and what they believe can be done to improve student engagement. This may help in devising effective strategies to enrich classroom interactions so that students feel engaged and in developing classroom environment that help enhancing student engagement.

5. There is a huge variation in the level of engagement across different activities as well as across the subject domains. Hence, domain-specific inquiry into student engagement thus would be more meaningful. Early studies (Sinatra et al., 2015) have put importance to study student engagement in a specific domain instead of their overall engagement in all school subjects as the use of meta-cognitive strategies varies across different subjects (e.g., Wolters & Pintrich, 1998).