RESEARCH ARTICLE

TEACHERS' PROFESSIONAL GROWTH: INTEGRAL PART OF SCHOOL DEVELOPMENT

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ABSTRACT

This review study includes 43 articles from 2016 and 2017 focusing on teachers' professional development, as guided by the following twofold research question: "What characterizes teachers' professional development in school, and how does this development influence school improvement?" The review indicates that teachers' learning processes need to be developed if they are to lead to school improvement. It is not enough for researchers simply to study learning processes in schools; they must also conduct formative intervention studies. Ultimately, while conducting research on these processes, researchers should provoke and sustain an expansive transformation process led by and owned by practitioners—leaders and teachers in the whole school. Findings suggest that more research is needed to show how outside resource persons, such as researchers, can contribute to school development in collaboration with teachers and school leaders at work.

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INTRODUCTION

Researchers long have recognized that teachers' professional development is essential to changing classroom practice, improving schools, and ameliorating pupils' learning outcomes (Borko, 2004). Professional learning often takes place in formal settings, such as professional development programmes, teaching research groups, and formal mentoring programmes (Timperley, 2011). Teachers also can learn through informal interactions that occur during peer teaching, collaborative planning, and mentoring between colleagues (Little, 2012). This article focuses on teachers' professional development that is job-embedded, contextualized, and sustained over time. It does not concentrate on isolated activities like workshops; rather, the review takes a hard look at workplace learning characterized by dynamic, ongoing interactive exchange between teachers (Kwakman, 2003; Little, 2012; Timperley, 2011). In so doing, this research takes the perspective of teachers' professional learning as emphasizing schools as the environment for development (Vescio, Ross, & Adams, 2008). Fullan (2007) posits that professional learning in context is the only education that ultimately changes classroom practices. Moreover, there is strong evidence that professional development is best when embedded in the teachers' specific

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subject areas (Darling-Hammond, Chung, Andree, & Richardson, 2009). Meanwhile, schools with strong teacher communities seem to have higher student achievement (Bryk, Sebring, Allen worth, Luppescu, & Easton, 2010; Horn & Kane, 2015). School leadership can create a learning environment at schools by helping teachers to identify their development needs, by encouraging experimentation, by finding and allocating resources to support teachers' learning, and by enhancing the implementation of new learning (Thoonen, Sleegers, Oort, Peetsma, & Geijsel, 2011; Vanblaere & Devos, 2016). Adult learning also requires that we acknowledge teachers as the heart of decision-making around change—a key principle in understanding, engaging, and developing ownership in adult learning (Knowles, Holton, & Swanson, 2005). According to Walker (2007), a positive teacher learning culture depends on the presence and alignment of three components: structures, values, and relationships. In addition, leaders must take on the role of ensuring that proper learning conditions are in place at the school in order to create a culture of learning. Here, "culture" refers to the various ways that groups of people act and the beliefs that they connect to these actions (Wolcott, 2008). Forte and Flores (2014) assert that there must be an interplay between structure and culture if teachers are to learn together. Collaboration between teachers produces a number of benefits with significant impacts on their professional lives, thus playing an important role in professional teacher development strategy (Vangrieken,

Dorchy, Raes, &Kyndt, 2015). For example, the International Survey on Teaching and Learning (The Teaching and Learning International Survey—TALIS, 2013) found that teachers using collaborative practices are more innovative in the classroom, have higher job satisfaction, and hold stronger self-efficacy beliefs (European Commission, 2013). Many presume that teacher collaboration contributes to professional development and instructional improvement (DuFour & Fullan, 2012). Research on teachers' professional development also indicates that site-based teacher teams positively influence teacher engagement in terms of new instructional practices (Garet, Porter, Desimone, Birman, & Yoon, 2001). According to Borko (2004), participation and discourse practices can enhance teacher learning by supporting professional critique, reflection, and collaboration. However, research also shows that many schools and teacher educators struggle to foster constructive interactions (Van Es, 2012). Research further emphasizes that openness in expressing disagreement is important for constructive dialogue and learning in teacher collaboration (Dobie & Anderson, 2015; Grossman, Wineburg, &Woolworth, 2001). One widely used collaborative model for teachers is the lesson study (LS) method. A lesson study cycle starts with teachers working with an established common goal, along with a series of lesson planning sessions culminating in the enactment and observation of the research lessons (Lewis, Perry, & Murata, 2006). The different phases of LS serve as a key part of the practice architecture (Kemmis & Grootenboer, 2008), or the preconditions affecting how LS has been enacted in classrooms and schools. According to LS, the goal setting for the pupils' learning and development should be aligned with the school's development goals (Lewis, Fischman, Riggs, & Wasserman, 2013). There is an important caveat to be addressed: despite the increasing popularity of collaborative models, the associated changes in teaching are often subtle, and dramatic changes are rare (Ermeling & Yarbo, 2016). One reason for this nuance is that teachers construct visions of classroom practice based on deeply rooted cultural routines and preconceived notions of effective and ineffective teaching (Stigler & Hiebert, 1999). The teachers are constrained by their "horizons of observation" (Hutchins, 1996) and may need outside experts to expand their visions of what is possible. These outside experts can be local scientists, researchers, or university faculty (Ermeling & Yarbo, 2016).

Research also shows that teachers can be development leaders in their own schools. For instance, Alexandrou and Swaffield (2014) demonstrate that teacher leadership can facilitate broader professional development within school communities. MacBeath and Dempster (2008) present five principles for teacher leaders in their work: First, they should focus on the learning of everyone in the school. Second, they should create and sustain conditions that favour learning. Third, they should engage in explicit, transparent, and inquiry-based dialogue. Fourth, they should allow everyone to influence school operations; and fifth and finally, they should maintain internal and external accountability in order to examine how the results align with their school's goals and principles. Of course, there also are some conditions that allow teacher leadership to flourish, including professional trust (Smylie, Mayrowetz, Murphy, & Louis, 2007), perceived autonomy (Scribner, Sawyer, Watson, & Myers, 2007), supportive administrators, and time and resources, such as structural and organizational assets along with space and time (Birky, Shelton, & Headley, 2006). The aforementioned studies served as a starting point for the current review of recent research focusing on teachers'

professional development in school, ultimately leading to a twofold research question: "What characterizes teachers' professional development in school, and how does this development influence school improvement?" This research aims to describe the most recent research findings focusing on teachers' professional development in school and to analyse and discuss these findings with regard to school improvement, meaning improvement throughout the whole school. First, the following sections present the rationale for the included research studies. The methodology section also includes how the analysis was conducted. I then present the Cultural Historical Activity Theory (CHAT) as a theoretical framework for analysing and discussing the findings while focusing on how teachers' professional development in school influences school improvement. This theory emphasizes collective development and is therefore relevant as a new theoretical perspective in educational research that considers the role of teachers' professional development in school-wide improvement. The analysis and discussion section includes theories and research that illuminate, support, and elaborate on the presented findings. Finally, the article ends with some concluding remarks.

OBJECTIVES OF THE STUDY

This research review aims to provide teachers' professional growth which can be an integral part of school development. Specifically, this research review seeks to understand the following areas:

- Determine the methods teachers' professional growth which can be an integral part of school development.
- Identify the cultural historical activity theory of teachers' professional growth which can be an integral part of school development.
- Present the findings on teachers' professional development in school.
- Provide various recommendations in terms of teachers' professional growth which can be an integral part of school development.
- Propose a concluding statement in order to attain an effective system in terms of teachers' professional growth which can be an integral part of school development.

METHODOLOGY

This is a descriptive research which utilizes data from reliable web portals, topical and latest published research materials. It analyses the different data to determine connections of different issues and challenges of human in terms of teachers' professional growth which can be an integral part of school development. The content of this paper also utilized related studies and review of related literature as a source of reference in finding knowledge and information that response all the questions of this paper. In addition, this paper identifies different areas that will come up with immediate plan of action to deliver effective and efficient teachers' professional growth which can be an integral part of school development.

PRESENTATION OF DATA AND ANALYSIS

Methods

Literature search rationale: To answer the twofold research question, the researchers conducted a search on the subject of

pedagogy in the subject of Science using the search strings "teacher learning," "teacher professional development," "school-based development," and "school change." The search focused on the years of 2016 and 2017 in order to encompass the most recent research. Intending to obtain an overview of previous research published in international periodicals relating to teachers' professional development. Articles were included if they dealt with basic education in primary and secondary school. Exclusion criteria included articles that dealt with network learning using digital tools and the internet, newly trained teachers, special education, informal learning, and teachers' individual learning. These significant areas each most certainly would benefit most from separate review studies. In this way, the present study focused on experienced teachers in basic education at schools where they collaborated with other teachers.

Analysis strategy: When examining the articles, the researchers sought to pinpoint their main findings. They structured and compressed the articles by coding and categorizing the texts in selective, open, and axial analysis processes (Strauss & Corbin, 1990, 1998), rendering their essence reportable (Garfinkel, 1967; Sachs, 1992). This selective analysis process enables selection of a core category; in this study, the core category had been chosen in advance: teachers' professional development in school. According to Strauss and Corbin (1990), new content can fill predefined categories when using the constant comparative method of analyses. This open analysis process produced five main categories on the same horizontal level: (1) leadership for teachers' professional development, (2) outside resource persons and schools collaborating for teachers' professional development, (3) teacher collaboration, (4) methods for teachers' professional development, and (5) contextual factors influencing teachers' professional development. Furthermore, sub-categories can be developed by asking "when," "how," "under what conditions," and "what does it lead to" during axial coding (Strauss & Corbin, 1990, 1998). These question words structure the descriptions of information extracted from the articles. For instance, this study concentrates on teachers' professional development in school, so "when" was decided on beforehand. When articles included the teachers' subject areas, this information is included in the introductory description of each article. Meanwhile, the question of "under what conditions" provides information about the study context. The researchers also have developed a main category presenting contextual factors because research studies especially tend to focus on these factors.

Cultural historical activity theory: Emphasizing development and learning in social settings, CHAT was developed by Leontèv (1978, 1981) based on Vygotsky's thoughts and ideas (Wertsch, 1981). Adherents to CHAT believe that internalization and externalization processes continuously operate at every level in human activity (Engeström, 1999; Leontèv, 1981; Wertsch, 1981). The concept of expansive learning relates to externalization or creative processes, meaning that teachers in a collective community can see possibilities and create something new "that is not yet there" (Engeström & Sannino, 2010). According to Vygotsky (1978), learning is a process starting at the social and external level before it is internalized at the internal level. At the individual level, the person's learning should be supported in his or her zone of proximal development (Vygotsky, 1978). Vygotsky (1978) defined the zone of proximal development (ZPD) as

"the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers". Engeström (1987) has expanded on this individual definition of the concept and defines the zone of proximal development in this way: "It is the distance between the present everyday actions of the individuals and the historically new form of the societal activity that can be collectively generated [. . .]". Language and discourse play a key role in the processes of changing activities (Engeström & Sannino, 2011; Sannino, 2008; Vygotsky, 1978, 2000), as for instance when external resource persons and school leaders and teachers collaborate in their "shared meeting ground" (Engeström & Toiviainen, 2011). Adopting ideas from each other in shared meetings also can lead to developmental transfer (Engeström & Sannino, 2010), from school to teacher education and vice versa

The activity system: Leontèv expanded on Vygotsky's theory while CHAT formed the basis of the activity system theory (Engeström, 1987, 1999, 2001; Engeström & Miettinen, 1999). In the collective activity model, human activity is structured and visualized by several triadic relations. The minimum elements of an activity system include subject, mediating artifacts (signs and tools), object, rules, community, and division of labour and outcome (Cole & Engeström, 1993; Engeström, 1987, 2001). These factors make up several triadic relations, and these relations are (re)presented in the activity system. Mediated actions are integrated into the system in the upper triangle. Mediating artifacts function as intermediary aids. Leontèv (1981) points out that "the object is the true motive" for people's actions. The system shows the close connection between the context and the acting subject, which can be either an individual or a group of people (Engeström, 1999). Context is not reduced to something that just surrounds, but is interwoven in the actions, becoming a single process. The actions exist only in relation to the context that is visualized by the three triangles at the bottom of the activity system (Cole, 1996). The context sets the premises and possible restrictions for the subject's goal-directed actions towards the object, resulting in an outcome that comprises the factors "rules," "community," and "division of labour."

Rules include norms and conventions that direct the actions in the activity system. The factor of "community" refers to all people who share the same goals. Division of labour implies that the work or the goal-directed action is divided between, and conducted by, people belonging to the community. The concept of "division of labour" makes it possible to distinguish between collective activity and individual action (Cole, 1996; Engestrøm, 1987, 2001; Engestrøm & Miettinen, 1999). As a unit of analysis, the activity system makes the system view and the subject's view complementary factors. The factors in the activity system are in mutual relation to each other, continuously changing because of human actions and interplay. Having reviewed the theoretical framework of this review, we now turn to the findings of the current research.

Findings on teachers' professional development in school

Leadership for teachers' professional development: In order to answer the twofold research question of what characterizes teachers' professional development in school, and how it influences school improvement, the researchers developed five

categories. The first category is leadership for teachers' professional development. In their survey study of teachers in primary and secondary schools, Liu, Hallinger, and Feng (2016) found a positive association between learning-centred leadership and teacher professional development; teacher trust is a significant mediator in this relationship. The research underscores the importance of principals building trust to establish productive learning environments for their teachers. A survey study from other countries including teachers, principals, and primary schools confirmed that leadership effects moved through trust to agency to teacher professional development, with trust serving as the mediating factor (Piyaman, Hallinger, & Viseshsiri, 2017). In a quantitative study conducted in a specific primary schools, Pang, Wang, and Leung (2016) found that leadership was essential for teachers' learning and professional development. In this study, leadership for teachers' learning meant that principals continuously encouraged teachers' self-improvement and collective inquiry, provided ample staff training and development opportunities, and fostered teacher learning by providing professional support.

Outside resource persons and schools collaborating for teachers' professional development: Having reviewed the category of leadership for teachers' professional development, we now turn to the topic of outside resource persons and schools collaborating for teachers' professional development. Grau, Calcagni, Preiss, and Ortiz (2017) conducted a case study in Chile including two partnerships between universities and teachers in primary and lower secondary schools. The participants were unaccustomed to observing colleagues' classrooms, videotaping and observing their own practicing, and developing communities to discuss different aspects of teaching. They also were not used to discussing their practices with colleagues, let alone university researchers. The study found that the partnerships influenced teachers' reflections on their own practices, leading the researchers to conclude that such partnerships can be a fruitful way of promoting teachers' re-engagement with their teaching. The reflections focused on the teachers' practices, and they therefore developed ownership of the research findings as well. A qualitative study conducted in Sweden by Olin and Ingerman (2016) focused on a collaboration between a team of two science teachers from a lower secondary school and a team of four researchers. The collaboration process had duration of three semesters, and collaborative meetings occurred weekly. The study indicates that the teachers wanted to obtain useful tools immediately for their practices. At the same time, other tools, as didactic models, became useful for teachers in the long run. The article comments that future researchers should be careful about the content they introduce in the initial phase because it takes time to establish trust between the parties involved. The study ultimately found the following steps necessary for collaboration: identification of shared and flexible content, free time for meetings, and a reflective meeting style. The researchers also noted that the collaboration was constrained by a low degree of connection to teaching activities as well as cultural differences in schools and universities in terms of meeting expectations and outcomes.

Teacher collaboration: Having discussed the role of outside resource persons, this section turns to the subject of teacher collaboration in order to answer the research question. In a qualitative study of six primary school teachers, Ambler (2016) found that classrooms and schools provide teachers with opportunities for learning. The study shows that teachers need to be able to talk and thus put words to their daily work; in short, they need to work with others during school days to learn from their everyday practices. In practice, however, this goal proves difficult. For instance, Horn, Garner, Kane, and Brasel (2017) conducted a qualitative study meetings of teacher teams in middle school, finding that teachers rarely accomplished collective interpretations for future work. Rather, most communication focused on logistics and pace as well as topics to be taught. This finding held true even though the researchers included best-case workgroups through purposive sampling. Communication was also the focus of a qualitative study conducted by Vrikki, Warwick, Vermunt, Mercer, and Halem (2017). Primary and secondary school teachers took part in a lesson study (LS) project for teachers groups. There were three teachers in most groups, most of whom participated for three to seven months. The intention of the study was to understand how dialogues between teachers could enhance their learning. The researchers focused on three dimensions—dialogic moves, scope of discussion, and learning processes—by analysing videos in which teachers reflected on the observed teaching in groups. Dialogic moves included requests for information, opinions and clarifications, building on ideas, and providing evidence or reasoning. The study demonstrates that dialogic moves building on each other's ideas influenced the teachers' individual descriptive learning processes (DLP), meaning that the teachers focused on concrete cases at the practical level. No dialogic moves were found to be significant with regards to interpretive learning processes (ILP), meaning that the teachers connected concrete practice to theory. However, the researchers conclude that building on the groups' shared contributions and making strong individual contributions to reason strongly impacted teachers' descriptive learning processes. Furthermore, the study shows that supportive moves are vital to learning processes.

Methods for teachers' professional development: This review now has covered the first three categories, we now turn to the forth: methods for teachers' professional development. In a summary study of several qualitative studies, Chen (2017) describes how cultural factors correspond to the intentions of the lesson study method (LS method) for teachers' professional development. In the study, the researcher includes teachers from different schools. The findings report that the teachers perceive that they can make mistakes and that the repeated teaching in LS provides an object of focus. The teachers also feel that they are emotionally rewarded when working collaboratively in their teaching groups. The study concludes that practical reasoning in repeated teaching based on useful standards actually improves the quality of lessons—more so than standards codified in theoretical books and official documents. The researcher asserts that the LS method has contributed greatly to the teachers' teaching and professional development.

With a focus on the macro down to the micro level, Hadfield and Jobling (2016) conducted qualitative research within various schools in different regions, all of which had taken part in LS. How the teachers experienced the LS work depended on how the regional officers positioned the LS work in terms of the overall school improvement strategy, thus forming the contextual conditions. How the teachers experienced the work also depended both on the lead teachers supporting the teachers and the level of teaching proficiency at the schools. The teachers expressed more professional autonomy if they decided

on the goals together with the lead teachers and felt that they created relationships and practices where mutual learning took place rather than participating in a one-sided expert coaching model. The teachers expressed that reflecting while using the LS method helped them to develop a professional dialogue connected to their classroom practices.

Contextual factors influencing teachers' professional development: This review now has covered four categories. The fifth and final category is contextual factors influencing teachers' professional development. Salleh and Tan (2017) conducted a comparative study of basic education focusing on teachers' professional learning communities (PLC). In some countries, each school is conceptualized as a PLC with professional learning teams consisting of teachers teaching either the same subject or working at the same grade level. In some school model, school leadership is supposed to support the process, and the teachers are expected to work in learning circles including lesson study or action research. The teachers take part in teaching-research groups or lesson planning groups, formed specifically to plan lessons together, observe and critique one another's lessons, and share teaching resources. The researchers found that the teachers were more positive about the collective working method because of their more collectivist orientation and lighter workload. There is also an appraisal system that rewards group effort, thus valuing PLCs highly. The authors conclude that social norms and value influence how PLCs are valued in different educational contexts. Such values, practices, and contextual factors were also the subject of Feeney's (2016) study into the aspects that support or hinder teachers' professional development in the workplace. The researcher refers to Opfer, Pedder, and Lavicza (2011) who suggest that when teachers' beliefs become important for practice, they manifest themselves as values, which are given high priority in teaching and learning. The mixed-methods case study was conducted at one elementary school with teachers and leaders. The project team included the principal, a teacher representative from each grade level, a regional trainer, and the researcher. The findings show that open communication with the principal, shared decision making, learning structures, and autonomy in decision making are factors that support professional development; by contrast, lack of time, accountability pressures, teacher attitudes, lack of communication, and lack of shared vision and values hinder such development. Though research findings rarely informed the teachers' collaborative work, they shared ideas and offered each other reassurance and support, both of which were strong indicators of the school's positive learning climate.

Conclusion

This review study has provided an overview of teachers' professional development in school, illustrating that teachers' learning processes need to be developed if they are to lead to school improvements as an outcome. This review indicates that it is insufficient for researchers to simply research the learning processes in school. They also need to conduct formative intervention studies, meaning that the researchers provoke and sustain an expansive transformation process led by and owned by practitioners, the leaders and the teachers in the whole school, and furthermore, conduct research on these processes. More research is needed to show how outside resource persons, as researchers, can contribute to school development in collaboration with teachers and school leaders at work.

Recommendation

Considering the importance of education in terms of teachers' professional growth which can be an integral part of school development.

- Education should be made attractive by creating a conducive atmosphere for teachers.
- A united salary structure should be made for all categories of teachers within the education sector.
- Standard of education should be up dated to meet the rapid social changes in our present society.
- Computer literacy in the spirit of globalization should be brought into the curriculum and the new and the old curricula made coherent for better productivity.

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