



Evaluating the Degree of Readiness to Practice Professional Distance Learning Communities (Virtually) in Light of the Covid-19 Crisis: Perspectives of School Leaders and Teachers at Amman Educational Directorate in Jordan

Mohammad Baker Nofal^{1*}, Ibtisam Tawfiq Abu Khalifeh², Abeer Khalil Rommaneh²

¹ International Pioneers Academy Schools.

² Faculty of Educational Sciences & Arts, UNRWA.

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* Corresponding author:

mnofl66@gmail.com

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Abstract

Objective: This study aims to evaluate the degree of readiness to practice virtual PLCs in light of the COVID-19 crisis from the perspectives of school leaders and teachers at Amman Educational Directorate in Jordan.

Methods: This study used the descriptive analytical method. The sample of the study consisted of 155 respondents chosen randomly. The psychometric properties of the Professional Learning Communities Scale, consisting of 52 items distributed across six dimensions, were validated.

Results: The results showed that the degree of readiness to practice virtual PLCs in light of the COVID-19 crisis, from the perspectives of school leaders and teachers, was high across all dimensions of the scale. Specifically, Supportive Conditions – Relationships were ranked first with a high score, while Supportive Conditions – Structures were ranked second with a medium score. The Shared Values and Visions, Shared Personal Practices, and Shared and Supportive Leadership were ranked third, fourth, and fifth, respectively, with a medium score. The results indicated significant statistical differences in work type and authority supervising schools, in favor of school principals and UNRWA schools, respectively. However, there were insignificant statistical differences regarding the respondents' gender, years of experience, and academic degrees.

Conclusions: The results demonstrate that the degree of readiness to practice virtual PLCs in the light of the COVID-19 crisis, from the perspectives of school leaders and teachers, was high. The study recommends conducting related studies and holding workshops for school leaders and teachers.

Keywords: Covid-19 crisis, professional learning communities, school leaders and teachers.

تقييم درجة الاستعداد لممارسة مجتمعات التعلم المهنية عن بُعد (افتراضياً) في ظل أزمة كورونا من وجهة نظر قادة المدارس والمعلمين في مديرية عمان للتربية والتعليم في الأردن

محمد بكر نوفل^{1*}، ابتسام توفيق أبو خليفة²، عبير خليل رمانة²

¹ أكاديمية الرواد.

² كلية العلوم التربوية الآداب.

ملخص

الأهداف: هدفت الدراسة الحالية إلى تقييم درجة الاستعداد لممارسة مجتمعات التعلم المهنية عن بُعد (افتراضياً) في ظل أزمة كورونا من وجهة نظر قادة المدارس والمعلمين في مديرية عمان للتربية والتعليم في الأردن. **المنهجية:** استخدم المنهج الوصفي التحليلي، تألفت عينة الدراسة من (155) مُشاركاً تم اختيارهم بالطريقة العشوائية البسيطة، كما تم التحقق من الخصائص السيكومترية لمقياس تقييم مجتمعات التعلم المهنية، و تكون من (52) فقرة توزعت على أبعاد الستة .

النتائج: أظهرت النتائج أن درجة الاستعداد لممارسة مجتمعات التعلم المهنية عن بُعد (افتراضياً) في ظل أزمة كورونا من وجهة نظر قادة المدارس والمعلمين كانت كبيرة على أبعاد المقياس ككل، حيث احتلت الظروف الداعمة - العلاقات الرتبة الأولى بدرجة كبيرة، فيما احتلت الظروف الداعمة - العلاقات الرتبة الثانية بدرجة متوسطة، والقيم والرؤية المشتركة، والممارسات الشخصية، والمشاركة والقيادة الداعمة الرتب الثالثة والرابعة والخامسة بدرجة متوسطة. فيما ظهرت فروق تعزى لنوع العمل ولصالح مديري المدارس على الدرجة الكلية والأبعاد كافة، كما أظهرت النتائج فروقاً تعزى للجهة المشرفة ولصالح مدارس الأتروا. كما أظهرت النتائج عدم وجود فروق تبعاً للجنس، وعدد سنوات الخبرة، والدرجة العلمية على أبعاد المقياس كافة، والدرجة الكلية. **الخلاصة:** أظهرت النتائج أن درجة الاستعداد لممارسة مجتمعات التعلم المهنية عن بُعد (افتراضياً) في ظل أزمة كورونا من وجهة نظر قادة المدارس والمعلمين كانت كبيرة على أبعاد المقياس ككل. وأوصت الدراسة بإجراء الدراسات البحثية والورشات التدريبية لقادة المدارس والمعلمين.

الكلمات الدالة: أزمة كورونا، مجتمعات التعلم المهنية، قادة المدارس والمعلمين.

Introduction

Trustworthy scholars closely follow up post digital research in the time of COVID-19, which has imposed formidable challenges on the different activities of life in general, and on learning and teaching in particular. The most prominent of these challenges being a sudden transfer from face-to-face learning into virtual learning through different learning platforms. This led teachers to be isolated from their peers, a situation that they have not been familiar with before. As a result, they lost the social learning opportunities, through which they used to exchange their ideas on the best educational practices, a way to foster teachers' teaching competencies. In addition, some teachers lost the teaching competencies through the learning platforms (Rapanta, et al.,2020).

Teachers at both public and private schools also encounter a high -stake educational environment, as they have to perform at an exceptional level, in order to create a positive impact on their students' learning in general and on their academic achievement in particular. Historical tracing of teachers' work shows a clear isolation in mage, as they spend most of their school day in their classrooms, tending to adopt several methods to interact mostly with their students with little or no interaction with their peers. This made the teachers feel isolated and deprived from interacting with their peers in order to enhance their professional development. According to the Social Cognition Theory, teachers may gain a wealth of knowledge about teaching- learning strategies through observing other teachers; as professional interaction between them increases the likelihood of information and idea sharing which is reflected in the likelihood of students' success. The work of Senge (1990)took the lead in crystallizing the concept of professional organization, which defines an organized framework for teachers and employs it for the purpose of continuous improvement of their teaching practices. This has in turn led to the development and implementation of professional learning communities (PLCs) within public schools across the United States of America. An analysis of the course of the literature review may clearly show the role of PLCs, which is considered one of the hot topics in the world of education, as they create various opportunities for teachers to co-operate among each other, which is expected to be reflected on their professional development. This leads to a tangible improvement of all student achievement levels, as stipulated in the premise of improving student learning by improving teaching practices, (Bennett,2017).

Theoretical Framework of Professional Learning Communities (PLCs)

Although the term of PLCs is relatively new by itself, it has been used effectively in the process of improving educational practices for centuries. Social learning is a necessity among societies, as it takes the form of collaborative learning that focuses on thinking about finding solutions to the problems that societies encounter. Meanwhile, the Constructive Approach and the Collaborative Learning Theory formed an important learning base on which researchers relied when developing their research and studies on PLCs (Peter,2020).

Components of Professional Learning Communities:

An in-depth review of the PLCs literature development indicates its multidimensionality as a concept. This is due to the sensitivity of the context in which it is used. A review carried out by Olsson (2019) showed several models, perhaps the most popular of which is the model proposed by Dufour.et al (2016) which consists of six dimensions:

First. Shared and Supportive Leadership: School leaders and teachers share in making school decisions through contributing to leading and supporting the various school programs.

Second. Shared Values and Visions: Contribution in establishing shared values and vision as a binding work scope for school leaders and teachers in a way that fosters students' achievement and well-being.

Third. Collective Learning and Application: School leaders and teachers engage in collaborative working groups to promote professional development that contributes to providing quality learning for all students.

Fourth. Shared Personal Practice: Providing diverse opportunities for collective learning among school leaders and teachers to review students' various work.

Fifth. Supportive Conditions - Relationships: Providing diverse conditions for school leaders, teachers and students to enable them achieve outstanding achievements in the field of student learning.

Sixth. Supportive Conditions – Structures: Providing all material and moral conditions that enable collective working

groups to achieve the school vision and goals (Boylan et al., 2018).

In addition, Mahimuang,(2018) introduced a theoretical development of the concept of PLCs which consisted in its final form of five dimensions: shared values, collective responsibility, shared learning, shared leadership and care relationship. This model expanded the importance of the care relationship as an effective influence in the rest of dimensions. Kools et al., (2020) added other dimensions: shared vision, continuous learning, investigative learning, knowledge exchange, learning and innovation, exploration and learning from the external environment.

Upon contemplating the previous models, we conclude that the PLCs dimensions enhance teachers' professional development through creating collective learning among them that reduces the isolation that some teacher pass through (Brand, 2020; Admiraal et al., 2019). Within the same context, Olivier, Hipp, and Huffman (2010) prepared a scale to measure the six PLC dimensions, with each dimension containing indicators of its practice, an approach adopted in the current study as a main instrumental for data collection (Dogan, Tatik, & Yurtseven,2017).

A review of PLC Practices shows that they are the most common in the field of teacher professional development worldwide. Most of the PLC's theories and models focus on sharing the learning responsibility and gaining knowledge collectively, compared to the limited usefulness of traditional professional development programs in terms of developing teaching skills; due to the fact that the training content provided to teachers is inappropriate or insufficient (Kools & Bouckaert.2020). This requires conscious planning followed by an implementation that is consistent with teachers' real needs with the aim of achieving the maximum desired benefit from these programs, hoping that schools will gradually turn into learning organizations that contribute to the development and learning of all school individuals. In this way, ideas are transformed into practice- based learning. Meanwhile, this concept allows teachers to collaborate within the classroom, too(Admiraal et al.,2019). This prompts teachers to engage in reflective dialogues, share lesson plans, analyze and evaluate students' work, record video clips from lessons at class with the aim of analyzing them, and work on improving teachers' performance through employing them in the future; This prompts them to agree on the values and standards that they will abide by as a team to develop their educational competencies (Olsson,2019). It is believed that teacher-led collaboration achieves many changes in behaviors and attitudes that contribute to the development of educational competencies. Brand (2020) explained that the students of the school that granted teachers leadership roles and enabled them of investigate-based learning have shown outstanding performance.

Virtual Professional Learning Communities

The issue of in-service preparing of teachers in complex environments has been an important topic in educational research; as they need professional development opportunities more than ever as we currently face challenging circumstances caused by the COVID-19 global pandemic. The precautionary measures of the closures of universities and schools necessitated a rapid transition from face-to-face teaching to online teaching; This has contributed to creating unexpected challenges for teachers, professional development providers, and policy makers.COVID-19 pandemic has made a significant change in the conditions of our daily lives in many ways, especially, in the education sector, where the effects of this pandemic have exacerbated inequalities in access to education among different groups of students. This necessitates a re-search for other alternative opportunities to reshape education and the consequent clear changes that took place in educational institutions. The new normal situation has been announced in some contexts ,in spite of its being accompanied by many challenges, especially in terms of learning and teacher education (Ramos et al,2020).

A study carried out by Prenger, Poortman, & Handelzalts (2021) stressed that the learning communities are promising to empower teachers and improve the quality of school performance, as the movement of PLCs, sometimes referred to as professional learning networks, has been activated within schools. The study investigated the role of professional learning networks in achieving sustainable learning for teachers and improving school performance. Data were collected through conducting interviews with participants in professional learning networks, external coaches, and researchers' annual observations. The results revealed the impact of the context of professional learning networks on teachers' being capable of applying new tools in their schools. The results also revealed that leadership, visualizing a common goal, organized activities, collaboration, facilitation and support are all important key factors that can make an impact in the context of

professional learning networks.

A quality study was carried out by Andedo, Ajowi, & Aloka(2021) to investigate the influence of school principals' attitudes on creating PLCs in Kenyan secondary schools. The study random sample comprised of 120 school principals, 153 teachers, and 20 Board of Management Chairpersons. Data were collected through questionnaires and interviews after validating their psychometric features. The study findings indicated that there was statistically significant positive correlation between school principals' attitudes and the development of PLCs at secondary schools.

Since the quality of teaching at schools is a source of concern for school administrations and governments alike, educational reform programs have been directed to improve education, as investment in teacher professional development programs is only a driving force for education reform through professional development programs that are expected to have direct effects on improving student learning as a top priority at schools.

Jarrent (2020) indicates that the existing paradigms of teacher professional development seem to undermine the rich wealth of experiences that teachers have at schools. Nevertheless, professional development based on the PLC strategy are effective measures in improving education, with its effects being reflected on students' learning in general, and their academic achievement in particular. Professional learning communities take various forms of implementation, including short workshops that may not be effective in changing practices, in addition to the challenges that prevent the implementation of the PLC strategy, including but not limited to: the lack or little adequate time in the daily school schedule, lack of teachers with a common specialization in study subjects, low trust towards fellow teachers themselves, and failure to appreciate the benefits of participation. Some of these challenges may be overcome by providing opportunities for professional development by assigning teachers to travel to attend effective training workshops outside the school, but teachers may be reluctant to accept attending these workshops because of the additional effort and the cost that they may bear part of. To overcome these challenges, many educational institutions have resorted to providing professional development programs through a number of integrated services provided by the education platforms, which provide synchronous and asynchronous video communication, including training videos, training materials, interactive activities, and various tests to measures teachers' performance.

Educational research confirms that teacher professional development is most effective when teachers engage in investigative learning activities within the context of collaborative professional learning communities which stress improving education and student achievement. A study conducted by García-Carrión, et al. (2020) to explore the potential of a school model named Schools as Learning Communities to guide new teachers and to help them develop professionally. The study was conducted in a high-poverty school in Spain. Data collection included observations and interviews with teachers and the school leaders. The results revealed two main features of the school as a learning community that facilitate teacher empowerment: the dialogic approach to teachers' professional development, and the participation of family and community members in the school, which operates as a pedagogical resource. The study also revealed that this model as a successful pathway for the new teachers to embrace the school vision and to become agents of transformation who contribute to the sustainability of the development project which is reflected on improving the learning of students living in poverty.

According to Previous Studies, Dogan, Tatık, and Yurtseven(2017) carried out a study that aimed at adapting and validating the Professional Learning Communities Assessment Revised (PLCA-R) by Olivier et al.(2010)to the context of Turkish schools. The instrument consisted of 46 items with a four-point Likert scale. After translating the instrument and adapting it to the Turkish environment in a way that fits school to teachers, the instrument factors were checked using the confirmatory factor analysis on the study sample of (719) male and female teachers from Istanbul schools in Turkey. There were 288 males and 431 females. The PLCA-R was distributed electronically. There were four factors that have the potential to validate the internal structure of the Turkish version of PLCA-R. The researchers decided to retain the six-factors of the instrument in its original form, as the six factors best explained the perception of teachers in Turkey about PLCs. These factors are: shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions-relationships, and supportive conditions: structures. The study also

modeled the relationship between individual, interpersonal, and organizational dimensions of PLCs accounting for teacher characteristics and school contextual factors. The study also revealed that organizational capacity is a statistically significant predictor for teachers' interpersonal capacities. Professional development, as a personal mediator, was not statistically significant. The study concluded recommendation in terms of the optimal implementation of the instrument, as well as on how its scores can be interpreted and directions to future studies.

Antinluoma, et al. (2018) carried out a study to explore the perceptions of comprehensive school principals and teachers concerning their schools' performance as a professional learning community. The sample consisted of 212 teachers from the primary schools, with 127 teachers from the lower secondary schools and 16 teachers from basic schools selected from 13 Finish schools, with 177 male teachers (84%) of the study subjects, and 35 female teachers (16%) of the study subjects. As for the experience variable, 63% of the teachers were having more than 10 years of experience, 15% of the teachers having more than 20 years of experience, 18% of the teachers having 1–5 years of experience, and 67% of the teachers having less than 10 years. The School-Level Readiness Instrument (SLRI) was used to collect data as it was appropriate for the Finish context. The aim of the SLRI was to design schools' PLC development plans and to improve schools' capacity as professional learning communities. The instrument included four basic factors of the professional learning communities: culture, leadership, teaching (capacity-building), and professional training. Each of the factors included five statements to be answered on a five-point Likert scale. The ANOVA analysis indicated statistically significant differences between the school types in the culture factor in favor of primary schools. The study results also showed four shared development factors between all the groups. The mean of professional training was (3,3-2,7), teaching students (3,3-2,7), leadership (3,4-2,9), and school vision was (3,3-2,6). The four factors were nearly at the same level; thus, it confirmed that there was a correlation between the characteristics of a PLCs.

Admiraal, et al. (2019) carried out a study in order to investigate the teacher professional development support programs of 14 Dutch secondary schools for three years through implementing a series of five interventions through the project of School as Professional Learning Community. To frame these interventions, data were collected through project documents, interviews with school principals and project leaders, group interviews with teachers and focus groups with project leaders. The study revealed five factors for PLC: Shared school vision on learning; providing professional learning opportunities for all staff; collaborative work and learning; change of school organization, and learning leadership. The results showed that interventions aimed at teachers and school leaders, were relatively rare, while the interventions that targeted providing professional learning opportunities for all staff and collaborative work and learning were the most influential, including formal and informal teacher groups. In general, the results confirmed that intervention in the school culture is more sustainable than the other factors.

Kin, Kareem, & Musa, (2019) conducted a study with the aim of exploring the patterns of professional learning communities (PLCs) in the National-type Chinese Primary Schools in Malaysia. The study sample consisted of 630 school principals, assistants and teachers. The result revealed that, the PLCs achieved a very good level in two dimensions of the organization factor and non-organizational factor, as well as its eight sub-dimensions. The study sample also revealed a higher mean score in the organizational factor than the non-organizational factor of PLCs, with a significant difference. Among all the sub-dimensions of PLCs, the study sample also achieved the highest mean score in the school principal's commitment and support. The results also showed that among all the sub dimensions of PLCs, the external support has achieved the lowest mean score. In general, the study showed that the implementation of PLCs needed to be improved so as to be effective in addressing school reforms.

Chua (2020) carried out a study which aimed to understand the practices and challenges of PLCs a secondary school dominated by Chinese-Malaysian culture. The qualitative phenomenological constructivist approach was employed as an investigation strategy. Data was collected through semi-structured interviews of 6 school leaders and teachers. The qualitative results of the study revealed three existing practices in the field of interpersonal learning at the school level, namely: peer coaching, sharing personal practices, and professional development programs. On the other hand, the results also revealed that PLCs encounter various challenges, including: increased workload, negative attitudes of teachers, non-

supportive conditions at school, poor implementation of PLCs at the school community, and ambiguous understanding of PLCs. Two challenges impeding the implementation of PLCs appeared: the PLCs are misunderstood and not supervised by the school supervising authority.

Masood, et al., 2020 investigated the assessment of professional learning community at (5) Private Schools of Lahore, Pakistan. Data was collected through the Professional Learning Community Assessment Revised after verifying its psychometric properties. The study sample consisted of (480) respondents, (182) males and (248) females. The results of the study showed that the study subjects practiced all the PLCs dimensions, while the “Supportive Conditions – Structures” was dominant. There were insignificant moral differences in terms of the variable of gender. Moreover, ANOVA revealed that the dimensions of PLCs, shared and supportive leadership and shared values and vision are practiced better than the other dimensions.

Fred, et al. (2020) conducted a study to keep track of the development of PLCs in schools: the construction of two qualitative classification instruments. The qualitative approach was employed through the methodological triangulation which included interviews, questionnaires and observations. The results revealed that many of the qualitative research that investigated PLCs focused on the learning activities content which included curriculum development and social learning. Meanwhile, the study focused on developing two instruments to analyze the development of PLCs characteristics and their guiding factors to determine the mechanism of their development. As teachers are supposed to learn according to a collective perspective, 11 behavioral indicators were built to be used to collect behavioral data through the triangulation process. The results of the study concluded to identify a set of symbols and associated measurement values. The first instrument included PLCs characteristics and consisted of (75) symbols, and (66) measurement values. The second instrument included (9) PLC characteristics and consisted of (55) symbols and (37) measurement values. The instruments' psychometric properties were validated where internal consistency was (0.83) for the first instrument, and (0.75) for the second instrument. The study also confirmed that the developed coding schemes are usable in coding the interview and observation by researchers.

With regard to research studies on PLCs at the university level, Tucker, L., & Quintero-Ares (2021) addressed PLCs through qualitative research on a sample of faculty members at the University of Connecticut. There were 22 faculty from the Education Department and 23 from the Social Work Department. The aim was to investigate virtual PLCs as a support for faculty members during COVID-19 pandemic, where PLC sessions were held weekly via the video communication technology of the (Blackboard Collaborate) platform. Data was collected qualitatively from the study sample through answering the following questions: What are your instructional goals for this week? What type of activities and strategies do you have in mind? Which strategy has worked with your students? What are the obstacles that you ran into? The results revealed the need for realistic employment to integrate the technological dimension with the professional training process. The study also revealed evidence of basic knowledge about technological practices when moving to virtual education, but there is a need for more training so that participants can use synchronous and asynchronous learning professionally. The results also showed that PLCs helped provide social learning among faculty members by exchanging their experience in employing learning platforms when teaching their student. In addition, the growth of trust in PLCs enabled the faculty members to adopt a more flexible and open viewpoint in exploring new digital tools they have not been familiar with before, such as: Zoom, Google Hangouts, Pear Deck, and Voice Thread, as building a professional community is a main purpose for creating PLCs that exchange ideas, practices, and obstacles, while learning new practices such as integrating various digital tools into virtual education.

Kin, & Abdull Kareem (2021) examined the implementation level of PLCs in Malaysian secondary schools. The study sample consisted of 971 school principals, assistants and teachers. The descriptive approach was used. The results revealed that, the school level was rated as good in practicing PLCs; the means of the organizational factor achieved a higher mean score than non-organizational factor. Among all the sub-dimensions, school principals' commitment and support achieved a high mean score compared with external support. The results also revealed that the contextual factors such as decentralized system, the policy environment prevailing in the school community and teachers' workload are potential

factors that might impact the development of PLCs. In addition, the incompetence of the teachers in practicing collaborative learning, collective Inquiry and reflective dialogue would significantly hinder practicing PLCs.

Comment on Previous Studies

An analytical look at the previous studies clearly shows a wide global interest. The study carried out by Dogan, Tatik, and Yurtseven (2017) aimed at adapting the Professional Learning Communities Assessment Revised to the context of Turkish environment, while the response of the study of Antinluoma, et al. (2018) was to explore schools' performance as a professional learning community. The study conducted by Admiraal, et al. (2019) aimed at investigating the teacher professional development support programs through the project of School as Professional Learning Community, while the study carried out by Kin, Kareem, & Musa, (2019) aimed at exploring the patterns of professional learning communities (PLCs) in the Chinese primary schools, and the study carried out by Chua (2020) aimed to understand the practices of PLCs. Fred, et al. (2020) conducted a study to keep track of the development of PLCs in schools, while the study carried out by Tucker, L., & Quintero-Ares (2021) was concerned with exploring the virtual PLCs as a support of faculty members during COVID-19 pandemic. Finally, and aim of the study carried out by Kin, & Abdull Kareem (2021) was to examine the implementation level of PLCs at schools. The current study is distinguished by the fact that it investigates the extent of evaluating the degree of readiness to practice virtual PLCs in light of COVID-19 Crisis among a sample of school leaders and teachers.

Study problem and questions

The results of scientific research in the field of teacher professional development at the global level shows disappointing results, as it showed that teacher professional development programs are not effective (Admiraal, et al., 2019). The results of this research also showed that such programs fail in providing teachers with advanced educational competencies that support their professional lives and help them in improving their students' learning. There is a large gap between the professional development that teachers are exposed to and the requirements of practical reality, as these programs used to glorify the individual mind with a clear absence of group work activities. This means that these programs' activities were taking place in isolation from the real life of teachers, thus leading to lists of research results and recommendations that may be located on the shelves of libraries. Within a related context, many recent research studies (Stewart, 2017) show that schools encounter various challenges, the most important of which may be the issue of bridging the achievement gap. Schools with strategic dimension direct teachers through the educational accountability system, which includes accountability for their students' level of achievement. This led to the need to improve teachers' competence in the field of teaching through professional development programs that take up the professional learning communities as an approach that enables teachers to develop them, and which are expected to be reflected in improving students' learning In general, and academic achievement in particular. DuFour, et al. (2016) approved PLCs as a school reform strategy conducted through collegial interchange between teacher community, school principals and supervisors, instead of the individual mind or the isolation.

The accelerated digital world that has influenced all aspects of life, leads teachers to adopt sophisticated roles that enable their students to get educated in this digital era, which has imposed variables that may be difficult to confront with the individual mind of the teacher alone. Knowledge complexity and acceleration, and academic experience disparity among teachers themselves have created a great challenge that prevented teachers from achieving a satisfactory level of education for their students. This situation has compelled teachers to work on the improvement and development of their main product at schools; that is, learning through the PLCs that enable them to achieve their goals, as PLCs are referred to as forums in which teachers and school leaders meet to think deeply about practical practices related to the administrative and educational dimensions (Admiraal, et al., 2019).

Study Questions

Specifically, the current study investigated answers to the following questions:

- 1- What is the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan?

- 2- Are there any significant statistical differences at ($\alpha \leq 0.05$) in the level of evaluating the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan according to gender (males and females)?
- 3- Are there significant statistical differences at ($\alpha \leq 0.05$) in the level of evaluating the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the Perspectives of school leaders and teachers at Amman educational directorate in Jordan according to years of experience, academic degree, authority supervising schools, and work type?
- 4- Are there significant statistical differences at ($\alpha \leq 0.05$) on the scale dimensions of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan according to years of experience, academic degree, authority supervising schools, and work type?

Study Significance

As far as the researchers have known, the significance of the current study stems from the fact it is one of the few Arab studies that are carried out in light of COVID-19 pandemic, and which dealt with PLCs as a vital variable in the process of teacher continuous professional development. It is expected that the results be reflected in enhancing students learning and well-being. Moreover, this study seeks to shed light on creating a school culture as a learning organization that may contribute to bridging the current gap in the levels of teachers in terms of their disparity in teaching competencies, which studies have proven to be disappointing. Schools' tendency to use the PLCs' components centered around enhancing the role of collective mind in professional development processes would address the shortcomings of professional development programs that are conducted in isolation from meeting the real needs of teachers (Admiraal, et al., 2019). Empirical evidence also points to the fact that the quality of teaching depends, to a large extent, on the quality of teachers' qualifications; as their professional advancement is critical to improving students' learning and well-being (The World Bank, 2018). Nevertheless, research studies criticize the poor teacher professional development programs, being common problems in Asia due to the deterioration of teaching standards as reported by the UNICEF (2018). Professional Learning Communities are looked upon as a mediating variable that enables teachers to bring about practices that are effective in student learning and well-being (Chua et al., 2020; Derk, 2020).

Study Aim

To evaluate the degree of readiness to practice distance professional learning communities (Virtually) in light of Covid-19 Crisis from the Perspectives of school leaders and teachers, and to investigate the differences according to the variable of gender, educational qualification, and work destination.

Study Limitations

The results of this study are determined by the following limitations:

1. The study instrument and its psychometric features of validity and reliability has been developed for achieving the aims of the current study, i.e., to evaluate of degree of readiness to practice virtual PLCs in light of COVID-19 Crisis from the perspectives of school leaders.
2. The study sample was limited to school leaders represented by school principals, subject supervisors, and male and female teachers in the Jordanian capital, Amman in the second semester (2020/2021).

Terminology and Procedural Definitions

For the purposes of this study, the following procedural definitions were defined:

Evaluation degree: The degree which subjects obtain on the Professional Learning Communities Scale according to the cut-off score adopted in this study.

Professional Learning Communities: Carter-Sims (2021) defined PLC as groups of teachers and school leaders who are committed to working and learning collaboratively; to investigate the best learning practices related to the current reality of the school. They direct their activities and events; by focusing on the results that continuously enhance student

learning by collecting evidence of learning taking place. According to this study, it is measured by the dimensions of the Professional Learning Communities Scale developed for the purposes of this study. **Procedurally**, PLC is the overall score obtained by the student on the Professional Learning Communities Scale developed for the purposes of this study.

School leaders: The study sample consists of school male and female principals ,also male and female supervisors.

Male and female teachers: Teachers working at public and private schools, and the schools of UNRWA.

Method

Study approach

The study adopted the analytical descriptive approach to reach the results, construct the study measurement tool ,and to collect and analyze the results according to the Statistical Package for Social Sciences(SPSS).

Study Population and Sample

The study population consisted of all teachers, school leaders of supervisors and school principals at the Ministry of Education, Private sector, The United Nations Relief and Works Agency (UNRWA) in Amman. The total number of teachers was (49393) male and female teachers, (58) male and male supervisors and (153) male and female principals. The simple random sample was taken as the study sample, which consisted of (155) subjects, (39) male and female teachers, (28) male and female principals and (88) male and female supervisors. Table 1 shows the distribution of study subjects according to the study variables, levels and corresponding percentages.

Table (1) : Distribution of Study Subjects According to the Study Variables, Levels and Corresponding Percentages

Variable	Variable Levels	Number	percentage
Gender	Male	74	%47.7
	Female	81	%52.3
Supervising Authority	Public	54	%34.8
	Private	55	%35.5
	UNRWA	46	%29.7
Degree	Bachelor's	91	%58.7
	Master's	38	%24.5
	PhD	26	%16.8
Years of Experience	Less than 5 years	12	%7.7
	5-10 Years	19	%12.3
	More than 10 years	124	%80

Study Measurement Tool

The current study used the Professional Learning Communities Scale (Olivier et al.,2010),which consists of six mains dimensions: first dimension: participation and supportive leadership, consisting of 11 items. Second dimension: shared values and visions, consisting of 9 items. Third dimension: collective learning and application, consisting of 10 items. Fourth dimension: shared personal practice, consisting of 7 items. Fifth dimension: supportive conditions – relationships, consisting of 5 items. Sixth dimension: supportive conditions – structures, consisting of 10 items, with a total of 52 paragraphs. Al-Mahd & Sywelem,2016, validated its psychometric properties, where Cronbach’s α was (0.985-0.928) on a sample of (1486) male and female teachers and school principals in Egypt, Saudi Arabia and Oman. A four-point Likert scale was adopted: Strongly Disagree (1), Disagree (2),Agree (3),and Strongly Agree (4). In this way, the range of the total score was 52-208. Table 2 shows the distribution and number of paragraphs on the Scale dimensions.

Table (2): Distribution of the Professional Learning Communities Scale items

No.	Dimension	Items Number
1	Shared and Supportive Leadership	11
2	Shared Values and Visions	9
3	Collective Learning and Application	10
4	Shared Personal Practice	7
5	Supportive Conditions - Relationships	5
6	Supportive Conditions – Structures	10
Total		59

Psychometric Properties of Scale

The Professional Learning Communities Scale consists of 52 paragraphs translated into Arabic. The scale was reviewed, edited and revised in terms of wording and language. The researchers verified the validity of the scale through the following ways:

Validity of Tool

The scale was shown to seven reviewers of the faculty members at the Faculty of Educational Science at Jordanian universities, to verify the translation accuracy, paragraph clarity, appropriacy and relevance to the domains under which they were included. The required amendments were carried out on the paragraph relevance to the domains under which they were included.

Structure Validity

The structure validity of the Professional Learning Communities Scale was verified through finding the correlation coefficients between the scores on the items and the scores on the domain to which they belong. It was found that the correlation coefficient of each item with the dimension it belongs to was significant at the level of ($\alpha \leq 0.05$), where the values of correlation coefficient between the paragraph score and the total score on the dimension to which the paragraph belongs was (0.76) and (0.91).

Tool Reliability

The Scale reliability was validated through using internal consistency, where the Scale was applied on a pilot sample of (30) teachers, principals and supervisors out of the study sample. Internal consistency was produced using Cronbach's α . Table3 shows the internal consistency of the Scale dimensions with all the items of the Scale.

Table (3) :Cronbach's α Factors and Internal Consistency of the Scale and its Sub-dimensions

No.	Dimension	Items Numbers	Reliability Coefficient
1	Shared and Supportive Leadership	11	0.92
2	Shared Values and Visions	9	0.91
3	Collective Learning and Application	10	0.86
4	Shared Personal Practice	7	0.87
5	Supportive Conditions - Relationships	5	0.89
6	Supportive Conditions – Structures	10	0.94
		52	0.75

The values of the reliability coefficients of the sub-domains ranged between (0.86-0.94). The overall internal consistency was (0.75) which are appropriate indicators for the Scale reliability.

Procedures of the Study Implementation

- Sending the study instrument via e-mail through Google Forms.

- Electronic distribution of the study tool on the study subjects and follow up replies.
- Tabulate data and analyze them using SPSS.

Marking Subjects' Response to the Questionnaire Paragraphs

A four-point Likert scale was adopted to evaluate the degree of readiness to practice virtual PLCs in light of COVID-19 Crisis. The scores (1,2,3,4) were given to the response to each paragraph, where the scores were distributed in ascending order on the assessments of readiness evaluation: strongly disagree, disagree, agree, strongly agree. The criteria necessary to determine the readiness degree were determined using empirical data and reviewers' opinions, where the paragraphs were classified into categories according to the means of the subjects' responses to the paragraphs of the study tool in light of the following criterion, after the reviewers had reviewed and approved it: high evaluation degree 3.1-4, medium degree 2.1-3, and low employment degree 1.1-2. Accordingly, a cut-off score was determined for the levels of each of the Scale domains as shown in Table (4).

Table (4): Cut-off Score for the Scale Domains and for the Scales as a whole

No.	Dimension	Items Numbers	Low Degree 1-1.2	Medium Degree 3-2.1	High Degree 4-3.1
1	Shared and Supportive Leadership	11	22 -11	33-23	44-34
2	Shared Values and Visions	9	18 -9	27-19	36-28
3	Collective Learning and Application	10	20 -10	30-21	40-31
4	Shared Personal Practice	7	14 -7	21-15	28-22
5	Supportive Conditions - Relationships	5	-5 10	15-11	20-16
6	Supportive Conditions – Structures	10	-10 20	30-21	40-31
Scale as a Whole		52	104 -52	156-105	208 -157

Statistical Processing

The data resulting from the responses of teachers, principals, and supervisors were analyzed using the SPSS Statistical Package for Social Sciences, where the means and standard deviations of the evaluating degree of readiness to practice virtual PLCs in light of COVID-19 crisis were produced for each of the Scale paragraphs, and on each of the Scale Dimensions and the Scale as a whole. The results of the T-test for two independent samples were produced to answer the second question, and the results of Multivariate analysis of variance were produced, followed by Scheffe Test for dimensional comparisons to answer the third and fourth questions.

Study Results

The following is a presentation of the results of the study by answering the questions asked:

First, Results Related to the Responses to Question One:

What is the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan?

To answer the first question, means and standard deviations were calculated for each paragraph of the Professional Learning Communities Scale to evaluate the degree of readiness to practice virtual PLCs in light of COVID-19 crisis. Table 5 shows the descending order of the dimensions according to the mean of the sample estimates of the items.

Table 5: Means and Standard Deviations to Evaluate the Degree of Readiness to Practice Virtual PLCs in Light of COVID-19 Crisis on the Scale Dimensions According to the Mean of their Estimates, in Descending Order

Dimension No.	Dimension	Items Numbers	General average of the answer for each dimension	Rank	Employment Degree	Std. Deviations
Fifth	Supportive Conditions - Relationships	5	15.26	1	Great	3.30
Sixth	Supportive Conditions – Structures	10	29.32	2	Medium	6.47
Second	Shared Values and Visions	9	26.06	3	Medium	5.76
Fourth	Shared Personal Practice	7	20.19	4	Medium	4.01
First	Shared and Supportive Leadership	11	31.5	5	Medium	6.97
Third	Collective Learning and Application	10	27.98	6	Medium	5.52
Scale as a whole		52	160.44	---	Great	29.04

Table (5) shows that the fifth-dimension as well as the whole Scale were greatly employed. The means of the subject's performance were (30.5-15.26) respectively, while the remaining dimensions were employed to a medium degree.

This result can be attributed to various factors: that PLCs is considered a scientific methodology for the professional development programs of the school community in general and for teachers in particular. Most PLCs theories and models focus on sharing learning responsibility and collectively acquiring knowledge in light of usual circumstances and in light of COVID-19 pandemic in particular, in accordance with the need of the work team to collaborate with the aim of providing the optimal performance that improves students' learning, and works on the development of teaching skills and competence, as well (Kools&Bouckaert,2020). The level of conscious planning that is consistent with the real needs of teachers can play a role in achieving the most desired benefit from programs contributing to the development and learning of all school community members (Admiraal et al.,2019). It is possible that practicing virtual PLCs has motivated teachers to engage in reflective dialogues, sharing lesson plans and analyzing and evaluating their student's work which prompts them to agree on the values and standards they will abide by as a work team to develop their educational competencies(Olsson,2019). The results of this study partially agree with the study of Antinluoma, et al.,2018 which aimed to investigate the perceptions of comprehensive school principals and teachers in terms of school performance as a professional learning community. The study showed four shared development factors between all the groups, where the means of professional training was (2.7-3.3), teaching students (2.7-3.3), leadership (2.9-3.4) and school vision (2.6-3.3) were almost at the same level. This confirms having a reciprocal relation between the properties of PLCs., and with the results of The study of Kin, Kareem, &Musa,2019 which showed a very good level at PLCs in terms of the PLCs at the chinses primary schools. The study of Kin, & Abdull Kareem,2021whichaimed at investigating the implementation level of PLCs at Malaysian secondary schools. The result showed that the school level was good in terms of practicing PLCs.

Second, Results Related to the Responses to Question Two:

Are there any significant statistical differences at ($\alpha \leq 0.05$) in the level of evaluating the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman

educational directorate in Jordan according gender (males and females)?

To answer the second question, means and standard deviations were calculated for the response of the study sample on the Scale dimensions according to the gender variable. Table 6 shows the dimensions according to the gender variable.

Table 6: Means and Standard Deviations for the Response of the Study Sample on the Scale Dimensions According to the Gender Variable

No.	Dimension	Males (74)		Females (80)	
		Means	Std. Deviations	Means	Std. Deviations
1	Shared and Supportive Leadership	31.9	7	31.13	6.99
2	Shared Values and Visions	26.4	5.82	25.7	5.75
3	Collective Learning and Application	27.7	6.02	28.2	5.07
4	Shared Personal Practice	20.09	4.29	20.26	3.79
5	Supportive Conditions - Relationships	15.38	3.61	15.16	3.03
6	Supportive Conditions – Structures	29.3	6.65	29.34	6.39
Scale as a whole		160.62	30.57	160.14	27.9

Table 6 shows that there are significant differences between the means on the Scale dimensions and the Scale as a whole. T test was used to detect the difference significance of the independent samples, as shown in Table 7.

Table 7: Results of T-test to Investigate the Difference between the Means of the Performance of Males and Females on the Scale Dimensions and the Scale as a Whole

Dimension	Differences Mean	Std. Deviations of Differences	(T) Value	Significance level
Shared and Supportive Leadership	0.77	1.13	0.68	0.50
Shared Values and Visions	0.71	0.93	0.76	0.45
Collective Learning and Application	0.48-	0.89	0.54-	0.59
Shared Personal Practice	0.17-	0.65	0.26-	0.80
Supportive Conditions - Relationships	0.22	0.54	0.40	0.69
Supportive Conditions – Structures	0.04	1.05	0.04-	0.97
Scale as a whole	0.48	4.71	0.103	0.92

Table 7 shows that there is no statistical difference at the level of $\alpha=0.05$ between males and females on all Scale dimensions and on the Scale as a whole.

Third, Results Related to the Responses to Question Three:

Are there significant statistical differences at ($\alpha \leq 0.05$) in the level of evaluating the degree of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan according to years of experience, academic degree, authority supervising schools, and work type?

To answer this question, teachers were classified into three categories according to their experience: (less than 5 years, 5-10 years, more than 10 years). Means and standard deviations were calculated for the estimates given by the teachers, school principals and supervisors of themselves to evaluate the degree of readiness to practice PLCs as shown in Table 8.

Table 8: Means and Standard Deviations for the Response of the Study Sample on the Scale Dimension According to the Variable of Years of Experience

No.	Dimension	Less than 5 years (12)		5-10 years (19)		More than 10 Years (124)	
		Means	Std. Deviations	Means	Std. Deviations	Means	Std. Deviations
1	Shared and Supportive Leadership	28.08	8.96	32.16	4.72	31.75	7
2	Shared Values and Visions	24.17	7.73	25.89	5.31	26.27	5.62
3	Collective Learning and Application	25.17	5.78	27.79	3.33	28.28	5.71
4	Shared Personal Practice	19	4.39	21.12	2.58	20.16	4.15
5	Supportive Conditions - Relationships	14.5	3.29	15.63	2.31	15.28	3.44
6	Supportive Conditions – Structures	26.33	7.62	29.37	4.31	20.60	6.60
Scale as a whole		146.33	34.87	161.84	17.37	161.59	29.7

Table 8 shows that there are significant differences in the means and standard deviations in evaluating the degree of readiness to practice virtual PLCs from their points of view according to the variable of years of experience on the Scale dimensions and on the Scale as a whole according to the variable of years of experience. As for the academic degree variable, teachers and school principals were classified into three categories according to their academic degree (Bachelor, Master, PhD). Means and standard deviations were calculated in terms of the three categories for the estimates given by the teachers and school principals to evaluate the degree of readiness to practice PLCs as shown in Table 9.

Table 9: Means and Standard Deviations for the Response of the Study Sample on the Scale Dimensions According to the Variable of Academic Degree

No.	Dimension	Bachelor's		Master's		PhD	
		Means	Std. Deviations	Means	Std. Deviations	Means	Std. Deviations
1	Shared and Supportive Leadership	31.57	7.41	32.26	5.17	30.23	7.71
2	Shared Values and Vision	26.13	6	27.32	3.9	23.96	6.68
3	Collective Learning and Application	28.16	5.68	28.79	3.91	26.15	6.65

No.	Dimension	Bachelor's		Master's		PhD	
		Means	Std. Deviations	Means	Std. Deviations	Means	Std. Deviations
4	Shared Personal Practice	20.55	4.11	20.47	3.25	18.5	4.38
5	Supportive Conditions – Relationships	15.34	3.41	15.71	2.39	14.34	3.95
6	Supportive Conditions – Structures	29.24	6.77	30.82	4.23	27.42	7.72
Scale as a whole		160.75	30.36	165.92	18.36	151.35	35.3

Table 9 shows that there were significant differences in the means and standard deviations in evaluating the degree of readiness to practice virtual PLCs from their points of view according to the variable of academic degree on the all the Scale paragraphs and on the Scale as a whole according to the variable of academic degree. As for the variable of the supervising authority, teachers were classified into three categories according to variable of the supervising authority (Public, Private, UNRWA). Means and standard deviations were calculated for the teachers' estimates in the three sectors: Public, Private, and UNRWA to evaluate the degree of readiness to practice virtual PLCs from their point of view as shown in Table 10.

Table 10: Means and Standard Deviations for the Response of the Study Sample on the Scale Dimensions According to the Variable of the Supervising Authority

No.	Dimension	Public		UNRWA		Private	
		Means	Std. Deviations	Means	Std. Deviations	Means	Std. Deviations
1	Shared and Supportive Leadership	31.63	7.25	33.48	5.27	29.76	7.57
2	Shared Values and Vision	25.68	6.46	27	4.59	25.63	5.92
3	Collective Learning and Application	27.98	5.83	28.02	5.53	27.95	5.29
4	Shared Personal Practice	19.74	4.27	21.13	3.51	19.84	4.08
5	Supportive Conditions Relationships	14.85	3.66	15.96	2.98	15.09	3.15
6	Supportive Conditions – Structures	28.22	6.63	30.65	5.75	29.29	6.89
Scale as a whole		157.5	31.71	167.33	23.62	157.56	29.93

Table 10 shows that there were significant differences in the means and standard deviations in evaluating the degree of readiness to practice virtual PLCs from their points of view according to the variable of the supervising authority on all the paragraphs and on the Scale as a whole according to the variable of the supervising authority. As for the variable of the work type, the study sample was classified into three categories according to the work type (teacher, principal, supervisor). Means and standard deviations were calculated in terms of the three types of work for the estimates given by the teachers, school principals and supervisors to evaluate the degree of readiness to practice virtual PLCs as shown in Table 11.

Table 11: Means and Standard Deviations for the Response of the Study Sample on the Questionnaire Dimensions According to the Variable of Work Type

No.	Dimension	Teacher(39)		Principal(28)		Supervisor(88)	
		Means	Std. Deviations	Means	Std. Deviations	Means	Std. Deviations
1	Shared and Supportive Leadership	29.72	7.66	35.54	3.78	31.03	7
2	Shared Values and Vision	24.74	5.94	28.71	3.68	25.8	5.99
3	Collective Learning and Application	26.67	5.69	30.11	5.35	27.89	5.36
4	Shared Personal Practice	19.05	4.34	21.25	3.36	20.35	3.97
5	Supportive Conditions Relationships	14.26	3.43	17.11	2.39	15.13	3.29
6	Supportive Conditions – Structures	27.59	6.69	33.11	4.55	28.89	6.49
Scale as a whole		151.38	30.92	176.07	18.75	159.48	29.15

Table 11 shows that there are significant differences in the means and standard deviations in evaluating the degree of readiness to practice virtual PLCs from their points of view according to the variable of work type on all the questionnaire paragraphs and on the Scale as a whole according to the variable of work type.

Fourth , Results Related to Question four

Are there significant statistical differences at ($\alpha \leq 0.05$) on the scale dimensions of readiness to practice virtual PLCs in light of Covid-19 Crisis from the perspectives of school leaders and teachers at Amman educational directorate in Jordan according to years of experience, academic degree , authority supervising schools , and work type?

To answer this question, and to detect the difference significance of the Scale Dimensions According to study variables, MANOVA was used as shown in Table 12.

Table 12: MANOVA Results for the Scale Dimensions According to the Study Variables: Years of Experience, Academic Degree, Supervising Authority and Work Type

Variables	Test	Test value	"F" Value	Numerator Freedom Degree	Denominator Freedom Degree	Significance Level
Years of Experience	Wilk's Lambda	0.728	2.795	14	228	*0.001
Academic Degree	Wilk's Lambda	0.361	10.11	14	228	*0.00
Supervising Authority	Wilk's Lambda	0.435	8.42	14	228	*0.00
Work type	Wilk's Lambda	0.385	9.96	14	228	*0.00
Years of Experience & Academic Degree	Wilk's Lambda	0.945	0.947	7	114	0.473
Years of Experience & Supervising Authority	Wilk's Lambda	0.771	1.102	28	412	0.332
Years of Experience & Work type	Wilk's Lambda	0.942	0.496	14	228	0.934
Academic Degree & Supervising Authority	Wilk's Lambda	0.872	0.571	28	412	0.963
Work type & Academic Degree		0.779	1.059	28	412	0.386
Supervising Authority & Work type	Wilk's Lambda	0.864	0.611	80	921	0.943

*Statistical significance at ($\alpha=0.05$) level

Table 12 shows the results of Wilk's Lambda test which show that "F" values were significant at ($\alpha=0.05$) level for the variable of the supervising authority: years of experience, academic degree and the supervising authority altogether. F values were 2.795, 10.11, 8.42, 9.96, all of which were significant. Nevertheless, the results of Wilk's Lambda test, as shown in Table 12, did not show that there were significant differences according to the pairing of variables (Years of experience + academic degree, years of experience + supervising authority, academic degree + supervising authority.....). F values were not statistically significant for tertiary and quaternary interactions between variables, either.

To investigate the difference significance in evaluating the degree of readiness to practice virtual PLCs according to the study variables: years of experience, academic degree and supervising authority, MANOVA was carried out as shown in Table 13.

Table 13: MANOVA Results for the Scale Dimensions that Showed Statistical Significance According to the Study Variables: Years of Experience, Academic Degree, Supervising Authority and Work Type

Differences Source	Dimensions		Squares Sum	Freedom Degree	Squares Average sum	"F" Value	Significance level
	Dimension No.	Dimension					
Work type	1	Shared & Supportive Leadership	7474.71	154	48.54	*6.62	0.002
	2	Shared Values & Vision	5104.48	154	33.15	*4.26	0.016
	3	Collective Learning & Application	4690.94	154	30.45	*3.29	0.04
	5	Supportive Conditions-Relationship	1678.16	154	10.9	*6.73	0.002
	6	Supportive Conditions – Structures	6455.87	154	41.92	*6.78	0.001
	Scale as a whole		129866.17	154	843.79	*6.42	0.002
Supervising Authority	1	Shared & Supportive Leadership	7474.71	154	48.54	*3.7	0.027
Years of Experience	There are no statistically significant differences at the($\alpha=0.05$) level in assessing the degree of readiness to practice virtual PLCs on all dimensions and on the Scale as a whole.						
Academic Degree	There are no statistically significant differences at the($\alpha=0.05$) level in assessing the degree of readiness to practice virtual PLCs on all dimensions and on the Scale as a whole.						
The binary, tertiary and quaternary interactions between variables	There are no statistically significant differences at the($\alpha=0.05$) level in assessing the degree of readiness to practice virtual PLCs on all dimensions and on the Scale as a whole.						

*Statistical significance at($\alpha=0.05$) level

Table 13 shows that there were significant differences at ($\alpha \leq 0.05$) level in evaluating the degree of readiness to practice virtual PLCs attributed to the work type on all the dimensions, except for the fourth dimension, where F values were significant. There were also significant differences at ($\alpha=0.05$) level in evaluating the degree of readiness to practice virtual PLCs attributed to the supervising authority on the first dimension only. The results also indicated that there were no significant differences at ($\alpha=0.05$) level in evaluating the degree of readiness to practice virtual PLCs attributed to the variables of years of experience and academic degree, and there were no significant differences at ($\alpha=0.05$) level in evaluating the degree of readiness to practice virtual PLCs attributed to the binary, tertiary and quaternary interactions between variables. In order to find out the source of the differences on the previous paragraphs, and on the set of tools, Scheffe test was conducted for dimensional comparisons. Table (14) illustrates these results.

**Table 14: Scheffe Test Results for the Significant Dimensions of the Scale According to the Study Variables:
Work Type and Supervising Authority**

Differences Source	Dependent Variables		Groups	1	2	3
Work Type	Dim\No.	Dimensions		Teacher	Principal	Supervisor
	1	Shared and Supportive Leadership	1	-	-5.82*	-1.32
			2	5.82*	-	4.5*
			3	1.32	*4.5-	-
	2	Shared Values and vision	1	-	*3.97-	1.05-
			2	*3.97	-	2.91
			3	1.05	2.91-	-
	3	Collective Learning and Application	1	-	*3.44-	1.22-
			2	*3.44	-	2.22
			3	1.22	2.22-	-
	5	Supportive Conditions - Relationships	1	-	*2.85-	0.87-
			2	*2.85	-	*1.98
			3	0.87	*1.98-	-
	6	Supportive Conditions – Structures	1	-	*5.52-	1.3-
			2	*5.52	-	*4.22
			3	1.3	*4.22-	-
	Scale as a whole		1	-	-24.69*	-8.09
			2	24.68*	-	16.59*
3			8.09	-16.59*	-	
			Groups	1	2	3
				Public	Private	UNRWA
Supervising Authority	1	Shared and Supportive Leadership	1	-	1.87	1.84-
			2	1.87-	-	*3.71-
			3	1.84	*3.71	-

Statistical significance at ($\alpha \leq 0.05$) level

The results shown in table 14 above shows that the differences on the first dimension, participation and supportive leadership, of the Scale was statistically significant between school teachers and leaders in favor of school leaders, and between school leaders and supervisors in favor of school leaders. As for the second dimension: shared values and visions, the differences were statistically significant between teachers and school principals in favor of the principals. In addition, the differences were also statistically significant on the collective learning and application in favor of the principals. As for the fifth dimension: supportive conditions – relationships, and the sixth dimension: supportive conditions – structures, the differences were statistically significant between teachers and school principals in favor of the school principals, and between principals and supervisors in favor of school principals. The school principals excelled over teachers and supervisors in their responses to the whole scale. These results may be attributed to the great role assigned to school principals as leaders of teaching and learning in schools. As the school principals' adoption of the dialogue approach, and their embrace of their schools' vision, make them agents of transformation in the sustainability of their schools' development project, bearing in mind that educational reform programs to improve education have been placed upon them as a top priority, since they are influential in the school community. The results of this study are consistent with the results of Andedo, Ajowi, & Aloka, 2021, in terms of the influence of school principals' attitudes on creating PLCs in Kenyan secondary schools. The study findings indicated that there was statistically significant

positive correlation between school principals' attitudes and the development of PLCs at secondary schools.

Table 14 shows that there are significant differences at ($\alpha = 0.05$) between the private sectors and The United Nations Relief and Works Agency (UNRWA) in evaluating the degree of readiness in terms of practicing virtual PLCs in favor of the (UNRWA) staff on the first dimension only.

Discussion and Conclusion:

The results shown that the fifth-dimension: "Supportive Conditions – Relationships" as well as the whole Scale were greatly employed, while the remaining dimensions were employed to a medium degree; this result can be attributed to various factors: that PLCs is considered a scientific methodology for the professional development programs of the school community in general and for teachers in particular. Most PLCs theories and models focus on sharing learning responsibility and collectively acquiring knowledge in light of usual circumstances and in light of COVID-19 pandemic in particular, in accordance with the need of the work team to collaborate with the aim of providing the optimal performance that improves students' learning, and works on the development of teaching skills and competence, as well (Kools&Bouckaert,2020). The level of conscious planning that is consistent with the real needs of teachers can play a role in achieving the most desired benefit from programs contributing to the development and learning of all school community members (Admiraal et al.,2019). It is possible that practicing virtual PLCs has motivated teachers to engage in reflective dialogues, sharing lesson plans and analyzing and evaluating their student's work which prompts them to agree on the values and standards they will abide by as a work team to develop their educational competencies(Olsson,2019). The results of this study partially agree with the study of Antinluoma, et al.,2018 which aimed to investigate the perceptions of comprehensive school principals and teachers in terms of school performance as a professional learning community. The study showed four shared development factors between all the groups, where the means of professional training was (2.7-3.3), teaching students (2.7-3.3), leadership (2.9-3.4) and school vision (2.6-3.3) were almost at the same level. This confirms having a reciprocal relation between the properties of PLCs., and with the results of The study of Kin, Kareem, &Musa,2019 which showed a very good level at PLCs in terms of the PLCs at the chinses primary schools. The study of Kin, & Abdull Kareem,2021whichaimed at investigating the implementation level of PLCs at Malaysian secondary schools. The result showed that the school level was good in terms of practicing PLCs.

Also, the results shown that there is no statistical difference at the level of($\alpha=0.05$) between males and females on all Scale dimensions and on the Scale as a whole. This result can be attributed to the following factors :The concept of the shared PLC dimensions fostered finding collective learning between male and female teachers during COVID-19 pandemic, through visual means of communication that fostered professional development among them based on their urgent training needs, especially in terms of their digital competency, which leads to reducing the isolation that some of them experience (Brand, 2020; Admiraal et al., 2019). In addition, PLCs play a vital role in finding various opportunities for male and female teachers to collaborate through experience exchange in terms of digital learning tools which have become un urgent need for a large number of teachers. It is also expected to be reflected on their professional development which in turn leads to tangible improvement in the level of all students' performance through the hypothesis of improving student learning based on improving teaching practices (Bennett,2017). The concept of caring, stressed by Mahimuang, 2018, as being effective influencer on the rest of PLCs dimension, especially the dimensions added by Kools et al.,2020 as being factors supporting male and female teachers, which are the shared vision, continuous learning, investigative learning, knowledge exchange, learning and innovation, exploration and learning from the external environment in terms of the cooperation imposed by COVID-19 pandemic between different categories of teachers. The results of this study are consistent with the study of Masood, et al., 2020, which did not show statistically significant differences according to the gender variable.

In Addition, the results shown that the school principals excelled over teachers and supervisors in their responses to the whole scale. These results may be attributed to the great role assigned to school principals as leaders of teaching and learning in schools. As the school principals' adoption of the dialogue approach, and their embrace of their schools' vision, make them agents of transformation in the sustainability of their schools' development project, bearing in mind that

educational reform programs to improve education have been placed upon them as a top priority, since they are influential in the school community. The results of this study are consistent with the results of Andedo, Ajowi, & Aloka, 2021, in terms of the influence of school principals' attitudes on creating PLCs in Kenyan secondary schools. The study findings indicated that there was statistically significant positive correlation between school principals' attitudes and the development of PLCs at secondary schools.

Furthermore, the results shown that there are significant differences at ($\alpha = 0.05$) between the private sectors and The United Nations Relief and Works Agency (UNRWA) in evaluating the degree of readiness in terms of practicing virtual PLCs in favor of the (UNRWA) staff on the first dimension only. This result may be attributed to the nature of the prevailing culture in the UNRWA school community; as the professional development programs in UNRWA, in terms of their comprehensiveness and their reliance on strict theoretical and empirical frameworks, have enabled their leaders to implement them with a high degree of perfection over successive generations. This made UNRWA a unique institution in terms of its diversity and multiplicity of school results over the schools of the Ministry of Education and private schools. This result partially agrees with the study of Antinluoma, et al., 2018, whose results related to different schools showed that there were statistically significant differences between school types in terms of the prevailing culture.

Recommendations:

1- Carry out similar studies using qualitative approach to understand practicing PLCs from the point of view of those participating in them.

2- Include the programs of professional development of school leaders, supervisors and teachers in professional development projects at the level of the Ministry of education and other educational institutions.

3- Standardize the Professional Learning Communities Scale on samples of school leaders, educational supervisors and teachers to take advantage of it in planning the development paths for schools.

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