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PROFESSIONAL LEARNING COMMUNITIES: TEACHERS' COLLABORATIVE LEARNING AS TOOL FOR IMPROVING STUDENTS' ACHIEVEMENTS

Avi Ohayon (a), Ion Albulescu (b)*
*Corresponding author

(a) Unit for the Advancement of Educational Achievements Education Administration, 1 Henrietta Szold Street, Beer Sheva, Israel
(b) Babeș-Bolyai University, Cluj-Napoca, Romania, albulescum@yahoo.com

Abstract

The article examines the correlation between teachers' collaborative learning and promoting students' achievements. School pedagogical successes and students' achievements reflect their teachers' cumulative abilities. Improvements in teachers' abilities is a by-product of professional development (PD) frameworks in which they participate. Over the past decade, we have begun to see outputs of teachers' PD from frontal continued PD frameworks whose effectiveness has been found to be low, toward collaborative learning within and outside school framework. Traditional PD frameworks emphasizing teachers as individuals whose knowledge acquisition is one-way and passive, have been revealed as unsuitable for imbuing competences and skills their students require in preparation for higher education and the labor market. In contrast, one of the prominent frameworks for effective PD is disciplinary or generic professional learning communities (PLC). PLC enables teachers to conduct pedagogical brainstorming, share knowledge and experience, together cope with pedagogical issues and dilemmas linked to students' achievements and provide one another with emotional support. Noticeably and equitably raising students' achievements occurs thanks to nurturing cooperation between teachers in PLC frameworks. This article describes the characteristics of collaborative learning in professional communities, leading indirectly to improving students' achievements.

1. Introduction

The article discusses the indirect influence teachers' PD within a professional learning community (PLC) on school success and students' achievements. A PLC, based on collaborative learning, both in and out of school, provides teachers with a platform for meaningful peer learning, exchange of knowledge, ideas and opinions, and joint coping with teaching-related issues (Tam, 2015). Collaborative learning as a PD framework, considered more effective for teachers' PD than traditional frontal training (Sperling, 2018). The collaborative framework leads to creation of new pedagogical knowledge derived from practical experiences in the education field and to improving teachers' teaching skills. Improving teachers' quality and professionalism leads to promoting students' achievements (Smith, 2010).

The premise underpinning this article relies on the conclusions of the McKinsey report, according to which students' achievements reflect the qualities, skills, and competencies of their teachers (Mckinsey & Company, 2007). The McKinsey Report was designed to examine the factors that influence the quality of education systems and is based on an in-depth and systematic examination of 25 education systems worldwide. The report's clear conclusion is that the quality of an education system cannot outweigh the quality of its teachers. In other words, students' achievements in any education system reflect the quality of teachers in that system. The report's conclusions indicate that differences in students' achievements in different education systems around the world depend on three main factors: (1) Attracting the right people to the profession (2) Development and training that makes teachers effective and influential. (3) Ensuring the system's ability to provide the highest quality teaching to each student. The importance of this article is in presenting constantly growing evidence in recent years for the effectiveness of PLC that are both disciplinary and generic. This effectiveness is expressed in teacher's professional advancement and consequently, creation of pedagogical success. These PLC, emphasize learning from others' experience, provide a framework for professional and emotional sharing and support, and significantly improve the quality of teaching, thus they indirectly lead to improved students' achievements.

2. Problem Statement

2.1. Teachers' professional development frameworks: are they effective?

Throughout their professional careers, teachers invest long hours in PD, by various means including in-service courses, lectures, workshops and so forth. The question is to what extent are these means effective in improving teachers' quality and skills?

Various studies have expressed doubt regarding the effectiveness of traditional teachers' PD frameworks. Seminars, workshops, and lectures are designed, at the declarative level, to improve teachers' teaching skills, help them develop new ones, enrich disciplinary curricula, and indirectly lead to promoting students' achievements. In practice, PD frameworks do not necessarily result in teachers' professional learning, which should be expressed in both changes to their sense of knowledge and skills, in their teaching practices, and in students' achievements in standardized national tests (Sperling, 2018). Nevertheless, PD frameworks emphasizing a combination of parameters, including the subject matter, active and continuous learning, coherence, and collective participation, are considered effective

(Desimone, 2009; Garet et al., 2001). Focusing on these parameters may result in improved teachers' skills, and consequently, to promoting students' achievements.

Research suggests that many PD programs, traditional or innovative, are not characterized by high quality, and do not bring about a change in teachers' sense of knowledge and skills. Hence the conclusion is that in PD programs, focus on essential characteristics such as active learning, coherence, collective participation, is preferred to type of teachers' PD program or how it is taught (Garet et al., 2001).

2.2. Collaborative learning in the framework of PLC

In recent years, teachers' PD has changed from learning in frontal training programs towards collaborative learning. The latter is a pedagogical framework whereby learners join to achieve a common goal such as performing a task, project planning or for the purpose of acquiring new knowledge and solving teaching-related problems (Brody & Davidson, 1998).The basis for successful collaborative learning is the creation of positive interdependence among learners in which everyone contributes their share to the group and also develops on their own (Slavin, 2010). Among other things, the constructivist approach in education encourages collaborative learning. According to this approach, teachers are not the only source of knowledge but rather, learners turn information into knowledge both through independent research actions and through learning interactions among them (Kirschner, 2001; Yehieli, 2008).

Collaborative learning can take place both in the physical and virtual space. In cyberspace, it takes place among different learners online thanks to the development of information and communication technologies that enable and promote local or global collaborative work. New technologies serve as platforms for collaborative learning and the creation of shared knowledge considered important 21st century skills (Scott, 2015).

Salmons (2006) developed a taxonomy for optimal collaborative learning in cyberspace (E-learning). The stages he delineated can also be relevant to collaborative learning in the physical space. The first stage is dialogue, that is, an exchange of opinions among group members; The second stage includes peer review, i.e., providing mutual feedback among group members; The third stage is called parallel collaboration, meaning that group members perform a primary task through parallel work on its different parts.The next stage - sequential collaboration, where group members build the product in stages with each participant building a different stage in turn; The last stage is synergistic collaboration, where all participants by agreement, have been brainstorming at all stages of product construction until reaching the final outcome.

Developing collaborative learning within a professional community is considered more effective than traditional PD frameworks. Traditional frameworks emphasizing teachers as individuals possessing knowledge in a one-way and passive manner, have been found to be unsuitable for imparting the skills and competencies their students need in preparation for higher education and the labor market (Stewart, 2014). These changes express the assumption of a threefold correlation between high-level PD, high-quality teaching, and student achievement (Smith, 2010).

A PLC is characterized by several key characteristics: Collective learning is a primary characteristic that includes a reflective dialogue about teachers' teaching and students' learning, with participants reviewing their own teaching practices and their underlying assumptions about teaching and

learning (Birnbaum, 2009; Timperley, 2008) ;Examining practices within a PLC is usually done from an exploratory and critical perspective. A PLC is considered effective when it is open to professional disagreements and it welcomes different and diverse opinions, recognizing their contribution to learning that challenges that which exists (Bnaya et al., 2013) .Collaborative learning breaks down barriers of teacher loneliness and contributes to students' learning. Collaborative teachers' learning related to curriculum and teaching practices, has been found to increase teachers' commitment and students' connection to school (Cowen, 2006). Teachers' participation in PLC raised their sense of collective competence and their sense of commitment to elementary school (Schechter, 2008). A second characteristic is the privatization of practices, where teachers provide feedback through networks of professional interactions and share knowledge outside their specific classroom. A third characteristic is collaboration between colleagues in promoting professional reforms and initiatives for improvement at school. A fourth characteristic is principals' collaborative leadership and support of teachers (DuFour et al., 2005; Huffman & Hipp, 2001). A fifth characteristic is a collective focus on students' learning that reflects teachers' mutual commitment to students' success. An additional characteristic is a sense of common purpose regarding the extent to which teachers identify with the school's destination and practical conduct (DuFour et al., 2005; Louis & Marks, 1998).

2.3. PLC's influence on promoting students' achievements

There is agreement among researchers with regard to collaboration among teachers being a key condition for achieving significant improvement at school and improving students' achievements (DuFour, 2004; DuFour et al., 2005). Dufour argued that the best and most professionally rewarding way to bring about school improvement is through the establishment of PLC, where the principle of collaboration is implemented, evoke unprecedented hope for improvement of schools and teaching. Teachers' PD is necessary for the development of students (McKinsey & Company, 2007). Effective PD must include significant interaction between teachers and their colleagues, expressed in collaboration with one another in order to find ways to solve teaching and learning-related problems (Fullan, 2005).

Other researchers agree that teachers' professional learning in a relevant community (inside or outside school), characterized by a relationship of trust and partnership, is preferable to time-limited in-service training (Hargreaves &Fullan, 2012; Margolin, 2011). A PLC can document its work, combine practice and the field with theory, and observe students' learning through data (Ram, 2016). A PD model through a PLC seeks to lead to change in teachers' beliefs and premises about teaching in general and theirs in particular. PLC characterized by learning within or outside the workplace using data about students and learning from experience through reflection (Stewart, 2014).

Raising students' achievement significantly and equitably occurs owing to nurturing teachers' collaboration in PLC frameworks (Gajda & Koliba, 2007). The key factor in improving teachers' quality is their participation in a quality PD framework (McKinsey & Company, 2007). PD based on teachers' communities is likely to develop a culture of learning and produce a shared understanding of teaching goals, methods, problems, etc. The participation of several teachers teaching the same subject, at the same school or in the same age group, contributes to the effectiveness of the PD process. Teachers working together are more inclined to discuss problems and challenges they encounter in their work, share

teaching materials, and apply more effectively day-to-day teaching practices and what is learned in PD programs (Sperling, 2018).

Just belonging to a PLC does not produce the desired effect on students' achievements. To influence students' achievements, PLC must be effective, i.e., allow teachers to internalize new comprehension processes that challenge existing perceptions and emphasize analyzing their impact on actual teaching.

2.4. The new intervention program – theoretical rationale

The new intervention program is designed to promote the quality of teaching in core disciplines in the Israeli education system: mathematics, English, and science in primary and secondary schools. Similar to global trends in the field of education, understanding has increased in recent years in the education system in Israel, that in order to promote student achievement, considerable weight must be given to improving the teachers' quality. Many resources are invested in reducing educational gaps in the form of class and individual reinforcement hours, but in many cases the investment bears no fruit. Hence, the growing understanding is that focus of quality PD of teachers must be shifted in order to achieve academic success.

The intervention program offers a framework for professional development known as PLC. The program's aim is to create platforms for teachers' collaborative learning in various disciplines and through the guidance of experienced professional teachers who have been especially trained for facilitating learning communities. PLC frameworks began between colleagues within schools, such as the "Leading Teachers" program (Michaeli & Sommer, 2014) and evolved outside school programs.

The uniqueness of the described intervention program is that it provides teachers with an urban out-of-school framework for collaborative learning and brings together teachers from different schools within a municipal authority or in a particular geographical area. In the program framework, teachers discuss the Ministry of Education curriculum for each discipline, break it down into sections and consult on ways of implementing it in the classroom. Additionally, teachers engage in guided peer learning pertaining to the discipline, present teaching units and methods they have developed, and discuss teaching-related problems and dilemmas in the group. The program is designed to improve teaching skills such as the ability to plan rich and varied learning experiences, integrate advanced information technologies into teaching and adapt teaching to the unique characteristics of students (Reuveni et al., 2018). The program also seeks to empower teachers' sense of self-efficacy (Gibson & Dembo, 1984) as well as their sense of motivation and self-preparation (Deci & Ryan, 2000; Kaplan, 2014). The program's target audience comprises of primary and secondary school teacher of the core subjects mentioned earlier, at various seniority levels. Program sessions will be spread over 60 academic hours throughout the school year and include both frontal and digital sessions.

3. Research Questions

The first research question was: To what extent does teachers' participation in a PLC affect their teaching skills (practices in class ; lesson planning)? The second question was: How does improvement in

teachers' abilities and skills, as part of their participation in a PLC, lead to the promotion of their students' achievements?

4. Purpose of the Study

The study sought to examine teachers' professional development (PD) within a professional learning community (PLC) in different disciplines and its impact on school success and student achievements. A PLC is a collaborative learning framework, both within and outside schools. Collaborative learning, as a PD framework is considered effective for teachers, and the study sought to examine its characteristics, which contribute to promoting student achievements.

5. Research Methods

This theoretical article is based on literature that addresses the topic of collaborative learning in PLC frameworks as a tool for improving students' achievements. The conclusions of this work derive from this literature review.

6. Findings

The literature review indicates that collaborative learning within PLC accelerates significant change among teachers. The learning community contributes to creating a positive impact on curriculum implementation. The change is reflected in entrepreneurial teaching and constructivist learning created as a result of teachers' experience sharing. The PLC creates an opportunity to challenge teachers' professional beliefs and teaching practices through ongoing contact among colleagues and exposure to peer teaching practices.

Collaborative learning practice enables teachers' effective coping with teaching problems, enriches learning experiences, provides exposure to new pedagogical models, and peer feedback. Although teachers participate in many in-service programs as part of their PD, many studies indicate that traditional programs lack elements of meaningful collaborative learning, so their effectiveness is questionable. In contrast, the literature review indicates that learning communities that emphasize collaborative learning, indirectly influence the promotion and improvement of students' achievements.

7. Conclusion

The theoretically established assumption that students' results and achievements in the education system are an expression of the full range of their teachers' abilities and skills, leads to the conclusion that improving teachers qualities, knowledge, skills, experience, and competencies will indirectly have a positive influence on students' success and achievements. Research has shown that learning communities contribute to improving teachers' qualities and thus also to raising student achievement.

On the local level, this article enhances both theoretical and practical knowledge in the context of effective models for teacher PD and their influence on students' achievements in core subjects (e.g., math, English, and science). In terms of the contribution to universal knowledge, the article teaches about the

need to reform teachers' PD frameworks and to establish frameworks that have an influence on improving students' achievements. In practical terms the article can provide justification for policy makers regarding teachers' PD across the educational continuum, establishing more professional learning communities both withinand outside schools.

References

Birnbaum, M. (2009). Assessment for the purpose of learning and characteristics of a professional school community and the classroom culture that strengthens it. In Y. Kashti (ed.), Assessment, Jewish Education and the History of Education: *A Collection in Memory of the Late Professor Arieh Levy*, (pp. 77–100). Ramot Publishing [in Hebrew].

Bnaya, Y., Yaakovson, Y., &Tzadik, Y. (2013).Professional Learning Community at School. Jerusalem, AvneyRosha: *Israeli Institute for School Leadership* [In Hebrew].

Brody, X., & Davidson, N. (1998). Introduction: Professional development and cooperative learning, In C. Brody, & N. Davidson, (Eds.), *Professional development for cooperative learning*: Issues and approaches (pp. 3-24). SU.

Cowen, D. F. (2006). Creating learning communities in low-performing sites: A systemic approach to alignment.*Journal of School Leadership, 16*(5), 597-610. https://doi.org/10.1177/105268460601600510

Deci, E. L., & Ryan, M. (2000). The what and why of goal pursuits: human needs and self-determination of behavior. *Psychological Inquiry*, (11), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualization and measures. *Educational Researcher, 38*(3), 181-199. https://doi.org/10.3102/0013189X08331140

Dufour, R. (2004). What is a professional learning community? *Educational leadership, 61*(8), 6-11.

DuFour, R., Eaker, R., & DuFour, R. (2005). On common ground: *The power of professional learning communities*. Bloommington IN: National Educational Service.

Fullan, M. (2005). Leadership and sustainability: *System thinkers in action*. Thousand Oaks, CA: Corwin.

Gajda, R., & Koliba, C. (2007). Evaluating the imperative of intraorganizational collaboration: A school improvement perspective .*American Journal of Evaluation, 28*(1), 26-44. https://doi.org/10.1177/1098214006296198

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*(4), 915-945.

Gibson, S., & Dembo, M. H. (1984) Teacher Efficacy: A Construct Validation. *Journal of Educational Psychology, 76*, 569-582.

Hargreaves, A., & Fullan, M. (2012). Professional capital: *Transforming teaching in every school*. Teachers College Press.

Huffman, J. B., & Hipp, K. A. (2001). Creating communities of learners: The interaction of shared leadership, shared vision, and supportive conditions. *International Journal of Education Reform 10*(3), 272-281

Kaplan, H. (2014). Self-determination and Motivation. *Lexi-Kaye* (2) 15-17.

Kirschner, P. A. (2001). Using integrated electronic environments for collaborative teaching/learning. *Research Dialog in learning and instruction*, *2*, 1-9.

Louis, H., & Marks, H. M. (1998). Does professional community affect the classroom? Teachers' work and student experiences in restructuring schools. *American Journal of Education*, *106*(4), 532-575.

Margolin, I. (2011). Professional development of teacher educators through a 'transitional space': A surprising outcome of a teacher education program. *Teacher Education Quarterly, 38*(3), 7-25

McKinsey & Company (2007). How *the World's Best Perfoming School Systems Come out on Top*. City: Publisher

Michaeli, N., & Sommer, O. (eds.). (2014). Activity report by the steering committee chaired by Ptof. Miriam Ben-Peretz and Prof. Lee Shulman: *Leading Teachers as Agents of Improvrment in Eduction System, Jerusalem*: The Israel Academy of Sciences and Humanities.

Ram, E. (2016). Meaningful Learning? For teachers first of all! In N. Mendel-Levy &M. Buzo Schwartz (Eds.). *Doing school: Practical knowledge of pedagogical leadership*. Avney Rasha Institute [in Hebrew].

Reuveni, T., Gilat, I., & Bieberman-Shalev, L. (2018). *Evaluation of the academic class program in 2011. Research Report.* Tel Aviv: Levinsky College of Education [in Hebrew].

Salmons, J. E. (2006). *Taxonomy of collaborative e-learning*. Cincinnati, OH: Union Institute & University.

Schechter, C. (2008). Organizational learning mechanisms: The meaning, measure, and implications for school improvement. *Educational Administration Quarterly*, *44*(2), 155-186.

Scott, C. L. (2015). *The futures of learning 2: What kind of learning for the 21st century?* UNESCO Education Research and Foresight, Paris. [ERF Working Papers Series, No.14].

Slavin, R. E. (2010). Instruction based on cooperative learning. In R. Mayer (Ed.), *Handbook of research on learning and instruction* (pp. 344-360). London: Taylor and Francis.

Smith, C. (2010). The great dilemma of improving teacher quality in adult learning and literacy. *Adult Basic Education and Literacy Journal, 4*(2), 67-74.

Sperling, D. (2018.) Effectiveness of professional development. In L. Yosefsberg Ben-Yehoshua (Ed.). *A review requested as background material for the work of a team of experts on the subject of optimal management of professional development and training in the education system* [in Hebrew]. /http://education.academy.ac.il/Hebrew

Stewart, C. (2014). Transforming professional development to professional learning. *Journal of Adult Education, 43*(1), 28-33

Tam, A, C, F. (2015). The role of a professional learning community in teacher change: a perspective form beliefs and practices, *Teachers and Teaching, 21*(1), 22-23. https://doi.org/10.1080/13540602.2014.928122

Timperley, H. (2008). *Teacher professional learning and development. Educational Practices series,* (18 ed.) Jere Brophy, International Academy of Education & International Bereaved of Education: Brussels.

Yehieli, T. (2008). How to do constructivist learning. *Echo of Education, 82*(4), 40–44 [in Hebrew].