

## Teacher Professional Learning Community As A Predictor of Collective Teacher Efficacy

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### Abstract

The purpose of this study was to examine the relationship between professional development community and collective teacher efficacy. The study was conducted using a cross-sectional survey. The data were collected through the Professional Learning Community Scale and the Collective Teacher Belief Scale with a sample of 327 teachers. The analysis of the data included arithmetic mean, correlation analysis, and simple linear regression analysis. Findings showed that the perception of collective teacher efficacy and professional learning community was at the level of *Agree*. On the other hand, a positive and statistically significant moderate relationship was found between collective teacher efficacy and professional learning community. Besides, professional learning community positively and significantly predicted collective teacher efficacy.

**Keywords:** *Professional Learning Community; Collective Teacher Efficacy; Teacher Collaboration; Professional Sharing*

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### 1. INTRODUCTION

Collective teacher efficacy increases student academic achievement (Goddard, Hoy & Hoy, 2000; Hattie, 2012; Leithwood, Sun, & Schumacker, 2020; Tschannen-Moran & Barr, 2004) and is positively associated with emotional, organizational and individual variables (Donohoo, 2018; Donohoo, O'Leary, & Hattie, 2020; Qadach, Schechter, & Da'as, 2020). On the other

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hand, the fact that teacher efficacy is primarily effective on student learning (Leithwood, Harris & Hopkins, 2020) increases the importance of collective teacher efficacy. In addition, studies advocate that what might be the premises of collective teacher efficacy has been under investigation and that these studies should continue in terms of supporting the theoretical framework (Hougsteen, 2020; Donohoo, 2018). Donohoo (2018) states that the premises of collective teacher efficacy are important in terms of providing suggestions to policy makers and practitioners, and new studies should still be done in order to reach more precise relationships in this field by saying “New research is needed to understand how collective teacher efficacy is shaped. What are the preliminary and enabling conditions for the development of collective teacher efficacy? How are the sources that affect Bandura's (1977) interpretation of an individual's activities at the collective level?” (p. 323).

Previous studies have shown that inter-teacher practices in the professional learning community increase collective teacher efficacy (Goddard, Goddard, Kim, & Miller, 2015; Moolenaar, Slegers, & Daly, 2012). However, the fact that research has focused on this concept since 2000 underlines the necessity of conducting new studies in different cultures. This is because culture is an important factor in the school environment (Truong, Hallinger, & Sanga, 2017; Shengnan & Hallinger, 2020). Also, considering that many concepts in the field of educational administration have been produced from Anglo-Saxon and North America (Oplatka, 2016), examining these concepts in different cultures will contribute to the EDLM literature. One of the reasons for conducting the present study was due to the scarcity of national studies on the related issue. Cansoy, Polatcan, and Parlar (2018) examined the studies on teacher self-efficacy and found that studies revealing the antecedents of collective teacher efficacy were quite insufficient. Therefore, by identifying the premises of collective teacher efficacy, the present study can contribute to the improvement and development of schools in a national context. Besides, some useful information can be presented in order to see the areas that need to be developed primarily in schools. Also, it can contribute to international literature. Therefore, in this study, we examined the predictive level of the professional learning community on collective teacher efficacy.

### **1.1. Collective Teacher Efficacy**

Collective teacher efficacy is defined as the perception that teachers working in a school can have a positive effect on students as a result of various activities and practices they perform together (Goddard, Hoy, & Woolfolk Hoy, 2004, p. 4). Students' academic success increases in schools with high collective teacher efficacy (Bandura, 1993, p. 143). For this reason,

increasing the collective teacher efficacy in schools is considered as one of the ways to ensure the academic development of students. Based on Bandura's (1977) self-efficacy concept, collective teacher efficacy (Eels, 2011, p. 12) was first revealed by Bandura's (1993) study of collective efficacy in the context of school. Collective teacher efficacy has various definitions (Adams & Forsyth, 2006, p.626; Goddard, 2001, p.467). According to these definitions, collective teacher efficacy is a teacher's perception of whether they can have a positive effect on students as a result of the activities they will perform with their colleagues.

Collective efficacy affects the school in many ways by guiding teachers' emotions, motivations, attitudes, and behaviours. In schools with high collective teacher efficacy, if a student fails, teachers take responsibility by not looking for the problem in the student's individual inadequacies or in the environment (Schechter & Tschannen-Moran, 2006, p. 481-482). In such schools, the required support is provided by allocating extra time to students who are academically below the grade level (Tschannen-Moran & Barr, 2004, p.195). Various researchers emphasize the positive contribution of collective teacher efficacy to students' academic success (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000, p.480; Mawhinney, Haas, & Wood, 2005, p.16). In addition, Tschannen-Moran and Barr (2004) argue that as collective teacher efficacy increases student achievement, high student success also increases collective teacher efficacy (p. 196). In other words, there is a mutual interaction between collective teacher efficacy and high student achievement. Collective teacher efficacy is fed from four different sources: direct experiences, indirect experiences, social persuasion, and emotional states (Bandura, 1997, p. 79). While direct experiences refer to the successful or unsuccessful experiences of teachers working in the school (Goddard, Hoy, & Woolfolk Hoy, 2004, p. 5), indirect experiences are the successful or unsuccessful experiences of colleagues working in other schools. Professional development studies, interviews, and workshops are a source of social persuasion to convince teachers that they can succeed (Goddard, Hoy, & Woolfolk Hoy, 2000, p. 484). Emotional states refer to the effects of emotions such as anxiety, excitement, self-confidence, and the effect of successful or unsuccessful results obtained in the past on collective efficacy perception (Goddard, Hoy, & Woolfolk Hoy, 2004, p. 6). Processing the information obtained from sources with cognitive processes (Goddard et al., 2000, p. 485), analysing the teaching task, and evaluating teaching skills are also effective in the formation of collective teacher efficacy perception (Tschannen-Moran, Hoy, & Hoy, 1998, p.228- 229).

## **1.2. Professional Learning Community**

Professional learning communities are communities in which teachers work in cooperation to improve their school practices and to solve the problems encountered in education, in line with the common vision (DuFour, 2004, p. 2-4; Hord, 1997, p. 33-34). In professional learning communities, teachers cooperate to ensure both their own development and school development (Carpenter, 2015, p.683). Thus, more learning opportunities are provided for both students and teachers in professional learning communities (Roberts & Pruit, 2009, p. 155) and teacher isolation is prevented (Hord, 1997, p.33). In professional learning communities, teachers are provided with the opportunity to meet frequently and exchange their ideas. Thus, teachers' morale and motivation also increase (Hord, 2008, pp. 10-11). Hord (2009) defines the concept of professional learning community by examining each word: 'Profession' refers to a person who is responsible for creating a successful educational program that works for himself/herself and his/her students to learn; 'Learning' refers to an activity aimed at improving knowledge or skills; 'Community' refers to a group of colleagues coming together to learn about a topic. Research argues that the characteristics of the professional learning community are shared values and vision, collaboration, focus on student learning, reflective dialogue, and making the practice public (Fullan, 2007, pp. 148-149; Louis, Marks, and Kruse, 1996, pp. 760-761; McLaughlin and Talbert, 2006, p.10). Professional learning community first emerged in the field of business with the idea that it can be learned in organizations (Thompson, Gregg, & Niska, 2004, p. 2). With the adaptation of the learning organization concept to education, the learning community started to develop in schools (Lomos, Hofman, & Bosker, 2011, p. 123). In professional learning communities, it is aimed to ensure professional development of teachers in order to realize student learning in the best way (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006, p. 223). Different researchers underline the positive effect of the professional learning community on students' academic development (Bolam et al., 2005; Stoll et al., 2006; Vescio, Ross, & Adams, 2008).

Olivier, Hipp, and Huffman (2003) examined the professional learning community in five sub-dimensions: shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, and supportive conditions. Shared and supportive leadership sub-dimension refers to school principals' sharing their power and authority with teachers and organizing activities that will support teachers' professional development. Shared values and vision sub-dimension is that teachers work in this direction by having common values and vision. Collective learning and application sub-dimension is teachers' achievement

of new gains through meetings and activities. It is the shared personal practice sub-dimension that teachers benefit from each other's personal practices and experiences. The supportive conditions dimension is the provision of physical and structural facilities needed by the professional learning community.

### **1.3.The relationship Between Professional Learning Community and Collective Teacher Efficacy**

Hardin (2010) suggests that well-functioning professional learning communities are associated with a high collective teacher efficacy, whereas professional learning communities that do not function well are associated with low collective teacher efficacy. Also, research argues that the perception of higher teacher professional learning community positively affects collective teacher efficacy (Hord, 1997; Lee, Zhang, & Yin, 2011, p. 822; Sawyer & Rimm-Kaufman, 2007; Snow Geron, 2005). From this point of view, it is understood that the professional learning community positively affects the collective teacher efficacy.

Various studies have investigated how the perception of teacher professional learning community affects collective teacher efficacy. As a collaboration between teachers develops in a school, collective teacher efficacy increases (Goddard et al., 2015; Moolenaar, Slegers, & Daly, 2012). On the other hand, professional learning communities offer teachers opportunities to collaborate (DuFour, 2004, p. 3). In this case, it can be said that the professional learning community increases the collective teacher efficacy by popularizing collaboration among teachers. According to Hord (1997), frequent interaction and mutual sharing of teachers in professional learning communities increase collective teacher efficacy (p. 9). A study indicates that functions such as shared values, sharing the decision-making process, and innovation (which are included in the structure of the professional learning community) increase collective teacher efficacy (Newmann, Rutter, & Smith, 1989, pp. 226-227). Bandura (1997) states that various professional development activities carried out in professional learning communities develop the resources that collective teacher efficacy is nurtured. In this case, the professional learning community develops the collective teacher efficacy by feeding its resources.

## **2. METHOD**

### **2.1.Model**

This study examined the relationship between teacher professional learning community and collective teacher efficacy and was designed in a relational model. The dependent variable was

collective teacher efficacy, and the independent variable was teacher professional learning community.

## **2.2.Universe and sample**

The universe consisted of primary and middle school teachers working in the centre and districts of Karabük during the 2018-2019 academic year. Convenient sample was used. The scales were sent to 600 teachers, but considering the returns, after the randomly marked scales with extreme data were eliminated, the sample consisted of 327 scales. The sample included 125 males (38.2%) and 202 females (61.8%). There were 163 (49.8%) teachers working in primary schools and 164 (50.2%) teachers working in middle schools.

## **2.3.Data Collection Tools**

Data were collected through personal information form, professional learning community scale, and collective teacher belief scale.

### **2.3.1. Personal Information Form**

It was used to gather information about demographic characteristics such as gender, professional seniority, period of service, branch, and school type.

### **2.3.2. Collective Teacher Belief Scale**

Collective Teacher Belief Scale was developed by Tschannen-Moran and Barr (2004) and adapted to Turkish by Erdoğan and Dönmez (2015). The scale consists of 12 items and 2 sub-dimensions. It measures teachers' perceptions of collective teacher efficacy. The sub-dimensions of the scale are (i) student discipline and (ii) teaching strategies. Some representative items are as follows: "How much can teachers in your school provide an in-depth understanding of the subject matter?", "How much can teachers in your school ensure the development of students' creativity?" The factor load values of the items, which explained 58.5% of the total variance, ranged from .56 to .84. Cronbach's Alpha coefficient for the whole scale was calculated as .88. It was a 5-point Likert scale.

Explanatory Factor Analysis (EFA) was conducted in order to test the construct validity of the collective teacher belief scale. Since the sample was different, we performed an exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) value of the scale was .94 and the scale consisted of one dimension. The factor loading values of the items indicated that no item should be removed from the scale. The scale explained 62.34% of the variance, and the item factor load values varied between .69 and .83. The Cronbach's Alpha coefficient of the scale was calculated as .94. The item-total correlation coefficients of the collective teacher efficacy scale were between .64 and .79.

### 2.3.3. Professional Learning Community Scale

The scale was developed by Olivier, Hipp and Huffman (2003) and adapted to Turkish by Kalkan (2015). Measuring teachers' perceptions of professional learning community, the scale consisted of 45 items and 5 sub-dimensions: (i) shared and supportive leadership, (ii) shared values and vision, (iii) collective learning and application, (iv) shared personal practice, and (v) supportive conditions. Some representative items are as follows: "In this school, the school principal takes the opinions of the teachers to make a decision", "The educational policies of this school are determined according to the vision of the school", "An important success in our school is appreciated and celebrated". The factor loading values of the items varied between .49 and .84. The Cronbach's Alpha coefficient for the whole scale was calculated as .97. It was a 5-point Likert scale, ranging from "(1) totally disagree" to "(5) totally agree". As the score obtained from the scale increases, teachers' perceptions of the professional learning community raise.

Exploratory Factor Analysis (EFA) was conducted to re-examine the validity of the scale. Since the sample was different, we performed an exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) value of the scale was .96 and the scale showed a one-dimensional structure. One item (18th item) with a low factor load value was removed from the scale. The scale had 44 items and one dimension. The factor loading values of the items were between .53 and .83. The scale was thought to have one dimension since it could be perceived differently in different cultures. The scale explained 53.44% of the variance. The Cronbach's Alpha coefficient was found as .97. Item-total correlation coefficients were between .52 and .80.

### 2.4.Data Analysis

SPSS program was used to analyse the data. The data were transferred to the analysis phase by assigning the mean value for the missing values without any data cleaning process. The data were analysed without any data cleaning, by assigning the mean value for the missing values. At this stage, first, the normality of the data was tested. The skewness and kurtosis values were (-.70) and (1.75) for the professional learning community, and (-.08) and (-.12) for the collective teacher efficacy. The correlation value between the two variables was .63 and the condition index was 14.93. In this case, it was assumed that the data were distributed normally (Abraham, Cupani, Biassoni, Azpilicueta, 2018). In addition, Q-Q charts were also examined.

### 3. FINDINGS

This section presented the mean and standard deviation values of the professional learning community and collective teacher efficacy and the results of the correlation and regression analysis.

#### 3.1. Correlations Between Mean, Standard Deviation, and Variables

Table 1 shows the correlations between mean, standard deviation values and research variables. Table 1. Correlations Between Variables and Average as well as Standard Deviation Values of Professional Learning Community and Collective Teacher Efficacy

Variables	$\bar{X}$	S	Professional Learning	Collective Learning Efficacy
Professional Learning Community	4.14	0.55	1	.635**
Collective Teacher Efficacy	3.99	0.54	.635**	1

\*\*  $p < .01$

As is seen in Table 1, the level of teachers' perceptions of the professional learning community was ( $\bar{X}=4.14$ ). This indicates that teachers scored 'agree'. The level of teachers' perceptions of collective efficacy was ( $\bar{X}= 3.99$ ), showing that their responses were at the 'agree' level. According to these findings, teachers believed that collaborating with colleagues would have a positive effect on their students and that their communities in schools could function as a professional learning community. Considering the correlation between professional learning community and collective teacher efficacy, a positive and statistically significant relationship was found between the professional learning community and collective teacher efficacy ( $r = .635, p < .01$ ). This shows that when one of the teacher professional learning community or collective teacher efficacy increases, the other will increase, or if any of them decreases, the other will decrease.

#### 3.2. Prediction of collective teacher efficacy

Table 2 presented the regression analysis results regarding the prediction of collective teacher competence by the professional learning community.



Table 2. Regression Analysis Regarding the Prediction of Collective Teacher Efficacy by Professional Learning Community

Collective Teacher Efficacy					
Variables	<i>B</i>	<i>t</i>	<i>p</i>	<i>Part r</i>	<i>Partial R</i>
Fixed	1.409	7.991	.00		
Professional Learning Community	.623	14.801	.00	.635	.635

$$R = .635, R^2 = .403; F = 219,058, p < .05$$

According to Table 2, the professional learning community was a significant predictor of collective teacher efficacy ( $R = .635, R^2 = .403; p < .05$ ). It explained approximately 40% of the total variance regarding collective teacher efficacy. In this case, it can be said that behavioural patterns in the professional learning community are a precursor of collective teacher competence; thus, one of the ways to increase collective teacher efficacy is to increase the professional learning community.

#### 4. DISCUSSION, CONCLUSION AND RECOMMENDATION

This study found that teachers' perceptions of the professional learning community were at the level of 'agree'. Therefore, teachers considered their schools as a professional learning community. This finding confirms the literature (Cansoy, 2019; Kalkan, 2015; Öğdem, 2015; Robertson, 2011). This shows that teachers work collaboratively in line with common vision and values, and they support each other by sharing their professional knowledge. The high perceptions of teachers in the professional learning community may be due to their frequent collaboration at school. School meetings, break-through talks and various activities offer teachers opportunities to interact and share. As a result of such opportunities, teachers' perceptions of the professional learning community may increase.

Teachers' perceptions of collective teacher efficacy were also found to be at the level of 'agree'. In other words, teachers' perceptions of collective efficacy are high. Various studies support this finding (Cansoy, Parlar, & Polatcan, 2020; Düzgünoğlu, 2019; Güneş, 2014). The high perception of collective teacher efficacy shows that teachers trust their colleagues and believe that they can have a positive impact on students when working collaboratively.

The study also examined the relationship between teacher professional learning community and collective teacher efficacy. A significant relationship was found between the perception of the

teacher professional learning community and the perception of collective teacher efficacy. This relationship was positive and at the medium level. These two variables are in a mutual relationship. That is, when the perceptions of teacher professional learning community increase, the perceptions of collective teacher efficacy also increase, or when the perceptions of teacher professional learning community decrease, the perceptions of collective teacher efficacy also decrease. This finding coincides with the literature (Hardin, 2010; Olivier & Hipp, 2006; Robertson, 2011).

Teacher professional learning community explained the collective teacher efficacy in a meaningful and positive way. Professional learning community explained approximately 40% of collective teacher efficacy. From this point of view, one of the important factors in increasing the perception of collective teacher efficacy is to increase the perception of the teacher professional learning community. In addition, when the perception of the teacher professional learning community decreases, the perception of collective teacher efficacy also decreases. To put it more clearly, the perception of the teacher professional learning community is an effective variable in the low or high perception of a teacher's collective efficacy. Various studies argue that the perception of teacher professional learning community predicts the perception of collective teacher efficacy (Snow-Gerono, 2005; Su-ching Lin, 2013; Voelkel & Chrispeels, 2017).

Another finding is that teachers work collaboratively in the educational process. Besides, when a supportive culture based on sharing is developed in schools, both the perception of the teacher professional learning community and the perception of collective teacher efficacy can increase. Therefore, it can be stated that when schools are structured as professional learning communities, teachers start to believe they can achieve together with their colleagues, which affects students' academic development positively. Participants expressed their opinions at the level of *agree* regarding both the professional learning community scale and the collective teacher efficacy scale. This situation is positive, but teachers should frequently exchange professional ideas, work collaboratively, and take responsibility for student learning in order to improve this situation. School principals, on the other hand, should improve the physical and structural conditions in the school, share their power and authority with teachers and offer professional development opportunities. Policy makers should remove barriers to the teacher professional learning community. In this respect, they can provide resources to improve physical and structural conditions in schools. Teachers' graduate studies can be encouraged and facilitated. Also, teachers' career opportunities can be arranged.

High school teachers were not included in the study, and the study was limited to primary and middle school teachers. In addition, the teachers' collective teacher competencies and professional learning community levels were not considered in the context of the school, but all schools were examined together. These limitations should be considered when interpreting the findings.

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