

Research Article:

## **The Effect of Professional Learning Communities and Contextual Factors on Teacher Leadership in the Korean High School Context**

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### **ABSTRACT**

This study investigates the impact of Korean high school teachers' perception of the benefits of participating in professional learning communities (PLCs) on teacher leadership using administrative survey data collected by the Gyeonggi Institute of Education. The findings indicate that positive experiences with PLCs can promote teacher leadership both within and beyond the classroom, highlighting the importance of providing professional development opportunities, collaboration and activities through PLCs. Furthermore, the study emphasises the crucial role of school culture, particularly positive school culture and supportive principal leadership in fostering teacher leadership both within and beyond the classroom. However, it also reveals that power dynamics and hierarchies in schools may negatively impact teacher leadership, particularly among female and non-tenured teachers in their beyond-classroom teacher leadership. Finally, the study shows that the innovative school status schools in Gyeonggi Province in South Korea has limited influence on the level of teacher leadership, or in some cases, may even have indicated lower levels of leadership compared to regular schools.

**Keywords:** Gyeonggi Educational longitudinal research survey, principal leadership, professional learning community, school culture, South Korea, teacher leadership

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## INTRODUCTION

Teachers are crucial in determining schooling quality, and interest in teacher leadership and its relation to students' academic achievement, peer teacher professional development, and school improvement has grown since the mid-1980s (Nguyen et al., 2020; Smylie et al., 2002; York-Barr & Duke, 2004). Research on educational decentralisation, teacher empowerment and distributed leadership has also increased with changes in education and education policy since 2010 (Pan et al., 2023). Most case studies on teacher leadership have been published in the United States, followed by the United Kingdom, Austria, China and Hong Kong (Pan et al., 2023; Schott et al., 2020).

In South Korea, teacher leadership has gained significance through educational decentralisation and teacher-initiated school innovation in the 2000s. Gyeonggi Province—South Korea's most populous province with over 1.6 million enrolled students (Korean Educational Statistical Service, 2021)—has been implementing the Teacher-Initiated School Innovation policy since 2009. Gyeonggido Office of Education (GOE) responsible for Gyeonggi Province's educational affairs has promoted professional learning communities (PLCs) as a teacher professional development method since 2010. PLCs provide a space for teachers to share subject-related strategies, develop interdisciplinary approaches and discuss topics related to school community. Additionally, since 2015, a policy has been in place to incentivise schools and teachers to participate in PLCs by allowing PLC activities to count toward in-service training credit (Gyeonggido Office of Education, 2015). GOE and Gyeonggi Institute of Education (GIE) have conducted systematic data collection on school policy and educational practices in Gyeonggi Province, enabling empirical research on diverse topics, including teacher leadership. These practices have contributed to the accumulation of qualitative and quantitative research on teacher leadership (Park et al., 2022).

However, the current research on teacher leadership using the Gyeonggi Education Longitudinal Research data is insufficient. This presents a critical gap in our understanding of the factors that facilitate or hinder teacher leadership in this context, hampering efforts to share best practices (Pan et al., 2023; Schott et al., 2020). The impact of teachers' PLC participation on their leadership development is also largely unknown, creating a void in the literature. This study aims to fill this void by providing data-based evidence using the South Korean examples. Specifically, it investigates the impact of PLCs on teacher leadership in South Korea, with an emphasis on high school teachers in Gyeonggi Province. This study also explores the impact of Korean high school teachers' perceptions of PLC participation on teacher leadership. Administrative survey data from the GIE is used to examine these factors.

This study's research questions are as follows:

1. To what extent does teachers' perception of the benefits of participating in PLCs impact teacher leadership within-classroom and beyond-classroom?
2. To what extent is teacher leadership within-classroom and beyond-classroom associated with teachers' individual characteristics and school-related features?

## CONCEPTUAL BACKGROUND

### Teacher Leadership

Many studies have highlighted the importance of teacher leadership domestically and globally over the past decades (e.g., Chung et al., 2008; Danielson, 2006; Katzenmeyer & Moller, 2009; Pan et al., 2023; Smylie et al., 2002; Wenner & Campbell, 2017; York-Barr & Duke, 2004). The concept is difficult to define as it has been used in a variety of ways in different periods and by different scholars (Kim, 2015; Muijs & Harris, 2003; Pan et al., 2023; York-Barr & Duke, 2004). This section examines different conceptualisations of teacher leadership by various scholars to construct a definition of teacher leadership for this research.

The teacher leadership concept has developed in three waves differentiated according to teacher's roles and the scope of these roles (Pan et al., 2023; Silva et al., 2000). The first wave perceived teacher leaders' role as a part of a bureaucratic organisation working for effective school administration. Teachers were to function as workers performing assigned tasks, rather than as independent professionals (Evans, 1996; Frymier, 1987). A teacher leader, in this instance, was the teacher who carries out official duties assigned by the administrator (Smylie & Denny, 1990). The second wave definition of teacher leader or teacher leadership expanded the discussion to emphasise teachers as those possessing professional knowledge, and considered the role of teachers beyond the classroom and even beyond school walls to include the curriculum developer and the teacher professional development specialist (Pan et al., 2023; Silva et al., 2000). The third wave is further expanding the concept of teacher leadership to consider teachers as those with formal and informal responsibilities and contribute to the school system in and out of classroom in the context of school change (Pounder, 2006; Wenner & Campbell, 2017).

While the early concept of teacher leadership mainly focused on the formal position of teacher leader, in more recent years the discussion expanded to include those in informal leadership capacity (Katzenmeyer & Moller, 2009; Lee & Ip, 2021; Liberman & Miller, 2004). Informal teacher leadership indicates self-initiated leadership of the classroom teacher regardless of their formal positions or duties (Leithwood & Jantzi, 2000). The role of the teacher extends beyond one's singular classroom to mentor peer teachers, promote participatory decision-making, and initiate school reform (Leithwood & Jantzi, 2000; Muijs & Harris, 2003; York-Barr & Duke, 2004). Beneath this conceptual change is the recognition of the value of leadership exercised by all teachers in school, regardless of their formal positions, to impact classroom and student learning (Lambert, 2002).

In South Korea, interests in teacher leadership started in the 1990s, but gained greater attention in the 2010s with emphasis on innovative schools (*Hyukshin* schools in Korean) and PLCs (Park et al., 2022). Korean researchers generally explain the concept of teacher leadership in terms of purpose, scope, subject and characteristics. According to Kim (2015), teacher leadership is "the goal-oriented, communal, task-driven, and professional influence of teachers in the spheres of classroom instruction, student counselling, class administration, relationships with peer teachers, administrative duties, and relationships with parents, to

achieve school goals” (p. 362). Other researchers define teacher leadership as “influence affected based on teacher professionalism through relationships with diverse members of the community for learning improvement and school reform, as well as the sharing of educational influence through collaboration and communication in the community of teachers” (Kim & Song, 2019, p. 157).

Meanwhile, researchers in other countries tend to define the concept of teacher leadership based on its scope of influence. Katzenmeyer and Moller (2009) characterised “teacher leaders as teachers who lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders; influence others toward improved educational practice; and accept responsibility for achieving the outcomes of that leadership” (p. 6). Wenner and Campbell (2017) “defined teacher leaders as teachers who maintain K-12 classroom-based teaching responsibilities, while also taking on leadership responsibilities outside of the classroom” (p. 5). Pan et al. (2023) explain that they selected “‘teacher leadership’ and ‘teacher leader(s)’ as keywords to search relevant literature so that the articles exploring teacher leadership within and beyond the classroom were covered” (p. 2). Nguyen et al. (2020) suggest that “teacher leadership can happen within and beyond classroom, and teaching and leadership are integrated” (p. 61).

Based on these discussions, we define teacher leadership as a teacher’s exercise of influence not only within the classroom through teaching but also beyond the classroom to participate in school decision-making to improve student learning and the school, regardless of the teacher’s officially assigned duties.

### **Professional Learning Communities (PLCs)**

PLCs are called by several terminology such as professional learning groups, collaborative learning communities, critical friend groups, or communities of practice (Education Reform, 2014). The idea of PLC originated in business administration. The concept of “learning organisation” in the book by the economist Peter Senge was applied to the education field to be called “learning community” (Hord, 2004; Senge, 1990; Thompson et al., 2004; Vescio et al., 2008). Learning community applied to education later came to be called “professional learning community” (Dufour & Eaker, 1998; Thompson et al., 2004).

Although there is no single internationally agreed-upon definition of a PLC (Stoll et al., 2006; Stoll & Louis, 2007), a review of several definitions reveals the following insights. According to Hord (2004) who coined the term, a PLC is described as “Professionals coming together in a group—a community—to learn” (Education Reform, 2014). Additionally, Bolam and his colleagues synthesise the definition of PLC stating, “An effective professional learning community has the capacity to promote and sustain the learning of all professionals in the school community with the collective purpose of enhancing pupil learning” (Bolam et al., 2005, p. 145). Huffman and his colleagues (2016) provide a global perspective on PLCs and define them as “communities of learning in which educators collaboratively engage to foster a culture that enhances teaching and learning for all” (Huffman et al., 2016, p. 332). Moreover, PLCs are characterised as environments where collaborative improvements and decisions are informed by, yet not solely reliant upon, scientific and statistical evidence

(Hargreaves & Fullan, 2012). Instead, they are guided by the collective judgment of experienced professionals and driven by mature and thought-provoking conversations about effective and ineffective practices (Hargreaves & Fullan, 2012).

The definitions of PLCs mentioned above primarily highlight the characteristics and components of PLCs. Hord (2004) extracted five key characteristics of PLCs from previous studies, which include “supportive and shared leadership, shared values and vision, collective learning and application of that learning, supportive conditions, and shared personal practice” (p. 1). Similarly, DuFour (2004) identified three essential principles of PLCs, namely “ensuring that students learn, a culture of collaboration, and a focus on results” (pp. 8–10). Upon reviewing various scholars’ definitions of PLCs, Harris and Jones (2017) noted that they commonly emphasize the importance of shared values within the entire school community, student learning outcomes, and fostering dialogue and inquiry among fellow teachers.

These definitions of PLC align closely with the context of South Korea. Building upon the discussions presented by Hord (2004) and DuFour (2004), in particular, Korean scholars generally recognise the constituent elements of PLCs as the sharing of purpose and goals, collaboration, and the professional development of teachers. For instance, Seo (2009) defines a PLC as “a group of teachers who collaboratively learn, explore, and practice to develop their professional capacity and improve student learning” (p. 251). Similarly, Lee (2018) describes it “a community in which teachers, through active learning and collaboration with peer teachers, explore and consistently improve their capacity related to teaching and learning, for the purpose of student growth and academic achievement” (p. 205). In South Korea, PLCs are also implemented through policies established by GOE, aiming for collaborative research, cooperative practices, collective growth, and the enhancement of school capacity. Here, a PLC is defined as a form of relationship that respects the experience and judgment of teachers as education professionals are respected (Gyeonggido Office of Education, 2018a).

In summary, drawing upon the discussions on definitions and components of PLC, this research defines a PLC as a community in which teachers actively and consistently learn, explore and practice to promote student growth and learning through collaboration based on trust and respect.

### **Factors Influencing Teacher Leadership**

In this section, we examine the relationship between PLCs and teacher leadership, as well as the factors that influence teacher leadership. Several studies (Katzenmeyer & Moller, 2009; Kim & Han, 2021; Kim & Song, 2019; Lee & Ip, 2021) highlight the reciprocal influence between teacher leadership and PLCs. Some studies explore how PLCs influence teacher leadership (e.g., Kim & Song, 2019; Lee & Ip, 2021), while others analyse how teacher leadership impacts the achievements of PLCs (e.g., Kim & Han, 2021).

### ***School-level factors***

On the school level, factors such as school culture and principal leadership are often mentioned as impacting teacher leadership (Schott et al., 2020; Wenner & Campbell, 2017; Wilson, 2016). First, school culture is a critical factor in teacher leadership development. Supportive and collaborative school culture has positive impact on teacher leadership development, whereas the opposite type of culture detracts from teacher leadership development (Cooper et al., 2016; Kim, 2015; Muijs & Harris, 2006; Nguyen et al., 2020; Schott et al., 2020). Schools that are resistant to change or where there is insufficient vision-sharing hinder teacher leadership development (Wenner & Campbell, 2017, p. 12).

The leadership of the principal is also considered a significant factor in teacher leadership enhancement. Principals who ensure teacher autonomy and support professional development make a significant impact (Kim, 2015; Pan & Chen, 2020; Stein et al., 2016). Moreover, Harris and Jones (2017) emphasise the importance of supportive principal leadership, a clear understanding of the purpose of PLCs, and the local community's support for PLCs, as factors for active and sustainable PLCs. Positive perceptions and contributions to teacher professional enhancement and school change have been observed in PLCs initiated by teachers (Shim et al., 2014), and have positively contributed to teacher professional enhancement and school change (Lee, 2015; Park et al., 2015; Sunwoo & Pang, 2014).

### ***Individual-level factors***

Various individual factors have been identified as impacting teacher leadership, including skills, expertise, character, gender, age and teaching career (Angelle & DeHart, 2011; Hwang, 2011; Gülbahar, 2017; Schott et al., 2020; Yoon, 2017). To delve deeper into this topic, Chung et al. (2008) conducted a study that categorised primary and secondary teachers according to teaching experience into three groups: up to 5 years, 6 to 10 years and 11 to 15 years. Their analysis revealed that teachers with 5 years or less experience exhibited a significantly lower level of leadership compared to the other groups (Chung et al., 2008). Similarly, Hwang (2011) found that lower secondary teachers with up to 10 years of experience placed the highest value on collaboration with peers and a positive work environment, while those with 11 to 20 years of experience rated these factors the lowest. Early-career teachers were expected to have naturally low leadership capacity, whereas the lower level of leadership among mid-career teachers was attributed to work-related frustrations and pressure for career advancement (Chung et al., 2008; Hwang, 2011). Moreover, Angelle and DeHart (2011) analysed the impact of educational attainment and official appointment in addition to teaching career on teachers' perception of teacher leadership. They found that these factors make a significant difference in how teachers perceived teacher leadership (Angelle & DeHart, 2011). Similarly, Gülbahar (2017) found that factors such as age, career and gender influenced teachers' perception of their leadership.

## METHODS

### Data and Sample

This study employs secondary data: the Gyeonggi Education Longitudinal Research survey, collected annually by Gyeonggi Institute of Education (GIE) from 2012 to 2021. The survey encompasses educational activities and educational policies in Gyeonggi Province, South Korea. Cluster sampling with stratification is used by selecting schools proportionally to cities and countries (Gyeonggi Institute of Education, n.d.). This study used the 2019 data administered to teachers and sophomores in Gyeonggi Province's high schools (Gyeonggi Institute of Education, 2019). The 2019 data were chosen to establish a baseline understanding of PLCs' efficacy on teacher leadership without potential COVID-19 impact and confounding variables. The teacher dataset included over 3,700 teachers nested within 380 schools, with an average school sample size of 10 teachers. The sample was narrowed down to 3,246 teachers who participated in PLCs, representing 87.4% of the total teachers. Females comprised 67.7% of the sample, and tenured teachers accounted for 74.1%, while those with 10 to 20 years of teaching experience comprised 43.4%, and 4-year college or university graduates made up 57.1% (Table 1). The PLC group reported slightly more positive experiences than their non-PLC counterparts in school decision-making and teaching activities.

**Table 1.** Means, standard deviation and demographics for teacher data

| No.                      | Variables and survey items   | PLC participation = Yes |              |      | PLC participation = No |              |      |
|--------------------------|--|-------------------------|--------------|------|------------------------|--------------|------|
|                          |  | <i>n</i>                | Mean<br>or % | SD   | <i>n</i>               | Mean<br>or % | SD   |
| <b>Outcome variables</b> |  |                         |              |      |                        |              |      |
| 1                        | Within-Classroom Teacher Leadership (Composite, Cronbach's $\alpha = 0.9065$ )   | 3,221                   | 0.01         | 0.75 | 461                    | -0.05        | 0.82 |
|                          | I guide students to gather each other's opinions on the assigned topic and reach a conclusion  | 3,215                   | 3.48         | 0.86 | 461                    | 3.43         | 0.92 |
|                          | I encourage students to provide valid evidence when presenting their opinions and to agree or criticise the opinions of others accordingly | 3,219                   | 3.52         | 0.86 | 461                    | 3.53         | 0.89 |
|                          | I help students discover their own learning objectives   | 3,220                   | 3.43         | 0.82 | 461                    | 3.46         | 0.87 |
|                          | I assist students in being able to solve problems on their own   | 3,221                   | 3.87         | 0.71 | 461                    | 3.89         | 0.76 |

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**Table 1.** (Continued)

| No. | Variables and survey items   | PLC Participation = Yes |           |      | PLC Participation = No |           |      |
|-----|--|-------------------------|-----------|------|------------------------|-----------|------|
|     |  | <i>n</i>                | Mean or % | S.D. | <i>n</i>               | Mean or % | S.D. |
|     | I assist students in gathering and researching materials on their own to solve problems                                | 3,219                   | 3.70      | 0.80 | 461                    | 3.67      | 0.83 |
|     | I help students form small groups to work together on learning tasks   | 3,220                   | 3.71      | 0.90 | 460                    | 3.57      | 0.98 |
|     | I encourage students to divide responsibilities among themselves to collaborate on group assignments                   | 3,220                   | 3.64      | 0.92 | 461                    | 3.54      | 0.99 |
|     | I help students to collaborate and solve group assignments by supporting them to give and receive help from each other | 3,220                   | 3.78      | 0.88 | 461                    | 3.65      | 0.95 |
| 2   | Beyond-Classroom Teacher Leadership (Composite, Cronbach's $\alpha = 0.8996$ )   | 3,244                   | 0.01      | 0.78 | 467                    | -0.06     | 0.85 |
|     | Setting educational goals for the school   | 3,234                   | 2.94      | 0.96 | 466                    | 2.87      | 1.02 |
|     | Class formation/class organisation)  | 3,237                   | 2.97      | 0.97 | 466                    | 2.85      | 1.05 |
|     | Request for a teacher transfer and postponement of transfer orders   | 3,228                   | 3.06      | 0.99 | 465                    | 2.99      | 1.01 |
|     | Organisation and delegation of teacher duties  | 3,238                   | 2.99      | 1.01 | 464                    | 2.92      | 1.06 |
|     | Teacher evaluation and distribution of pay-for-performance compensation  | 3,242                   | 3.05      | 0.97 | 465                    | 3.03      | 0.99 |
|     | School budget planning   | 3,241                   | 2.99      | 1.00 | 467                    | 2.90      | 1.03 |
|     | Decision on contracts and bidding  | 3,232                   | 2.73      | 1.06 | 466                    | 2.70      | 1.09 |
|     | <b>Explanatory Variables</b>   |                         |           |      |                        |           |      |
| 1   | Perceived benefits of participating in PLCs  | 3,157                   | 3.46      | 0.94 | N/A                    |           |      |
| 2   | Female (reference: male)   | 3,237                   | 67.72     |      | 464                    | 58.62     |      |
| 3   | Years of teaching experience   |                         |           |      |                        |           |      |

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**Table 1.** (Continued)

| No. | Variables and survey items  | PLC Participation = Yes |           |      | PLC Participation = No |           |      |
|-----|---|-------------------------|-----------|------|------------------------|-----------|------|
|     |   | <i>n</i>                | Mean or % | S.D. | <i>n</i>               | Mean or % | S.D. |
|     | 5–10 years  | 665                     | 20.56     |      | 85                     | 18.40     |      |
|     | 10–20 years (reference)   | 1,405                   | 43.43     |      | 181                    | 39.18     |      |
|     | 20–30 years   | 505                     | 15.61     |      | 89                     | 19.26     |      |
|     | Over 30 years   | 133                     | 4.11      |      | 22                     | 4.76      |      |
| 4   | Educational attainment  |                         |           |      |                        |           |      |
|     | Graduate from a two-year college  | 1                       | 0.03      |      | 1                      | 0.22      |      |
|     | Graduate from a four-year college (i.e., BA or equivalent) (reference)                                      | 1,848                   | 57.07     |      | 246                    | 53.13     |      |
|     | Complete the master’s coursework  | 188                     | 5.81      |      | 36                     | 7.78      |      |
|     | Obtain a Master’s degree (MA or equivalent)   | 1,138                   | 35.15     |      | 170                    | 36.72     |      |
|     | Complete the doctorate coursework   | 38                      | 1.17      |      | 5                      | 1.08      |      |
|     | Obtain a doctorate degree (PhD or equivalent)   | 25                      | 0.77      |      | 5                      | 1.08      |      |
| 5   | Teacher type  |                         |           |      |                        |           |      |
|     | Non-tenured teacher   | 542                     | 16.75     |      | 126                    | 27.21     |      |
|     | Tenured teacher (reference)   | 2,400                   | 74.17     |      | 306                    | 66.09     |      |
|     | Administrative head teacher   | 294                     | 9.09      |      | 31                     | 6.70      |      |
| 6   | Public school (reference: private schools)  | 3,246                   | 74.49     |      | 467                    | 61.24     |      |
| 7   | Innovative school (reference: non-innovative schools)   | 2,893                   | 18.84     |      | 413                    | 7.26      |      |
| 8   | Log of total enrollment   | 3,185                   | 5.51      | 0.33 | 455                    | 5.50      | 0.38 |
| 9   | School culture (Composite, Cronbach’s $\alpha = 0.9274$ )   | 3,243                   | 0.01      | 0.81 | 467                    | -0.07     | 0.86 |
|     | It is an atmosphere where each teacher’s mistakes or trial and error are turned into learning opportunities | 3,242                   | 3.38      | 0.93 | 467                    | 3.35      | 0.94 |

(Continued on next page)

**Table 1.** (Continued)

| No. | Variables and survey items   | PLC Participation = Yes |              |      | PLC Participation = No |              |      |
|-----|--|-------------------------|--------------|------|------------------------|--------------|------|
|     |  | <i>n</i>                | Mean<br>or % | S.D. | <i>n</i>               | Mean<br>or % | S.D. |
|     | It is natural for members to criticise the principal's school management issues  | 3,242                   | 3.20         | 0.99 | 467                    | 3.16         | 1.02 |
|     | Teachers' ideas are actively reflected in school operations.)  | 3,240                   | 3.32         | 0.95 | 467                    | 3.21         | 1.03 |
|     | Teachers make active efforts to improve the school in response to environmental changes  | 3,240                   | 3.47         | 0.92 | 466                    | 3.37         | 0.97 |
|     | Attempting to break existing systems or practices  | 3,241                   | 3.08         | 0.99 | 467                    | 3.01         | 1.00 |
|     | The principal consistently comes up with new ideas   | 3,241                   | 3.29         | 1.00 | 467                    | 3.25         | 1.05 |
|     | The new school operation method being attempted at our school is established through revisions and modifications               | 3,225                   | 3.43         | 0.87 | 465                    | 3.38         | 0.88 |
| 10  | Principal Leadership (Composite, Cronbach's $\alpha = 0.9697$ )  | 3,238                   | .01          | 0.86 | 467                    | -0.05        | 0.91 |
|     | The school principal has clear plans for the development of the school and shares educational goals with teachers and parents. | 3,237                   | 3.72         | 0.94 | 466                    | 3.66         | 0.98 |
|     | The school principal involves teachers in the process of setting and evaluating school goals.                                  | 3,235                   | 3.61         | 0.95 | 467                    | 3.52         | 0.98 |
|     | The school principal seeks advice from teachers, parents and students on school reform and development.                        | 3,233                   | 3.58         | 0.99 | 467                    | 3.49         | 1.02 |
|     | The school principal consults with teachers on decisions that can influence them.  | 3,235                   | 3.54         | 1.02 | 467                    | 3.52         | 1.03 |

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**Table 1.** (Continued)

| No. | Variables and survey items  | PLC Participation = Yes |              |      | PLC Participation = No |              |      |
|-----|---|-------------------------|--------------|------|------------------------|--------------|------|
|     |   | <i>n</i>                | Mean<br>or % | S.D. | <i>n</i>               | Mean<br>or % | S.D. |
|     | The school principal shows interest in and treats fairly the personal problems of teachers.             | 3,237                   | 3.48         | 1.03 | 467                    | 3.45         | 1.10 |
|     | The school principal is interested in improving classroom instruction and in the new ideas of teachers. | 3,234                   | 3.60         | 0.98 | 466                    | 3.56         | 1.00 |
|     | The school principal expects teachers to perform their duties creatively.                               | 3,236                   | 3.75         | 0.96 | 467                    | 3.74         | 0.96 |
|     | The school principal encourages teachers to strive for professional development.                        | 3,235                   | 3.73         | 0.96 | 467                    | 3.64         | 1.00 |
|     | The school principal recommends the application of new teaching methods.                                | 3,235                   | 3.64         | 0.94 | 466                    | 3.61         | 0.99 |
|     | The school principal works to reduce administrative duties to allow teachers to focus on teaching.      | 3,235                   | 3.39         | 1.05 | 467                    | 3.36         | 1.10 |

*Notes:* Survey items were rated on a 5-point Likert scale ranging from 1 (not at all) to 5 (strongly agree or very much reflected). Construct variables were reported using standardised measures; Cronbach's alpha coefficients were reported for each construct. The reference groups for categorical or dummy variables were specified in the table.

### Data Analysis Procedure

This study investigates two dimensions of teacher leadership: within-classroom context and beyond-classroom context. Teacher leadership within-classroom pertains to instructional activities centred on students, while teacher leadership beyond-classroom examines teachers' decision-making authority in the school setting. Teacher leadership within-classroom comprises nine responses evaluating the implementation of learner-centred instructional strategies. Teacher leadership beyond-classroom, comprises seven responses gauging teachers' perception of their influence in administrative decision-making processes.

To construct our outcome variables, we selected items related to decision-making agendas beyond the classroom. Exploratory factor analysis was conducted by following the eigenvalue > 1 rule (Kaiser, 1960), which resulted in all items loading onto a single factor. Confirmatory factor analysis (CFA) was also performed to ensure internal consistency reliability using Cronbach's alpha coefficients (Huck, 2011; Taherdoost, 2016). Cronbach's alpha coefficients were 0.907 and 0.900 for teacher leadership within and beyond-classroom, respectively, Table 1 indicating appropriate reliability (Huck, 2011). Multilevel ordinary least squares

(OLS) regression analysis was conducted to investigate the leadership variables, accounting for the hierarchical structure of the data with teachers nested within schools. Stata 17 was used for all analyses.

$$y_{ij} = \gamma_{00} + \gamma_{p0}X_{pij} + u_{0j} + \epsilon_{ij}$$

where,  $y_{ij}$  is the dependent variables of interest (teacher leadership within-classroom and teacher leadership beyond-classroom),  $\gamma_{00}$  is the overall mean for the model,  $X_{pij}$  is a vector of fixed-effects covariates (perceived benefits of participating in PLCs; teachers' demographic information; school characteristics; and school).

This study's analytic model was based on a null model and involved sequentially adding variables, including: (1) perceived benefits of participating in PLCs, (2) demographic information of teachers, (3) school characteristics (school culture, principal leadership, innovative/non-innovative schools, etc.), to investigate their associations with teacher leadership outcomes. The analysis results and fit statistics are presented in Tables 2 and 3, respectively, with the AIC and BIC scores measuring model performance. The model incorporating the full set of variables was deemed to be the best-fitting model for investigating the outcomes. Therefore, the interpretation of results will focus on Model 5.

## RESULTS

### Teacher Leadership Within-Classroom

Our multilevel regression analysis results indicate that perceived benefits from participating in PLCs significantly predict teacher leadership within-classroom. This suggests that teachers perceiving benefits from participating in PLCs are more likely to display strong classroom leadership, even after adjusting for other variables. Certain demographic characteristics also predict teacher leadership within-classroom. Females report higher levels of positive and strong leadership compared to males. Similarly, teachers with doctoral degrees exhibit more positive leadership than those with four-year college degrees. Interestingly, non-tenured teachers report higher levels of teacher leadership within-classroom compared to tenured teachers. The initial negative association between years of teaching experience (5 to 10 years) and teacher leadership within-classroom did not persist in Model 5. Total enrollment was not a significant predictor of teacher leadership within-classroom.

Our results indicate that school-level characteristics influence teacher leadership within-classroom. Although there was no statistical difference between public and innovative schools compared to private and non-innovative schools, both school culture variables were positively associated with teacher leadership within-classroom. Particularly, school culture was highly significant in predicting teacher leadership within-classroom, indicating that a positive perception of school culture can positively impact teacher leadership in the classroom. Principal leadership was also found to be a significant predictor, although to a lesser extent compared to school culture.

**Table 2:** Multilevel OLS regression results on teacher leadership within-classroom

| Variables  | Model 1 |         | Model 2  |         | Model 3   |         | Model 4   |         | Model 5   |         |
|--|---------|---------|----------|---------|-----------|---------|-----------|---------|-----------|---------|
|  | $\beta$ | SE      | $\beta$  | SE      | $\beta$   | SE      | $\beta$   | SE      | $\beta$   | SE      |
| <i>Fixed effects</i>                                       |         |         |          |         |           |         |           |         |           |         |
| Intercept  | 0.0     | [0.013] | 0.007    | [0.014] | -0.138*** | [0.032] | -0.184*** | [0.041] | -0.158*** | [0.041] |
| Perceived benefits of participating in PLCs                |         |         | 0.136*** | [0.013] | 0.128**   | [0.013] | 0.136***  | [0.014] | 0.086***  | [0.015] |
| Female (reference: male)                                   |         |         |          |         | 0.159**   | [0.028] | 0.149**   | [0.031] | 0.167**   | [0.031] |
| Years of teaching experience (reference: 10–20 years)      |         |         |          |         |           |         |           |         |           |         |
| • Less than 5 years  |         |         |          |         | -0.049    | [0.040] | -0.059    | [0.043] | -0.037    | [0.042] |
| • 5–10 years   |         |         |          |         | -0.093*   | [0.037] | -0.085*   | [0.039] | -0.071    | [0.038] |
| • 20–30 years  |         |         |          |         | -0.015    | [0.039] | -0.001    | [0.042] | -0.022    | [0.041] |
| • Over 30 years  |         |         |          |         | 0.05      | [0.069] | 0.069     | [0.072] | 0.016     | [0.071] |
| Educational attainment (reference: 4-yr college graduates) |         |         |          |         |           |         |           |         |           |         |
| • Graduate from a two-year college                         |         |         |          |         | -0.003    | [0.729] | 0.012     | [0.728] | 0.034     | [0.716] |
| • Complete the Master's coursework                         |         |         |          |         | -0.003    | [0.057] | -0.002    | [0.059] | 0.004     | [0.059] |
| • Obtain a Master's degree or equivalent                   |         |         |          |         | 0.060*    | [0.029] | 0.06      | [0.031] | 0.058     | [0.030] |
| • Complete the doctorate coursework                        |         |         |          |         | 0.263*    | [0.123] | 0.334*    | [0.137] | 0.332*    | [0.134] |
| • Obtain a doctorate degree or equivalent                  |         |         |          |         | 0.417**   | [0.153] | 0.499*    | [0.195] | 0.474*    | [0.192] |

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**Table 2. (Continued)**

| Variables  | Model 1              |         | Model 2              |         | Model 3              |         | Model 4              |         | Model 5              |         |
|--|----------------------|---------|----------------------|---------|----------------------|---------|----------------------|---------|----------------------|---------|
|  | $\beta$              | SE      | $\beta$              | SE      | $\beta$              | SE      | $\beta$              | SE      | $\beta$              | SE      |
| • Non-tenured teacher                                  |                      |         |                      |         | 0.169 <sup>***</sup> | [0.038] | 0.183 <sup>***</sup> | [0.041] | 0.119 <sup>**</sup>  | [0.041] |
| • Administrative head teacher                          |                      |         |                      |         | 0.109 <sup>*</sup>   | [0.048] | 0.088                | [0.052] | 0.039                | [0.051] |
| Public schools (reference: private schools)            |                      |         |                      |         |                      |         | 0.052                | [0.035] | 0.028                | [0.035] |
| Innovative schools (reference: Non-innovative schools) |                      |         |                      |         |                      |         | 0.067                | [0.037] | 0.027                | [0.037] |
| • Log of total enrollment                              |                      |         |                      |         |                      |         | 0.003                | [0.015] | 0.002                | [0.015] |
| • School culture                                       |                      |         |                      |         |                      |         |                      |         | 0.132 <sup>***</sup> | [0.027] |
| • Principal leadership                                 |                      |         |                      |         |                      |         |                      |         | 0.063 <sup>*</sup>   | [0.025] |
| <i>Random effects</i>                                  |                      |         |                      |         |                      |         |                      |         |                      |         |
| $\sigma^2$ int/school                                  | 0.009 <sup>***</sup> | [0.005] | 0.007 <sup>***</sup> | [0.005] | 0.008 <sup>***</sup> | [0.005] | 0.003 <sup>***</sup> | [0.005] | 0.005 <sup>***</sup> | [0.005] |
| $\sigma^2$ int/individual                              | 0.563 <sup>***</sup> | [0.014] | 0.532 <sup>***</sup> | [0.014] | 0.520 <sup>***</sup> | [0.014] | 0.522 <sup>***</sup> | [0.015] | 0.502 <sup>***</sup> | [0.014] |
| <i>Fit statistics</i>                                  |                      |         |                      |         |                      |         |                      |         |                      |         |
| AIC  | 8,397.43             |         | 6,961.763            |         | 6,863.12             |         | 6,029.046            |         | 5,928.258            |         |
| BIC  | 8,416.066            |         | 6,985.961            |         | 6,959.788            |         | 6,141.389            |         | 6,052.395            |         |

Note: Standardised beta coefficients; Standard errors in brackets. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

## **Teacher Leadership Beyond-Classroom**

The analysis suggests that various characteristics impact teacher leadership beyond-classroom compared to teacher leadership within-classroom. We focused on the extent to which teachers' voices are reflected in the school's decision-making processes when investigating teacher leadership beyond-classroom (see Table 1). Perceived benefits of participating in PLCs remain a significant and positive predictor of teachers' beyond-classroom leadership, indicating the positive influence of PLC participation on teachers' leadership both contexts. Female teachers are more likely to report negative experiences with teacher leadership beyond-classroom than males, implying a disparity between their within-classroom leadership skills and their senses of inclusion. This finding is crucial given that comprise over two-thirds of the school community.

Another interesting finding is years of teaching experience. Teachers with less than 10 years of experience tended to report unfavourable experiences, indicating their opinions are not fully reflected in decision-making. There is significant difference in predicting teacher leadership beyond-classroom between tenured and non-tenured teachers as well as administrative head teachers, indicating whose voices matter. Non-tenured teachers more likely report their voices not being fully reflected, whereas administrative head teachers were more likely to report higher levels of responses than the reference group. Since teaching experience is closely related to age and the type of teacher, this result implies that complicated cultural factors are in play in South Korean schools, including the gender variable. However, educational attainment did not significantly predict teacher leadership beyond-classroom in this model.

Our study also found that teachers in public schools were more likely to feel their opinions were reflected in decision-making compared to private school teachers. This suggests a potentially less flexible school culture in private schools, although additional research is needed. The variable of innovative schools did not significantly predict teacher leadership beyond-classroom, consistent with the teacher leadership within-classroom. Considering that innovative schools were established in Gyeonggi Province, with the primary objective of fostering teacher leadership in change and innovation and cultivating a school culture to value community, these results offer valuable insights for evaluating the current state of innovative schools and could potentially inform policy discussions aimed at optimising their effectiveness.

Total enrollment was negatively and significantly linked with teacher leadership beyond-classroom. Teachers in larger schools tended to feel their opinions were undervalued compared to those in smaller schools. School culture variables remained significant predictors of teacher leadership beyond-classroom, similar to the within-classroom analysis, even analysis, after controlling for other variables. The results highlight the crucial role of school culture and principal leadership in influencing teachers' leadership within and beyond the school context.

**Table 3.** Multilevel OLS regression results on teacher leadership beyond-classroom

| Variables  | Model 1 |         | Model 2  |         | Model 3   |         | Model 4   |         | Model 5   |         |
|--|---------|---------|----------|---------|-----------|---------|-----------|---------|-----------|---------|
|  | $\beta$ | SE      | $\beta$  | SE      | $\beta$   | SE      | $\beta$   | SE      | $\beta$   | SE      |
| <i>Fixed effects</i>                                       |         |         |          |         |           |         |           |         |           |         |
| Intercept  | 0.0     | [0.017] | 0.008    | [0.017] | 0.043     | [0.034] | -0.141**  | [0.045] | -0.066    | [0.036] |
| Perceived benefits of participating in PLCs                |         |         | 0.197*** | [0.013] | 0.190***  | [0.013] | 0.187***  | [0.014] | 0.039**   | [0.012] |
| Female (reference: male)                                   |         |         |          |         | -0.087*** | [0.029] | -0.135*** | [0.031] | -0.080**  | [0.026] |
| Years of teaching experience (reference: 10–20 years)      |         |         |          |         |           |         |           |         |           |         |
| • Less than 5 years  |         |         |          |         | -0.145*** | [0.041] | -0.192*** | [0.043] | -0.132*** | [0.036] |
| • 5–10 years   |         |         |          |         | -0.095*** | [0.037] | -0.120**  | [0.039] | -0.083*   | [0.032] |
| • 20–30 years  |         |         |          |         | 0.029     | [0.040] | 0.042     | [0.042] | -0.019    | [0.035] |
| • Over 30 years  |         |         |          |         | 0.228***  | [0.069] | 0.237***  | [0.072] | 0.089     | [0.060] |
| Educational attainment (reference: 4-yr college graduates) |         |         |          |         |           |         |           |         |           |         |
| • Graduate from a two-year college                         |         |         |          |         | 0.015     | [0.728] | 0.078     | [0.722] | 0.098     | [0.606] |
| • Complete the master's coursework                         |         |         |          |         | -0.035    | [0.057] | -0.042    | [0.059] | -0.039    | [0.050] |
| • Obtain a Master's degree or equivalent                   |         |         |          |         | 0.036     | [0.029] | 0.004     | [0.030] | 0.002     | [0.026] |
| • Complete the doctorate coursework                        |         |         |          |         | 0.106     | [0.123] | 0.174     | [0.136] | 0.154     | [0.114] |

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Table 3. (Continued)

| Variables                                   | Model 1              |         | Model 2              |         | Model 3              |                     | Model 4              |                     | Model 5              |         |  |
|---|----------------------|---------|----------------------|---------|----------------------|---------------------|----------------------|---------------------|----------------------|---------|--|
|   | $\beta$              | SE      | $\beta$              | SE      | $\beta$              | SE                  | $\beta$              | SE                  | $\beta$              | SE      |  |
| Teacher type (reference: Tenured teachers)  |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| • Non-tenured teacher                       |                      |         |                      | 0.055   | [0.038]              | 0.111 <sup>**</sup> | [0.041]              | -0.077 <sup>*</sup> | [0.034]              |         |  |
| • Administrative head teacher               |                      |         | 0.353 <sup>***</sup> | [0.048] | 0.334 <sup>***</sup> | [0.052]             | 0.188 <sup>***</sup> | [0.043]             | 0.228 <sup>***</sup> | [0.031] |  |
| Public schools (reference: private schools) |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| Innovative schools                          |                      |         | 0.083                | [0.045] | -0.021               | [0.017]             | -0.026 <sup>*</sup>  | [0.013]             | 0.402 <sup>***</sup> | [0.023] |  |
| • Log of total enrollment                   |                      |         |                      |         |                      |                     |                      |                     | 0.169 <sup>***</sup> | [0.021] |  |
| • School culture                            |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| • Principal leadership                      |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| <i>Random effects</i>                       |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| $\sigma^2$ int/school                       | 0.048 <sup>***</sup> | [0.008] | 0.049 <sup>***</sup> | [0.008] | 0.055 <sup>***</sup> | [0.009]             | 0.034 <sup>***</sup> | [0.008]             | 0.010 <sup>***</sup> | [0.004] |  |
| $\sigma^2$ int/individual                   | 0.576 <sup>***</sup> | [0.014] | 0.522 <sup>***</sup> | [0.014] | 0.497 <sup>***</sup> | [0.013]             | 0.494 <sup>***</sup> | [0.014]             | 0.355 <sup>***</sup> | [0.010] |  |
| <i>Fit statistics</i>                       |                      |         |                      |         |                      |                     |                      |                     |                      |         |  |
| AIC   | 8,722.047            |         | 7,130.708            |         | 6,972.693            |                     | 6,062.426            |                     | 5,068.316            |         |  |
| BIC   | 8,740.706            |         | 7,154.935            |         | 7,069.479            |                     | 6,174.922            |                     | 5,192.623            |         |  |

Notes: Standardised beta coefficients; Standard errors in brackets. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## **DISCUSSION**

This study examines the effects of PLCs on teacher leadership and identifies factors that influence teacher leadership at individual and school levels. However, it is imperative to note certain limitations before discussing the results' implications. First, previous researchers used varying conceptual definitions and measurement tools for teacher leadership, which may differ from this study. Second, limited measurement items were used to structure teacher leadership due to the use of secondary administrative data. These limitations acknowledge the need for further research to develop a consistent teacher leadership theory across various contexts and datasets. Despite these limitations, this research provides significant results that warrant thorough deliberations and implications addressed below.

### **PLCs as a Space to Enhance Teacher Leadership**

Participating in PLCs enhances both teacher leadership within-classroom and beyond-classroom. Teachers benefiting from PLCs demonstrated higher levels of teacher leadership in both settings. The results indicate a positive association between perceived benefits from PLC participation and teacher leadership. This implies that PLCs serve as a platform for teachers to develop professionalism and professional capital through voluntary participation, confirming previous research (Hargreaves & Fullan, 2012; Katzenmeyer & Moller, 2009; Kim & Han, 2021; Kim & Song, 2019; Lee & Ip, 2021; Pan et al., 2023). Additionally, although PLCs and teacher leadership are interdependent factors (Kim & Han, 2021), they can produce a synergistic effect when appropriately supported.

### **School Culture and Principal Leadership Matter**

This study highlights the integral role of positive school culture and supportive principal leadership in fostering teacher leadership. School culture and principal leadership significantly predict teacher leadership, consistently with prior research that has emphasised their importance (Kabler, 2013; Katzenmeyer & Moller, 2009; Wenner & Campbell, 2017; York-Barr & Duke, 2004; Yusof et al., 2016). This finding also aligns with the conclusion that fostering a supportive school culture is paramount for promoting teacher leadership (Katzenmeyer & Moller, 2009), while unsupportive school culture and principal leadership can impede its the development (Wenner & Campbell, 2017).

### **Importance of Differentiated Support for Teachers**

This study found differing effects on teacher leadership in different leadership areas. Female teachers demonstrated higher levels of teacher leadership within-classroom, while male teachers exhibited higher levels of teacher leadership beyond-classroom. This is noteworthy given that males (58%) slightly outnumbered their female teachers (42%) in Gyeonggi Province (Gyeonggido Office of Education, 2018b). Teachers with less than 10 years of teaching experience reported lower levels of leadership, consistent with previous research by Gülbahar (2017). This study also highlighted power dynamics and hierarchies negatively impacting teacher leadership, particularly for female and non-tenured teachers in teacher leadership beyond-classroom. This underscores the importance of promoting an equitable and inclusive school culture that prioritises the voices and experiences of all stakeholders.

## Challenges of Innovative Schools

The status of being an innovative school in Gyeonggi Province has little impact on determining teacher leadership levels and may have even less impact than regular schools in this study. The innovative school policy launched in 2009 aimed to promote democratic and collaborative school culture (Ahn & Lee, 2018), operate PLCs (Lee et al., 2016; 2019), and reconstruct teacher education programs with student-centred classes (Yun & Kim, 2020). However, this study's results challenge the hypothesis that innovative schools significantly influence teacher leadership. This implies that innovative schools may face challenges in implementing policies that promote teacher leadership. These results align with concerns raised by previous studies regarding the implementation of innovative school values within the Korean educational system centred around college entrance exams (Shim, 2018).

## CONCLUSION

This study, although focused solely on the South Korean context, yields important implications for policymakers and educational leaders in other countries interested in promoting teacher leadership in their respective countries. Fostering a positive school culture, supportive principal leadership, and considering teachers' personal characteristics are key factors in promoting teacher leadership. PLCs can support professional development, but a favourable school culture and leadership are essential. Policymakers and educational leaders should also consider teachers' personal characteristics when creating equitable and inclusive school environments. Deliberate and targeted support for teachers based on gender, teaching experience, and teacher type is crucial for their professional growth and development. Encouraging active participation in decision-making is also pivotal. In South Korea, innovative school policies have advanced democratic and collaborative school culture, yet intentional strategies are required for meaningful implementation. Sharing best practices, providing professional development opportunities, and conducting further research in various contexts are also important for promoting teacher leadership effectively.

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