

Multilevel analysis of the effect of PLC, collective teacher efficacy, and faculty trust on students' motivation and learning strategies

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Background

The argument that a school should function as a learning community is widespread and generally accepted by educators and administrators. Teachers' qualities, such as teachers' collective efficacy and commitment, have been shown to affect students' learning outcomes. Much research had investigated and showed the positive effects of professional learning community (PLC) and teachers' collective efficacy on students' achievements (Donner, Mandzuk, & Clifton, 2008; Goddard & Goddard, 2001; Goddard, Hoy, & Hoy, 2000; Hoy, Sweetland, & Smith, 2002; Pancucci, 2008; Thompson, Gregg, & Niska, 2004; Tschannen-Moran & Barr, 2004; 2008; Vescio, Ross, & Adam, 2008). However, it is still a remaining interesting issue on the effect of PLC, collective teacher efficacy, and other characteristics related to teachers and schools on students' learning motivation and strategies.

Research Questions

The present study used multilevel analysis to investigate how school and teacher level factors including PLC, collective teacher efficacy, and faculty trust affect the students' learning motivation and strategies.

1. How the learning community and teacher support and involvement in a class influence the students' learning motivation and strategies?
2. What's the role of building a PLC and faculty in a school in improving the teachers' collective efficacy?
3. How school-level factors including PLC, collective teacher efficacy, and a trustful atmosphere in a school affect the school differences on students' learning motivation and strategies.
4. How PLC, collective teacher efficacy, and faculty trust influence the relations between learning community, teacher support and involvement and students' learning motivation and strategies?

Methods

The participants for the present study consisted of 5365 students and 486 teachers who were sampled from 32 primary and secondary schools.

The Professional learning community assessment (PLCA) developed by Hipp and Huffman (2003) was used to assess the development of PLC in schools.

The collective teacher belief scale (Tschannen-Moran & Barr, 2004) was used to evaluate the teachers' collective efficacy on instructional strategies and student discipline.

The faculty trust was assessed using omnibus trust scale which was developed by Hoy and Tschannen-Moran (Hoy & Tschannen-Moran, 2003).

A revised version of motivated strategies for learning questionnaire (Pintrich & De Groot, 1990; Lee, Yin, & Zhang, 2010, Lee, Zhang, & Yin, 2010) was administered to evaluate the students' self-efficacy, intrinsic value, extrinsic value, test anxiety, strategy use, and peer learning.

Rovai's (2002) classroom community scale was adopted to assess students' sense of learning community.

A 10-item scale (Lee et al., 2003) was administered to student to evaluate the teacher-student relationships in classroom.

The partial credit model (Masters, 1982) under the frame of multidimensional random coefficients multinomial logit model (MRCMLM; Adams et al., 1997) was employed to validate the scales and estimate the corresponding latent abilities.

In the present study, the PLC, collective teacher efficacy, and faculty trust were all description of the school conditions. A two-level hierarchical linear model (HLM) (Raudenbush & Bryk, 2002) was conducted to test the proposed theoretical model of the current study. The level-1 model compared the differences of students' learning motivation and strategies between different schools and investigated how the learning community and teacher support and involvement influence the students' learning motivation and strategies. The level-2 model considered the PLC, collective teacher efficacy, and faculty trust to explain the school differences on students in learning motivation and strategies.

Frame

The traditional view that teachers were working separately has been shifted to a view of teachers collaborating in PLC in restricting schools (Louis, Marks, & Kruse, 1996). A review of eleven studies focusing on the impact of PLC suggested the well-developed PLC could positively improve the teachers' teaching practice and students' learning activities (Vescio, Ross, & Adams, 2008). Previous studies indicated that weak collective efficacy undermined teachers' sense of self-efficacy and hence negatively influenced the teachers' commitment (Goddard & Goddard, 2001; Goddard, Hoy, & Hoy, 2004). In addition, it had been found that faculty trust was significantly and positively correlated with teachers' engagement in working and commitment to students (Tarter, Bliss, & Hoy, 1999). Trustful atmosphere has been proved important in building a successful community (Bryk, Camburn, & Louis, 1999; Bryk & Schneider, 2003; Hoy, Gage, & Tarter, 2006; Wahlstrom & Louis, 2008). Based on the previous analysis, the present study built a school-level model which investigated the relationship between PLC, collective teacher efficacy, and faculty trust. In this school-level model, faculty trust was basis for developing PLC and improving collective teacher efficacy. And PLC could subsequently and positively improve collective teacher efficacy on instructional strategies and student.

Students' motivation and learning strategies were perceived as one of the most powerful determinants of students' success and failure in school (Hidi & Harackiewicz, 2000). Research had indicated that both the teacher-student relationship and the peer relationship were important factors impacting students' motivation in classroom learning (Etelapelto, Littleton, Lahti, & Wirtanen, 2005; Hughes & Kwok, 2007; Lee, Lee, & Wong, 2003; Lee, Yin, & Zhang, 2009; Rovai, 2002; Ryan & Patrick, 2001; Turner & Meyer, 1999; Yin, Lee, & Zhang, 2009). Based on the above studies, the present study built a student-level model which explored the influence of teacher support and involvement and learning community on students' learning motivation and strategies.

Students' achievements were most concerns in previous studies in the fields of PLC and collective teacher efficacy. However, few studies investigated how school- or teacher-level factors including PLC, collective teacher efficacy, and faculty trust affect students' learning motivation and strategies. It is extensively accepted that motivation and strategies are strong predictors to students' learning outcomes. Hence, the present study proposed an overall multilevel model to investigate how school factors including PLC, collective teacher efficacy, and faculty trust affect the students' learning motivation and strategies.

Research findings

The results of the school-level model suggested the important role of PLC and faculty trust in improving collective teacher efficacy. Faculty trust was suggested very important in positively building PLC as well as improving collective teacher efficacy. And teachers' collective efficacy on instructional strategies rather than on student discipline was significantly predicted by PLC.

Consistent with other researches, the results of the student-level model indicated that more teacher support and involvement in a class and good learning community could positively improve students' self-efficacy, intrinsic value, extrinsic value, strategy use, and peer learning. However, the study did not find the significant influences of teacher support and involvement and student learning community on reducing the students' test anxiety.

The results of multilevel analysis suggested collective teacher efficacy a significant factor in predicting school differences on students' test anxiety and strategy use. PLC and faculty trust were not detected as significant factor to directly explain the differences of the students' learning motivation and strategies among schools. Collective teacher efficacy on instructional strategies was found to negatively affect students' test anxiety. It means that students in a school composed of teachers with high collective efficacy on instructional strategies will intend to have lower test anxiety. A very interesting finding was that teachers' collective efficacy on student discipline rather than on instructional strategies could account for the school differences on students' strategy use. However, the results of the random-coefficient model indicated that the collective efficacy on instructional strategies significantly and positively predicted the effect of teacher support and involvement on students' strategy use.

These findings were very important for teachers and educational administrators in restructuring schools. Though PLC and faculty trust were not found to directly affect students' learning motivation and strategies, their important role in improving collective teacher efficacy which was important to predict students' learning motivation and strategies were emphasized. The contributions of these findings and future research direction were deeply discussed.