



A Model of Professional Learning Communities of Elementary School Principals Using the Grounded Theory Approach

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Abstract

Despite the importance of continuous professional development for schools principals, researches show that their professional development approaches need to be review and move towards programs based on collective learning. Therefore, the main goal of this research was to provide a model for professional learning communities of elementary school principals. The present study was conducted using the qualitative research method of systematic grounded theory and Interviews were conducted with a targeted, criterion-based sample, including 29 key informants (15 university professors and 14 school principals) who professors were authors (have published articles or books in the field of professional development and professional learning communities) or had experience implementing projects related to this field. The inclusion criterion for school principals was also having at least 5 years of experience as a school principal. The interviews were analyzed using the coding methods of Strauss and Corbin (1998). Four criteria of data authenticity, transferability, reliability and verifiability were used to check the validity of the data. After conducting interviews and open, axial and selective coding; The research results showed 18 general selection codes including causal conditions (collective learning culture; feeling the need for collective learning; leadership and management styles), contextual conditions (dynamic and flexible organizational structure; infrastructures and facilities; empathy and common goals; Encouraging principals towards learning communities), intervening conditions (teaching soft skills; suitable time and place for meetings related to communities; management knowledge; correct plan and program), central phenomenon (professional learning communities), Strategies for developing professional learning communities (suitable work space; professional learning; the existence of a supportive policy for learning communities; modeling of the experiences of successful schools) and consequences (organizational consequences; student success; professional development of teachers) that reflected the pattern of professional learning communities of primary school principals and the relationships between its different dimensions.

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Introduction

In international school improvement research, there is a consensus that principals are important for school success (Klein & Schwanenber, 2020). The principal plays a vital role in supporting the school's development as a learning organization (Gaudioso, 2017). In addition, principals are expected to act as instructional leaders in their schools by promoting the best possible practices in teaching and learning so that students achieve maximum academic success (Schechter & Shaked, 2016).

Lambert et al. (2003) recommend that school leaders should focus on their learning as much as they focus on student learning (Seaton, 2019). Also, Yang (2014) emphasizes that focusing on the teaching and professional development of the principal is an important factor in creating positive educational reforms and transformation (Jiang et al., 2017). Despite the fundamental role of professional development for school principals, the American Educational Research Organization has concluded in a study that principals have not received the necessary training to meet the complex needs of today's schools (Larry, 2006) and universities have failed to fully prepare school administrators for these situations (Bichsel, 2008; Ibrahim, 2011).

Critics of leadership preparation programs believe that there is little connection between the theory supported in the preparation programs and the practical on-the-job experiences of school leaders (Clayton et al., 2013). Common professional development formats in the regions, include holding educational workshops and using foreign speakers (Duncan et al., 2011) which are often "single-stage" with little or no continuity (Duncan, 2013). In fact, this approach to professional development provides participants with theory, but does not give them the opportunity to apply this knowledge or analyze its effectiveness in their professional practice (Andreassen et al., 2018). Darling-Hammond et al. (2007), confirming this issue, stated that traditional approaches in principal preparation and development programs often fail to connect theory with practice (Clayton et al., 2013). The gap between theory, preparation, and practice makes poorly taught principals not sufficiently prepared to face the challenges ahead to play roles related to their school

(Geren, 2016). This is in line with Zhang (2008) and Wilson and Shiu (2013) who have highlighted the importance of context-based training as a way to develop principals' leadership skills and expertise (Jiang et al., 2017).

Fullan (2002) argues that context-based learning is important for the principal role because when teams of principals work together to examine real-world problems in the region and develop solutions, their learning leads to improved approaches. Zepeda et al. (2015) also as a result of summarizing research and specific literature on professional development for effective school leadership, pointed out that collaborative processes that involve groups of school leaders over time are likely to promote leader reflection, consider context, and lead to actions that address change in practice (Bickmore et al., 2021). With this description, in order for principals to progress professionally and efficiently in their role, they should be actively involved in the development of professional learning and expanding their knowledge and participate in a meaningful collaborative process such as Professional Learning Communities (PLC). It is important to develop and strengthen the principal's leadership skills through the use of professional learning communities; Because principals should have an opportunity to reflect on shared performance and also guide their learning in a purposeful, focused, and embedded way in the work they do every day (Serrato, 2015). Principal professional learning communities (PPLCs), which is sometimes called networks, can be a promising strategy for helping principals to learn how to play a role in the field of instructional leadership (Honig & Rainey, 2014).

Most studies related to learning communities have focused on teachers or the role of leaders in facilitating teachers' professional learning communities (Strand & Emstad, 2020). A review of the background of foreign researches in the field of professional learning communities of school administrators shows that few empirical studies have addressed this category. This is because that most of the time work of school administrators is spent in professional isolation (Serrato, 2015). In addition, professional development and preparation programs for principals often provide

principals with little experience of learning in a community (Gaudioso, 2017). While principals with isolated performance are not as effective as those who cooperate (Smith, 2019).

Within the country as well, according to domestic studies, there is no precise understanding and recognition of the concept of professional development for principals, and whether in practice and experience or in research, professional development is limited to formal in-service training courses (Yazdani et al., 2019). Although many studies (Ghoreyshi et al., 2023; Bazgir & Karbalaee hossein Afshar, 2020; Omidian et al., 2017; Shahraieni, 2013,...) have highlighted the importance of in-service training for school principals, but the results of some research (Hosseingholizadeh et al., 2020; Tamadoni & Hosseingholizadeh, 2023,) have shown the inefficiency and ineffectiveness of these trainings due to the lack of attention to context and the status of school principals' training and development is not very favorable. In such a situation, the need to present a coherent model that is theoretically based and consistent with the realities of our society in the field of professional learning communities for school principals, especially elementary school principals, is a necessity that is strongly felt so that it can be used as a guiding light for moving in this direction.

Therefore, the main goal of the current research was to develop a model of professional learning communities for elementary school principals based on the grounded theory, and it can be safely claimed that this research has not been done with this method in the target group. Regarding the reason for using grounded theory, it can be said that if in the current study we had also examined the development of the professional learning communities of school principals in the country based on previous researches and instead of using the grounded theory and examining the special characteristics of this society, we made inferences from the assumptions of previous researches, perhaps due to the distance from the realities of the society in question, we could not address this issue very well. The main validity and value of grounded theory is to collect data from a community of a specific field of study. Therefore, in this research, instead of adapting from other studies, which may have fundamental differences with our target society; We used data that arose from the heart

of the society and is homogeneous with it. In this regard, the researcher seeks to answer the question, what is the model of professional learning communities for principals in elementary schools? It is obvious that identifying the components of professional learning communities for elementary school principals is a suitable guide for understanding the contexts, conditions, indicators, obstacles, and consequences of the formation of these learning communities for principals, So that through that field of professional development of teachers and students in elementary schools, which is the most fundamental and fundamental stage of the educational system, can be provided.

Theoretical and empirical background of the research

The most promising strategy for sustained and substantial school improvement is to develop the ability of school members to function as a professional learning community (Velasquez, 2018). PLCs have emerged from a 1990s workplace learning business model called Communities of practice (COP). Professional learning communities can be understood from their label as a community of professionals who are engaged in learning (Gaudioso, 2017). In the literature, "professional learning community" and "professional community" are often used interchangeably, but experts or educational specialists are more familiar with professional learning community (Yin & Zheng, 2018). To understand the concept of professional learning community, one should look at research and theory from inside and outside the field of education. The roots of the concept of professional learning communities can be found in the literature that expresses the work of people such as Judith Little, (1982, 1990), Peter Senge (1989), Susan Rosenholtz, and Etienne Wenger (1998). From this collection of literature, the basic concepts of professional learning communities were extracted (Angelle & Teague, 2011).

A professional learning community emphasizes collaborative professional learning and has moved away from the isolated education that was common in the past (Mohan et al., 2019). In fact, professional learning communities are based on the assumption that knowledge is embedded in everyday life experiences

and is revealed and strengthened through interaction and critical reflection among peers (Coenen et al., 2021). Action-based inquiry, similar to the concept of action research, is the main idea of a professional learning community (Bansal, 2017). Hord (1997) identified five dimensions of professional learning communities: (1) shared values and vision, (2) collective creativity, (3) supportive and collaborative leadership, (4) supportive conditions, and 5 Sharing personal performance. The dimension of collective creativity was later renamed to the dimension of collective learning and its application. These five dimensions provide insight to discover the characteristics of successful professional learning communities (Turner, 2015).

In recent years, the implementation of professional learning communities has become popular as a professional development approach for teachers. Professional learning communities allow teachers to learn by collaborating with other teachers in a way that works best for their practice and enhances student achievement (East, 2015). According to the view of DuFour et al. (2016) also, professional learning communities are the optimal way to improve students' achievement through continuous development in the teacher's professional practice (Sims, 2022). However, despite all the advantages mentioned, implementing professional learning communities in schools presents numerous obstacles and challenges. Studies show that school leaders still do not provide support in developing PLC culture in schools (Ai, 2018; Chong et al., 2019; Khairul Anuar, 2019). Chong et al.'s (2019) study too discovered that some school leaders practice autocratic leadership styles. poor organizational structures such as lack of collaborative time (Ai, 2018; Chong et al., 2019; Khairul Anuar, 2019; Khairul Anuar et al., 2017) pose a challenge to PLC practices. Negative school culture, such as teachers' reluctance in sharing knowledge to their peers, is also a barrier to implementing PLC in schools (Chong et al., 2019). In addition, the lack of understanding and clear knowledge about PLC among leaders and committee heads which causes teachers to think that PLC activities do not bring benefits can be mentioned as another challenge in implementing this approach in schools (Ai, 2018). In explaining this challenge, It must be said that PLCs are complex and some researchers attribute their frequent failure to a lack of clarity on the part of principals about what PLCs are

as well as a lack of experience with PLCs (Gaudioso, 2017). Therefore, in order for principals to grow professionally and guide teachers in collaborative work, they need to gain experience and knowledge in the process of effective collaboration by participating in principal professional learning communities (Kerr, 2019). Principal's professional learning community is an emerging concept for professional learning for school principals. Principal professional learning communities have the potential to be effective models for continuous, relevant, and action-based professional learning for schools principals (Seaton, 2019). Dana, Thomas & Boynton (2011) defined a principal's PLC as a small group of principals from across the region (usually around 5-10 people) who meet regularly (usually as part of management team meetings held regularly by the region planned) to learn through structured dialogue and participation in continuous performance-related research cycles (Kerr, 2019). Hirsch & Hord (2008) have also stated that leaders participating in PPLC learn because they can reflect with other school leaders on the challenges in their schools and then work together to discover ways to overcome the challenges. In addition, by participating in PPLCs, school leaders gain insight into creating a learning culture that is important for the development of PLCs in their schools (Strand & Emstad, 2020).

The review of the background of the conducted researches also indicates that most of the researches on professional learning communities has focused on teachers' learning and principal's professional learning communities as an approach of professional development for principals is still a new research field (Gaudioso, 2017). In other words, despite the fact that many researches had been conducted in the field of teachers' professional learning communities (Ghasemzade Alishahi et al., 2023, Pourjamshidi et al., 2022, Rafai et al., 2021, Ahmadi Aghdam et al., 2021, Momenimahmouei & Mohammadzadehsangan, 2021, Wang & An, 2023, Nguyen et al., 2023, Abdullah et al., 2023, Sowndappan, 2023, Hudson, 2023, Thomas, 2023, Tahir et al., 2022, Rolandson & Ross-Hekkel, 2022, Razali et al., 2022, Patphol, 2022), but few empirical studies can be found in the field of the formation of these communities for school administrators.

In Iran, no purposeful research or report has been found in the country regarding the professional learning communities of school principals. The findings some of foreign researches conducted in this field (Dhakal et al., 2024, Kim et al., 2024, Ghamrawi et al., 2024, Gonzales et al., 2024, Sahlin, 2023, Lash et al., 2023, Bickmore et al., 2021, Miller et al., 2023, Irby et al., 2023, Liou et al., 2022, Clayton & Nganga, 2022, Liljenberg, 2021, Coenen et al., 2021, Lambert and Bouchamma, 2021, Meyer-Looze, 2021, Huggins et al., 2020, Acton, 2020, Ringling et al., 2020, Andreoli et al., 2020, Strand & Emstad, 2020, Lazenby et al., 2020, Cothorn, 2020, Daniels et al., 2020, Vijayadevar et al., 2019, Clarke, 2017,...) also show its positive consequences in the professional development of principals and as a result, improving the organizational performance of schools. For example, the findings of the study was done by Partin & Hayes (2024) showed that principals were satisfied with networking and stated that providing tools to develop the best approaches, including networking to share ideas and resources, helps them to perform their role as principals of rural schools better. Ghamrawi et al. (2024) found in their research that virtual communities of practice provide a rich environment for school principals to participate in collaborative learning, knowledge sharing, and professional networks, which all help develop their leadership skills. As a result of their study, Lash et al. (2023) argued that the design of PLC courses increases knowledge and skills related to instructional leadership for all principal participants. Based on the findings of Sahlin's (2023) research, networking, and interaction of principals with professional peers is the most effective form of professional learning for them. In the research was done by Miller et al. (2023), experienced school leaders interacted with their less experienced colleagues in online communities through discussions, and this free exchange of ideas made online communities useful for new as well as experienced school leaders. The results of the case study conducted by Coenen et al. (2021) indicated that the principals' PLCs led to the acquisition of new ideas, reduced professional isolation, and increased ability to critically reflect on their professional behavior. Lambert and Bouchama (2021) concluded in their qualitative research that the structured network in a CoP allows each of the school principals to participate in group sharing to improve the

professional competencies needed in order to exchange information to play effectively their roles and responsibilities. The findings of another qualitative research conducted by Bickmore et al. (2021) provide evidence that shows the school leader's CoP can be used as a professional development model that includes relevant and meaningful content and increases reflective performance, improving the leadership capacity and supporting the positive results of the school. Similarly, Meyer-Looze, (2021), found in his research that school principals value the importance of cooperation with other principal colleagues in the team and use reflection as a tool to increase learning and improve their daily performance. In Gümüş et al. (2021) research, networking activities provided active learning opportunities for principals by focusing on school-related problems and challenges through the development of informal peer support. Therefore, such on-the-job learning opportunities increased the principal's knowledge and skills, which in turn can have a positive impact on the teaching and learning environment in the school. Strand and Amstad, (2020) conducted research to encourage and support principals of six countries to work in principal's professional learning communities to increase leadership competencies and strengthen capable leadership for school development and teacher learning. Their findings showed that principals with participate in PPLCs have gained advanced leadership skills, awareness, and security in their leadership roles, new knowledge about organizing and implementing PLCs, and an understanding of the importance of PLCs. On the other hand, the research data of Lazenby et al. (2020), regarding the examination of the professional development needs and opportunities of a group of experienced principals in Australia, showed the need for networking as a basis for creating collective efficiency and becoming a core professional learning strategy for experienced principals. Acton (2020) as a result of his qualitative study, about whether school-experienced administrators feel prepared in their role as agents of change and understanding which of the professional learning approaches best supports them in acquiring these skills, found out that of the six leadership learning approaches based on Huber's (2011) model, two components of networking with reliable colleagues and the on-the-job experience were prominent the most important in This field. In a multiple case study

conducted by Ringling et al. (2020), findings showed that while participants participated in formal learning opportunities before and during management, most of their learning occurred among trusted peers in an informal social network. Based on the findings of Rittenour's (2017) study, it was determined that participation in the principal's PLC has benefits such as the ability to share ideas, reflect, feel less isolated, promote the professional development of the school leader, and also change the school culture. Finally, the aim of Leithwood and Azah's (2016) article was to investigate the characteristics of effective leadership networks and the contribution of these networks in developing the professional capacities of leaders, and the results showed that participation in leadership networks is a powerful source of professional learning for schools administrators.

Methodology

The current research has been conducted in terms of practical purpose and using the qualitative research method. The strategy used in this research is systematic grounded theory. The target group of the study was professors field of educational sciences and elementary school principals in the Sistan region. In this research, according to the nature of qualitative research, the Criterion-based purposeful sampling method was used. In such a way that professors were authors (have published articles or books in the field of professional development and professional learning communities) or had experience implementing projects related to this field. The inclusion criterion for school principals was also having at least 5 years of experience as a school principal. For this purpose, 29 people (14 primary school principals and 15 university professors) from the key informants of this field were selected as research participants. The demographic information of the participants is presented in table number (1). Also, in the current research, in order to identify the opinion of the participants in the field of research, semi-structured exploratory interview was used. The reason for using a semi-structured interview in the above research is that, in addition to providing the opportunity to exchange opinions and ideas, it is possible to guide the discussion and topic of the interview in order to achieve the research goals.

After determining the interviewees, the necessary coordination for the time and place of the meeting was

done by the interviewer. Before the meeting, the indicators identified in the background review section, interview questions and research objectives were given to the interviewees to prepare them for the interview. The interviews were conducted separately with the key informants of the research field and generally during one session (about an hour and a half). During the interview, various methods such as taking notes and recording the process of interviews were used to record information. We also tried to establish a good relationship with the interviewee and gain his trust. Then, data analysis was done based on the guidelines provided by Corbin & Strauss (1990) during the three main stages of open coding, central coding and selective coding. To measure the validity of the data, the criterion (Guba & Lincoln, 2000) was used and four validation criteria of data authenticity, transferability, reliability and verifiability were examined; In such a way that an effort was made to select participants with the maximum variety of experiences. Sampling continued until the data reached saturation and the most appropriate semantic unit was selected (confirmation of transferability criterion). Next, the internal validity of the content analysis was evaluated by the research experts through face validity. For this purpose, after conducting the interview and coding, the text of the interview and the extracted codes were presented to the participants and they were asked to comment on the correctness of these items and inform them if there are any discrepancies or ambiguities. After collecting and reviewing the opinions of the participants, the validity of the data was confirmed (Confirmation of the criterion authenticity of the data). To ensure that the interpretation of the data reflects the phenomenon under study, review by people other than the research participants was also used (reliability criterion confirmation). Also, we tried to increase the accuracy of the obtained codes by repeatedly referring and comparing the statistical codes from the interviews and obtaining advice from the experts (Verification of verifiability criteria).

Table 1: Demographic data of participants in the research

University professors				
Expert code	gender	Scientific rank	Employment (years)	field of study
1	male	associate professor	22	educational administration
2	female	assistant professor	9	educational administration
3	female	associate professor	21	educational administration
4	female	assistant professor	5	educational administration
5	female	assistant professor	12	educational administration
6	male	assistant professor	3	educational administration
7	male	assistant professor	5	educational administration
8	male	assistant professor	6	educational administration
9	male	associate professor	21	educational administration
10	male	associate professor	24	educational administration
11	male	assistant professor	8	educational administration
12	male	associate professor	23	educational administration
13	male	assistant professor	13	educational administration
14	female	assistant professor	11	educational administration
15	female	professor	26	educational administration
School principals				
Expert code	gender	Employment (years)	Management experience (years)	field of study
1	female	17	9	educational sciences
2	male	21	8	persian literature
3	male	24	5	theology
4	female	13	5	psychology
5	male	15	7	educational psychology
6	female	25	10	educational sciences
7	male	19	12	educational administration
8	female	11	9	educational sciences
9	male	13	8	educational sciences
10	female	14	5	elementary education
11	female	28	21	elementary education
12	male	9	7	geography
13	female	12	5	history
14	female	10	6	arabic literature

Findings

After conducting interviews and extracting 276 primary codes in the first stage of open coding and classifying them into 53 central codes (components) in the second stage of open coding, the components were classified into 18 main categories in the third stage of open coding. In the central coding stage, the concepts

obtained from the open coding stage were linked to each other in the form of: causal conditions, central phenomenon, contextual factors, intervening factors, strategies and consequences in the form of a paradigm model. In Table 2, primary codes, components and main classes has been presented.

Table 2. Coding the pattern of professional learning communities of primary schools principals

Dimensions of the Paradigm model	Categories	Concepts	Codes
Causal factors	Collective learning culture	Institutionalization of the culture of learning communities	The formation of the culture of learning communities in school (OS14), Institutionalizing the culture of collective accountability (OS15), Institutionalizing the culture of supporting learning communities (OS7 and 10), Institutionalization of learning communities in the organization (OS1, OS5, OS6, OS7, OS9), The existence of a culture of collective responsibility in the organization (OS6, OS11)
		Collective learning culture	The dominance of learning culture (OS4, OS9), Feeling the need for collective learning (OS4), collective learning culture (Mod 6, Mod 9, Mod 11, OS 10, OS 14), groupwork culture (OS11, OS15), Formation of learning commons (OS9)
		Collective values and beliefs	Belief in change by the teacher (OS7), Belief in change by the principal (OS7, OS8), Creating positive thinking (OS8), Belief in change by teacher and principal (OS6, OS12), The impact of society's beliefs and values (OS15, OS11)
		culture of participation and cooperation	Having participation (OS3, OS12, OS14), Having cooperation (OS3, OS15), common thought (OS2, OS4, OS5, OS15), Having common goals (OS2, OS6, Mod3, Mod7)
		Group learning culture	Collective work (OS13, OS15, Mod 3, Mod 8), Sharing (OS3, OS13, OS14), Group learning (OS9, OS11, OS15), Governance of group learning (OS11, OS3), Teamwork (OS6, OS8)
	Feeling the need to collective learning	Collective self-efficacy	Belief in collective ability (OS5, OS8), Optimistic attitude towards collective learning (OS13), Feeling welcome towards collective assignments (OS1), Belief in collective self-efficacy skills (OS4)
		Individual attitudes	Having synergy (OS3), having commitment (OS15, OS14, OS3), Having individual motivation (OS7), Developed view (OS7), Having a self-motivated look (OS7), social belonging (OS4)
		Collective learning facilities	Alignment of educational factors (OS1), Need assessment (Mod 13, Mod 6, Mod 4, Mod 2), Educational factors (OS9), Educational facilities and equipment (Mod 9, Mod 11)
	Leadership and management styles	Transformational leadership style	transformational principals (OS3, OS1), effective leaders (Mod 4, OS8, OS1), Distributive leadership (OS8), Collaborative leadership (OS15, OS8), Supporting leaders (OS15, OS14, OS8), Transformational leaders (OS3)
		Collective management styles	Participatory management (OS6), collective management (OS4), rational management (OS15), Community-based management (OS11)
Background factors	Flexible and dynamic organizational structure	The governance of the support structure	The plan is supported by the administration (Mod 14, 12, 11, 10, 9, 8, 4), Giving importance to people (OS12), Being the guardian of the organization for communities (OS7), Supporting of the powerful structure of the school (OS8, 1), Financial support of schools (OS5, OS11).
		Improvement of principals	Paying attention to principals' livelihood (OS13), principals training (OS10), Capable principal (OS3), existence of responsible principals (OS3), creative principals (OS3), Up-to-date principals (OS3), Flexibility of principals (OS8), Delegation of authority by the principal (OS1), Having management literacy (Mod 11, 8, OS1), Being

Dimensions of the Paradigm model	Categories	Concepts	Codes
			supported principal (Mod 3, OS 9, 3, 2, 1), principal empiricism (Mod 2, OS10, 1), principal's knowledge (Mod 11, OS5, OS1)
		Organic organizational structure	Changing educational structures (OS13), Flexible structure (OS 14, 13, 8), Organic and dynamic structure (OS8), Decentralized structure (OS 15, 14, 10, 8).
		Existence of facilitating rules	Establishing rules and regulations (OS10), Facilitating the formation of communities (OS7, 9), Providing healthy competition (OS9, 4), Existence of facilitating laws (OS13), Approval of new laws to support of learning communities (OS10)
	Infrastructure and facilities	Physical infrastructure	The Existence of appropriate classes (OS9), suitable educational space (OS11), New buildings (OS13), existence of the laboratory (OS8), existence of equipped libraries (OS 3, 9)
		Technological infrastructure	Technology infrastructure (OS12, 9), Having the right facilities (Mod12, OS10, 1), Having a communication platform (OS2), Providing communication infrastructure (OS2), Existence of computer sites (OS12), Wireless and broadband (OS4, OS7)
	Empathy and common goals	Collective responsibility	Feeling of shared responsibility (OS 8, 7, 3), Having a common goal (OS14, 10, 5, 2), Responsibility towards the organization (Mod 5, OS11, 2), Responsibility towards colleagues (OS9, 1), Students' responsibility (OS1)
		Empathy of members	Interaction of people with each other (OS7), Two-way communication between people (Mod 8, OS 15, 10, 9, 8, 6), Having a sense of coherence (OS2), Being sympathetic (OS1), The existence of an atmosphere of empathy in the school (Mod 11, 9, 1, OS 13, 12, 8, 7)
		Mutual trust	accepting each other (Mod 12, OS 9, 3), Having self-confidence (OS 3, 4), Building trust (Mod 13, 8, 3, 1, OS 13, 12, 9, 4, 3), The existence of mutual trust in the organizational atmosphere (OS1), Mutual trust (Mod 2, OS 15, 12, 8, 7, 1)
	Encouraging principals towards learning communities	Supporting of collective learning opportunities	Supporting learning opportunities (OS 15), Creating a learning space (OS 13), Supporting the feeling of needing to learn (OS 12), Explanation of new concepts, commitment to lifelong learning (OS3), Changing the learning process (OS11, 1), Having innovation (OS1)
		Encouraging teachers towards learning communities	Supporting principals who believe in collective learning (OS7), Material support of principals for move towards learning communities (OS14, 10, 1), Spiritual support of principals for move towards learning communities (OS15, 12, 1)
		Defining specific tasks for principals	Having a job description (OS10), Having a job description (OS10), meritocracy (OS 9, Mod 11), Development of skills (OS2), Non-discrimination (OS1)
		Encouragement and creat motivation	Having motivation (OS3), Encourage (Mod 12, 11, 7, 6, 4, 3, 2, 1, OS 12, 11, 10, 8, 7, 6, 4, 3, 1), having a pattern (Mod 4, 1, OS 11, 8, 1), Having an incentive (OS 13, 9, 6)
Strategies	Suitable work space	Availability of colleagues	Meeting access for all (Mod 6, 8), principals' access to each other (Mod 7), Indirect management (OS 15, 11).
		Job transformation	Change of qualifications (OS11), Changing the conditions for qualifying positions (Mod 4, OS11), Implementation of job rotation (OS14), Implementation of job enrichment (OS14), Changing Description of duties (OS11), Favorable work environment (OS 8, 6, 9)
		Informal communication in the workplace	Psychological safety (OS 2), Not making schools competitive (Mod 5, OS 10), Creating informal communication (OS 12, 11, 6, 4, 3)
	Professional learning	Professional development	Conducting action research (Mod 7, OS8), Conducting lesson research (OS8), Cashability (OS7), Being thoughtful (OS7), Development of professional commitment (OS7), Development of professional knowledge (OS7), Learner teacher (OS 4, 1)

Dimensions of the Paradigm model	Categories	Concepts	Codes	
		Development of learning skills	Providing new learning courses (Mod 9, OS8), Using the capabilities of cyberspace to develop learning skills (Mod 14, 12, 9, 8, 5, 3, OS 12, 6, 3), Change in in-service courses to provide new knowledge (OS14), Soft skills training (OS15)	
		Development of professional knowledge	have a professional Viewpoint (OS7), Professional knowledge (OS7), joint discussion (OS3), Knowledge sharing (OS 15, 12, 9, 8, 6, 3), Creating a professional research space (Mod 7, OS15, 8, 6, 3)	
	Existence of support policy for learning communities	Supporter principal	principal's perspective (OS1), Professional support (Mod 1, OS 15), Work conscience of principals (Mod 1), principals' empathy with teachers (OS15)	
		Education policies	Changing regulations (OS11), Using the formal structure (OS10), Attention to the appointment of principals (OS14, 10), education policy making (OS9), Existence of proper monitoring system (Mod 2, 1, OS 6, 3).	
		Focus on learning communities	community management (OS12), Focus on communities (OS10), Fixed values (OS1)	
	Modeling of the experiences of successful schools	Gain experience from training courses	Gaining experience from training courses (Mod 13, OS 14, 11), Learning experiences from other colleagues in courses (Mod 13, 12, 8, 5, OS 12, 3), Participation in related conferences to gain experience (Mod 12, 6, OS 11, 10, 9, 2).	
		Using the experiences of successful schools	visiting of other schools (Mod 2), Exchange experiences with other schools (Mod 14, 12, 11, 9, 8, 7, 6, 5, 4, 3, 2), attending in successful schools to gain experience (OS2, OS5), Modeling of the successful experiences of other schools (OS10)	
		Using the of experiences foreign schools	Using the experiences of successful schools in other countries (OS10), communicating with successful foreign schools to gain experience (OS7), Holding virtual meetings with successful foreign schools (Mod 6, 5, 4, 3, 2, OS2)	
	Intervening factors	Skill training	Soft skills of principals	Teaching problem solving skills (OS15), Teaching critical thinking skills (OS15), Communicate skill training (OS15), Cooperation skill training (OS15), Cooperation between teachers (OS7), Teachers' skills (OS3), Thought teacher (OS1)
			Existence of the problem	having achievement (OS13), Having a problem (OS12), Attention to students' problems (OS8)
Positive attitudes			Having fast and small steps (OS11), Having cognitive responsibility (OS7), Having psychological security (OS 15, 12, 7), Attitude change (OS1)	
The right time and place for meetings related to communities		Holding meeting for learning communities	The fruitfulness of meetings (Mod 10), Holding continuous meetings of communities (Mod 12, 7), Having a concern for communities (OS12), Appropriate use of work meetings (Mod 12, OS3)	
		Definition of learning communities	Having enough time for principals for meetings related to communities (Mod 2, OS12), The correct definition of communities (OS11), Correct implementation of communities (OS11), Correct modeling of communities (OS11), suitable packaging for communities (OS11), Supply at the right time (OS11), Supply by experts (OS11), Providing time (OS 12, 10, 6, 4), Having unity of procedure (OS2)	
Managing a		The spirit of principals	Having patience in the process (OS11), Having a spirit of risk-taking (OS8), Being collectivist (OS6)	

Dimensions of the Paradigm model	Categories	Concepts	Codes
Consequences	The right Plan and program	Trust and social relations	freedom of action, conflict resolution (OS9), Social trust (OS9), Organizational justice (OS3, 8)
		Learning school	Fresh school environment (OS8), Creating learning opportunities (OS8), Looking to the future (OS7), In-service training (OS 8, 4, 1), thoughtful school (OS1)
		Appropriate design	facilitate the rules (OS5), Having a program (OS 14, 11, 7, 6, 3, 2), Detailed design (OS2), Creating a positive attitude (Mod 14, OS2)
	Organizational Consequences	Improving school performance	Fulfilling the duties and missions of schools (Mod 12, Mod 6, Mod 9, Mod 10, Mod 11), Achieving the goals of the school and the goals approved by the Ministry of Education (Mod 3, Mod 5, Mod 9, Mod 11, Mod 16), Achieving quantitative and qualitative goals (Mod 12, Mod 10, Mod 9, Mod 17, Mod 16), Increasing productivity in the educational system (Mod 12, Mod 8, Mod 17, Mod 15, Mod 14)
		Job optimism of principals	Believing in a good career future (M11, M12, M16, M13, M3), Positive expectation of job outcomes (M 17, M 4, M 6, M 2, M 10), Increasing self-confidence in school decisions (M3, M4, M12, M5, M9)
		Increase job performance	Increasing teachers' job abilities and skills (M3, M2, M10, M13, M1), Awareness of the nature of the assigned role (M 7, M 4, M 9, M 13, M 10), Increasing teamwork and professional ethics in schools (M17, M3, M9, M5, M10)
		Improve job skills	Ability to perform job duties (M 17, M 14, M 3, M 13, M 10), The desire to promotion the level of personal and job success (M 17, M 4, M 9, M 2, M 5, M10), Continuous effort to learn job skills (M 7, M5, M 9, M 14, M 11)
	Students success	Improving student performance	Academic progress of students (Mod 10, 2, 4), better performance of students (Mod 11), improving students' learning (Mod 5, Mod 8), Improving the process of student education (Mod 9, Mod 6), Improving students' academic motivation (Mod 1, Mod 9)
	Professional development of teachers	Promotion of principals	Promoting principal's learning (Mod 14), Update principal (Mod 14), promoting the skills of principals (Mod 13), Increasing the knowledge of principals (Mod 10), Empowering principals (Mod 13), Improving communication skills of principals (Mod 11)
		Promotion of knowledge and insight	Knowledge exchange (Mod 11), Development of insight (OS5), Improving learning (OS12, 14), Production of knowledge (Mod 3, OS 13), Knowledge sharing (OS10), Information exchange (OS5), Changing in-service periods (OS 13,7), Enhancing knowledge (OS5, 10, 11), Lifelong learning (Mod 4), Scientific growth (OS2)
		Build commitment and trust	creat motive (Mod 5), realization of social justice (OS14), Being responsible (OS12), become commit (OS 12,15), Creating social capital (OS12), Trust building (OS10), Professional commitment (OS7), Changing attitudes (OS 11, 7, 5)
		promotion professional skills	strengthening action research (OS10, 14), promoting skill (OS3, 11), Professional development (OS 14, 13, 10, 9, 7, 5, 4, 2), Development of learning (Mod 6, OS 13, 6, 4, 2).

Based on the extracted codes in Table 2, citing the views of key informants and participants in the research and response to the general question of the study: What is the model of professional learning communities for elementary school principals? The desired model is compiled in Figure1. The following section gives this logical model, which contains components, causal factors, contexts, and intervening factors in the phenomenon of professional learning communities of principals in the educational system, as well as strategies for developing professional learning communities of primary school principals and examines its consequences.

To achieve the goals of this research, which was conducted based on the grounded theory, professional learning communities as the main phenomenon (according to the figure 1) in the form of a logical model and relying on the understanding of those conditions (causal, intervening and context), strategies and consequences were determined; That is, it was determined what factors affect the professional learning communities of primary school principals, and besides that, what strategies are necessary for the professional learning communities of primary school principals; And finally, the consequences of professional learning communities of primary school principals were determined.

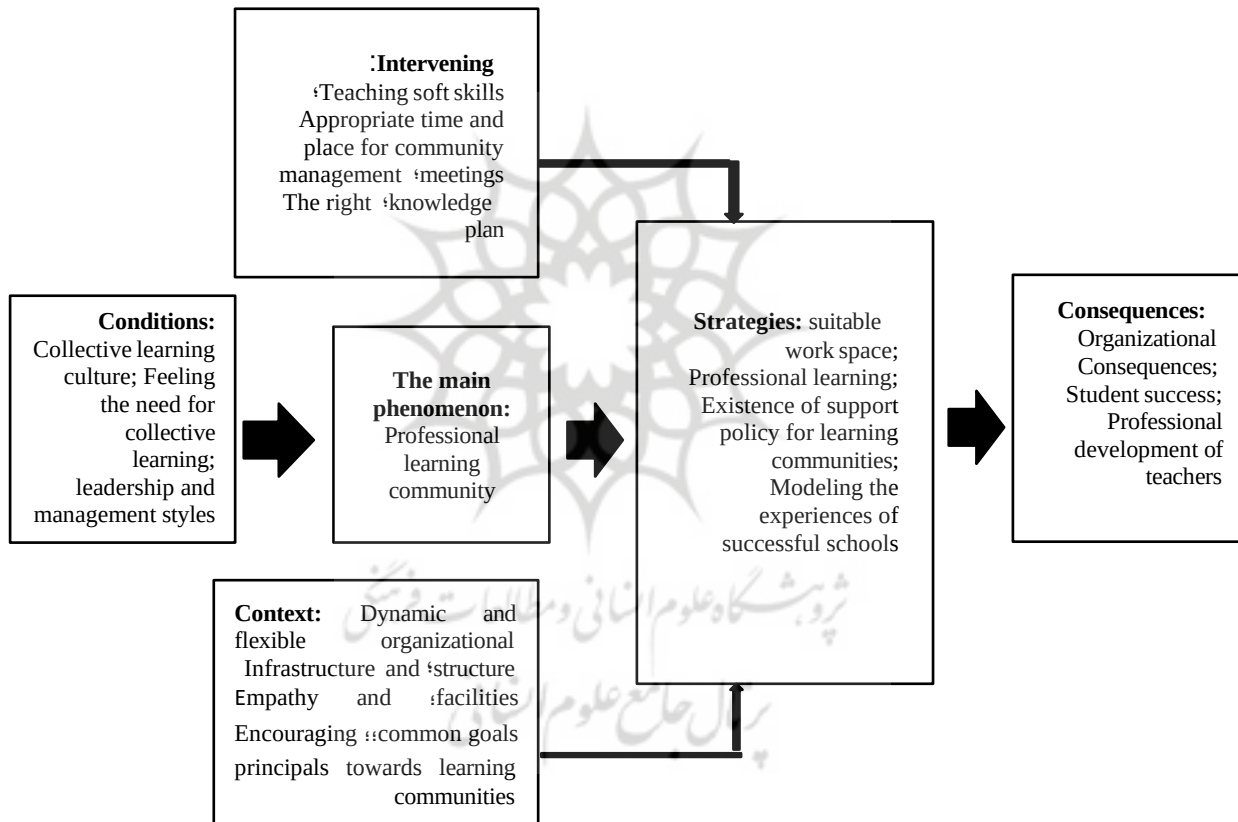


Figure 1. Paradigmatic model of professional learning communities of elementary schools principals

Conditions: to the conditions, incidents, and events points out that lead to the occurrence or expansion of the phenomenon of professional learning communities of elementary school principals; and the source of its activity is the educational system, which in this research has been, collective learning culture; feeling the need for collective learning; leadership and management styles.

Context: a series of conditions that influence strategies; and the origin of its activity is outside the school. In this research, the factors of dynamic and flexible organizational structure, infrastructures and facilities; empathy and common goals; and encouraging principals towards learning communities were part of the background conditions (environment) of professional learning communities of primary school principals.

Intervening conditions: Intervening conditions are also conditions that affect the way of interaction and proposed strategies. Based on the conducted interviews and their analysis, the intervening conditions in this research, are soft skills training; suitable time and place for meetings; management knowledge; and the right plan and program, which has an impact on the professional learning communities of elementary school principals.

Strategies: Strategies refer to providing solutions to face the desired phenomenon. Based on the conducted interviews and their analysis, the strategies of professional learning communities of elementary school principals in four categories of suitable work space; professional learning; existence of support policy for learning communities; Modeling the experiences of successful schools has been categorized that these strategies can play an effective role in the development of professional learning communities for principals in primary schools.

Consequences: Strategies refer to providing solutions to face the desired phenomenon. Based on the conducted interviews and their analysis, the strategies of professional learning communities of elementary school principals in four categories of suitable workspace;

professional learning; the existence of support policy for learning communities; modeling the experiences of successful schools have been categorized that these strategies can play an effective role in the development of professional learning communities for principals in primary schools.

Discussion and conclusion

Realizing that leaders can greatly influence teachers' instructional approaches, which in turn can lead to increased student learning, the school leader is now seen as the "main agent of learning." To influence student learning, administrators must first start with their learning (Duncan, 2013). In this regard, the current research has been conducted to provide a favorable model for the formation of professional learning communities for primary school principals as one of the new approaches to the learning and professional development of principals. The findings of the research showed that the causal factors affecting the professional learning communities of school administrators are classified into three categories: collective learning culture; feeling the need for collective learning; Leadership and management styles.

About the category of collective learning paradigm, it is worth mentioning that collective learning is necessary to create effective professional learning communities that can affect students' learning (Hord, 1997, 1998, 2008). Therefore, the formation of a collective learning culture among principals can be effective in institutionalizing professional learning communities in schools. The findings of this part of the study support the research of Liljenberg (2021) in which it was shown that relationships between principals are very important for the functioning of the learning community. Seaton's study (2019) also indicates that with the development of effective school leadership, through teamwork, collaboration, and reflection in the learning communities of principals, leaders will be equipped to make systemic changes in schools for the

better development of students. About the category of need for collective learning, it can be said because school administrators to continue to grow and develop as experts and leaders, they must be exposed to quality professional development that considers their need to gain experience and knowledge from other co-principals. Studies Huggins et al. (2020) and Liljenberg(2021) have mentioned this importance as the developmental needs of principals. Regarding the leadership style, the point is raised that administrators should adopt a leadership style that makes all related people (including students, teachers, and principals) into learners (Shdaifat, 2020). For example, the results of Moolenaar et al.'s (2015) research showed that principals' social connections, membership in social networks, and transformational leadership style are effective in their development; Because a transformational leader strives to create and maintain a collaborative culture in the organization and encourages colleagues and followers to pay attention to interests that benefit the group beyond their interests.

Also, based on the findings of the research, the background conditions affecting the professional learning communities of school administrators have been divided into four categories: dynamic and flexible organizational structure; infrastructures and facilities; Empathy and common goals, and encouraging principals into learning communities. In explaining the findings of this part of the research, it can be said that one of the most important issues in the country's schools is related to infrastructure and physical and technological equipment; therefore, for the growth and development of learning communities, these infrastructures should be provided to school administrators in a manner appropriate and sufficient. For example, researchers such as Kim et al.(2024), Ghamrawi et al.(2024), Miller et al.(2023), Irby et al.(2023), Lambert and Bouchamma, (2021) and Clarke, (2017) have pointed out in their research problems in arranging logistics and travel expenses to participate in principals' learning communities and have stated that financial support and

provision resources such as online networks can be helpful in the field use diverse experiences and ideas to learn and improve the problem-solving skills of schools administrators.

In addition, another obstacle that exists in the way of the development of the learning communities of principals in the country's schools is related to the mechanical and centralized structure of the educational system, which should provide the grounds for creating an organic structure in schools by facilitating laws that this importance has been shown in the current research in the form of a flexible and dynamic organizational structure. In line with this finding, the researches of Ghamrawi et al. (2024); Liljenberg, (2021); Vijayadevar et al. (2019), and Clarke, (2017) have emphasized the importance of using decentralized structures that support collaborative approaches against authoritarian and hierarchical structures. About the category of common goals, it can be said that the starting point and necessity of forming a learning community of school principals are the common interests and concerns that they feel in the field of work, which the following will cause to focus the group's activities be around goals based on these common needs and interests. These findings in terms of alignment conform with the findings of researchers such as Huggins et al. (2020); and Leithwood & Azah, (2016) based on the perception and determination of common goals and the group commitment of school principals to achieve the objectives above.

On the other hand, one of the issues affecting the success and effectiveness of growth programs, including professional learning communities, is considering motivational mechanisms or rewards appropriate to the program, in this context, designing and using a system promotion and reward by the education organization can play a decisive role in motivating principals to participate in such communities. In confirmation of this finding, the interviewee of the code (Mod 4) quotes that "if proper encouragement and appreciation are not done by the administration and the relevant officials about the

collective work of the school principals, it will cause principals are not motivated to participate in learning communities; Because there must be a difference between those who enter these communities and those who don't." The findings obtained are aligned with the researches findings of Liou et al. (2022); Strand & Emstad, (2020); Leithwood, (2019); and Leithwood & Azah, (2016), which in them has been Mentioned the category of giving rewards and encouragement as one of the motivational approaches of principals for cooperation, sharing and reflection. In addition, when the education organization welcomes and appreciates the group opinions, suggestions, and criticisms of principals, this attitude creates unity and empathy between principals and improves the work environment, and also doubles their efforts to realize collective decisions; Because emotional empathy strengthens effective communication and self-management and understanding the mutual feelings of others. This finding in the researches of Sahlin, (2023); Lazenby et al. (2020), and Bickmore et al. (2021) was also considered, which has confirmed the results of the present study. The current research findings also indicated that teaching soft skills; suitable time and place for meetings; management knowledge; and the correct plan and program about the professional learning communities of primary school principals has an intervention role. In explaining the category of management knowledge, it can be said that much as school principals have management knowledge; they can be equally effective in the development of professional learning communities in schools, But the important point that should be noted in this field is that in the country's schools, many school principals are unfamiliar with management principles and specialized management knowledge. Therefore, paying attention to certain criterias such as having management knowledge in selecting and appointing school principals is necessary.

About the category of skill training, it can be said that creating conditions and opportunities for empowering and developing the skills of team members can promote

the improvement of interpersonal and team interactions. In this regard, by holding conferences and in-service courses as well as inviting experts and researchers who have experience working in the field of professional learning communities; developing and strengthening a series of soft skills such as problem-solving skills, critical thinking skills; Communication skills and effective cooperation among principals will be possible. For example, in the Researches of Dhakal et al. (2024), ' Sahlin,(2023) ' Irby et al.(2023) ' Clayton & Nganga, (2022) ' Strand & Emstad,(2020) ' Coenen et al. (2021) ' Bickmore et al. (2021) ' Meyer-Looze, (2021) ' Daniels et al.(2020) ' Vijayadevar et al.(2019) ' Veelen et al. (2017) has been emphasized on the need to have skills such as a reflective approach that enables principals to critically analyze their learning communities and take immediate measures to address the complexities of the work environment.

In explaining the category of appropriate time and place, it should be said spaces that support sociability, cooperation, and information exchange can provide environments in which take place more effective interactions. In addition, creating informal spaces for informal interactions between school principals, such as cafe meetings, informal working groups, and recreational spaces, provides opportunities for more effective communication and better interpersonal and team communication. In confirmation of this finding, studies (Miller et al., 2023; Serrato, 2015; Aas & Vavik, 2015) have shown that school leaders often lack arenas or spaces to meet and discuss important topics and issues. Therefore, new social spaces need to be created through which principals can positively connect with leaders of other schools and even other regions beyond close distances. Also, having the right time and opportunity to share and exchange the knowledge and experiences of school administrators with each other is a very important factor that can play an influential role in the formation of such communities. In short, when principals have an opportunity to discuss their experiences and share them in a reliable, safe, and

constructive atmosphere; They can learn from each other and increase their qualifications. In line with this finding the in the researches of Gonzales et al.(2024) ; Ghamrawi et al.(2024) ; Partin & Hayes,(2024); Miller et al. (2023); Sahlin,(2023); Clayton & Nganga (2022); Meyer-Looze (2021); Liljenberg (2021); Bickmore et al. (2021); Ringling et al.(2020); Strand & Emstad (2020); Cothorn, (2020); Lazenby et al. (2020); Veelen et al. (2017) which have investigated the needs and opportunities for the professional development of school administrators, was determined that From the point of view of principals, investment in terms of time, resources, and energy to develop relationships with colleagues and create an environment for joint discussion, reflection, and exchange of information is very important.

around the category of proper plan and program, it can be acknowledged that the professional development of the principal requires a systematic and pre-designed or planned development process (Service et al.,2016). In fact, professional development requires careful planning to be successful (Evans & Mohr,1999; Knapp,2003). These findings are in line with the findings of the study by Fahey et al. (2011) in which the principals were able to create a professional community for themselves by using a purposeful and precise protocol, and the group members were able to practice and learn skills of reflection, cooperation, and depersonalization of performance that characterize effective learning communities. The researches of Cothorn, (2020) and Daniels et al. (2020) have also pointed out the necessity of designing a support program for the formation of principals' learning communities.

Based on the findings of the research, the strategies of professional learning communities of school administrators in four categories, suitable workspace; professional learning; Existence of support policy for learning communities; and modeling the experiences of successful schools have been categorized, and these findings with the researches findings of Irby et al.

(2023); Miller et al. (2023); Huggins et al. (2020); Strand & Emstad, (2020); Meyer-Looze, (2021); Liljenberg, (2021); Acton, (2020) ; Ringling et al. (2020) have alignment and match. In explaining the findings of this part of the research, it can be stated that professional learning communities by empowering people to accept responsibility and taking into account favorable working conditions for communication and interaction of principals with each other are created based on mostly informal learning situations. Therefore, the culture-building and support of education officials have an important role in this regard, for example, by supporting principals who want to participate in domestic and international conferences, can take steps to gain experience in this field. Also, to emulate the successful experiences of domestic and foreign schools, the conditions for the presence of principals in such schools should be provided with financial support and facilitation of rules and regulations.

As can be seen in the drawing model, the consequences of the development of professional learning communities for principals in schools from the perspective of the participants in the research include organizational consequences; the success of students, and the professional development of teachers. In explaining the findings of this part of the research, it is important to mention that as much as the category of professional learning communities be institutionalized among school administrators; It will equally lead to the improvement of school performance and the professional development of school teachers, which in turn will improve the performance and academic progress of students. In sum, it must be said that principals who participate in PLC, experience a school that learns and guides at all levels (Hord & Sommers,2008 ;Barton & Stepanek,2012). Previous research (Sahlin, 2023; Bickmore et al., 2021; Lazenby et al., 2020; Strand & Emstad, 2020) also aligned with this research finding, have identified the value of principals learning together in a principal PLC to guide the progress of a region and

Finally, impacting on the development of each school during the implementation of PLC.

Among the limitations and problems facing the present research, the following can be mentioned: The qualitative nature of the research method; The lack of cooperation of some specialists and experts in the field of learning communities with the researcher to conduct interviews; Lack of benefit from the opinions of policymakers and decision-makers at the highest levels of the education system; Lack of conditions for conducting group interviews in the form of focus groups to collect more accurate data and very few Persian sources related to the research topic. Also, current research is limited to elementary school principals in the Sistan region. So this study can also be conducted among principals of different educational levels and other cities, which will be an attempt to generalize the results of the present study.

With regard to the mentioned points, using contextual opportunities and stimulating intervention conditions, to change the causal conditions, and to present and institutionalize principals' professional learning communities, requires the use of the strategies presented in the model. These strategies are influenced by background and intervention conditions, and have been extracted according to the existing situation, based on this point of view, the participants can make possible a gradual movement towards professional learning communities.

According to the findings of the research, this important issue requires policy review, decentralization of the education system, and review of regulations and rules and regulations of schools. Therefore, it is suggested that professional learning communities be considered as a strategy for developing the leadership of school principals, and while reflecting this importance in the regulations, including the regulations of in-service training, the executive requirements of professional

learning communities for School principals should be compiled and applied.

Also, it is suggested to form an association of school principals in the country to examine management issues and challenges in schools in the form of professional learning communities.

It is recommended that a formal program be developed by policymakers and educational researchers to hold meetings for school principals based on the principles of informal learning. For example, enriching professional development programs with performance-based learning assignments that have moments of reflection and feedback can provide conditions for managers to repeatedly engage in such learning activities.

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Conflict of interest

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