

## From isolation to symphonic harmony: Building a professional development community among teacher educators<sup>☆</sup>

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### ABSTRACT

Professional development among teacher educators requires a framework in which collaborative learning can support growth and change. This study describes a professional development project modeled on a professional development community focused on thinking education in a teachers college. Qualitative measures revealed a multilayered process consisting of breaking personal and professional isolation through interdisciplinary collaboration, talk about student learning, improvement of teaching through skill acquisition, and professional development with the adaptation of new teaching dispositions and a sense of efficacy. The community was characterized by a safe environment which encouraged risk taking and mutual support, enabling significant change in college courses.

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### 1. Introduction

Teacher educators deal increasingly with the improvement of instruction by exposing students to recent ideas, methods and theories of what is involved in being a teacher. Thinking education is one area of interest which has drawn much attention in recent years (e.g. Perkins, 2009; Perkins & Ritchhart, 2008). Teaching thinking in the pre service years prepares future educators for effective problem solving, thoughtful decision making and lifelong learning (Tishman, Perkins, & Jay, 1995). Educators in the field strive to create schools that promote skills and dispositions for thinking. In addition to creating and monitoring environmental conditions to maximize possibilities for thinking, teaching thinking requires direct instruction in strategies which in turn promote dispositions characterizing skillful thinkers (Costa, 2001).

Much attention has been given recently to integrating the dimension of teaching thinking into curriculum for preparing new teachers. This focus stems from the idea of a strong relationship between educational innovations and teacher change. In fact,

curriculum change cannot truly occur without teacher change (Martin & Michelli, 2001). In order to achieve the overall goal of developing better thinkers, we must prepare teachers to be able to support and encourage their pupils to think. Nickerson (1988, p. 6) claimed that “it is no more reasonable to expect an individual who does not know a lot about thinking to teach thinking effectively, than to expect one who does not know a lot about math, or physics, or literature to be an effective teacher in any of these areas”.

The need to incorporate thinking skills into teacher education brings the issue of professional development among teacher educators to the fore. Our teachers college sought to improve thinking education through the model of professional development community. This research uses a narrative methodology to tap the participants’ understanding of the contribution of the group process to their professional development.

Traditional programs of professional development deemphasize interaction among participants, which according to Hargreaves (1995, p. 26) reduces the process to “a narrow, utilitarian exercise”. In our teachers training college in Israel, professional development of teacher educators in thinking education is based on a socio-cultural learning perspective focusing on the process of becoming a member of a community (Ten Dam & Blom, 2006). According to this constructivist view, learning is an individual endeavor, socially and culturally situated. Instead of focusing on the solitary practitioner, whose professional learning is segmented from regular work, we have emphasized professional growth within

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a group of teacher educators in the work setting. This perspective derives from research showing that one cannot learn in a vacuum, and an expert in isolation has limited capacities (Brown, 1997; Brown, Bransford, Ferrara, & Campione, 1983). The participation metaphor is often used to characterize this communal conception of learning (Salomon & Perkins, 1998; Sfard, 1998), assuming its inextricable bond with identity formation. New information and ideas emanate not only from individual learning, but also from interaction with others. Moreover, collaboration creates a culture in which further learning is stimulated and supported.

This perspective suggests that teacher educators can learn as well as teach in the college setting (Borko & Putnam, 1996; Hargreaves, 1994; Smylie, 1995). Theories of college improvement and organizational development link learning with participation in institutional activities. Both domains stress integration of work and learning as a necessary condition for development at individual and organizational levels (Hargreaves, 1997; King & Newmann, 2000; Livneh & Livneh, 1999; Watkins & Marsick, 1999; Moore & Shaw, 2005). Thus, becoming a more effective participant in society involves not only acquiring knowledge and skills but also becoming a member of a community of practice (Wenger, 1998). In a teachers college learning and teaching are major activities; therefore, the community of practice must function as a community of learners, in which members participate in teaching and learning with other involved colleagues. Our study uses this approach to stimulate professional development among teacher educators who are committed to learn how to infuse thinking into their curriculum.

Our understanding of teaching thinking and infusing thinking into the curriculum include two major components, which Costa (2001) refers to as teaching for thinking and teaching of thinking. Teaching for thinking means that teachers create conditions that are conducive to students' thinking. Adapting Costa's ideas to college environment involves six factors: (1) Teacher educators pose problems, raise questions, and intervene with paradoxes, dilemmas and discrepancies that challenge and engage students' minds. (2) Teacher educators organize the curriculum for interaction by enabling small group collaborations. (3) Teacher educators communicate thinking as its goal, value it, make time for it and provide a variety of materials to support it. (4) Teacher educators engage students in activities that support deep thinking as they gather evidence, reflection and evaluation. (5) Teacher educators create a climate that allows risk taking and creativity. This requires non judgmental listening and the probing as students address each other's ideas and assumptions. (6) Finally, teacher educators strive to improve and model the behaviors of thinking that are desired in students.

Teaching of thinking means instructing students directly in the process of thinking (Costa, 2001). This requires that the teacher educators analyze their subject areas in order to identify cognitive abilities embedded in the content and then teach the thinking skills related to these abilities. Those skills may include making inferences from data, considering different perspectives, and finding similarities and differences. Teaching of thinking not only includes steps and strategies of problem solving, creative thinking and decision making, it also includes habituation of those attitudes and dispositions which characterize effective skillful thinkers. Such habits are formed over time by encountering and applying thinking skills in a variety of settings and contexts.

Small teachers colleges in Israel are characterized by a high percentage of part-time faculty who tend to work at more than one college, teaching one day a week at each institution. Academic departments tend to be limited to a few instructors, with little professional interaction among them. Instructors hold masters or doctoral degrees, and many have qualified for their position by years of teaching in the schools (Alon & Lifschitz, 2003). Their

research programs tend to focus on teacher education issues and the relevant study populations using traditional methods found in university research (Yogev & Yogev, 2006). These factors contribute to both personal and professional isolation in the workplace.

In the past, faculty and administration of the college were interested in integrating thinking into the academic program but they lacked the knowledge to implement this desire. Despite this widely accepted goal, these stakeholders lacked understanding in the field. The community of learners approach provided a useful model to address this issue; therefore, a professional development project was undertaken in which teacher educators would become a community of learners focused on thinking education. Borrowing from the broader notions of community of practice and community of learners, we have termed our program a "professional development community" which will be referred to as PDC. This term connotes continued professional growth through participation in a learning community.

### 1.1. Professional learning communities among teacher educators

For two decades, research has defined a new paradigm for professional development—rejecting the individual model in favor of more powerful opportunities (Stein, Smith, & Silver, 1999) such as vigorous collegial communities (Little, 2002). Termed professional learning communities, they emphasize active teaching, assessment, observation, and reflection rather than abstract discussions (Darling-Hammond & McLaughlin, 1995). This paradigm emphasizes interpersonal relations and activities among teachers (Stevens, Kahne, & Cooper, 2006), including the study of relatively short-term cycles of teaching and learning, resulting in generating ideas for improving practice. Innovations are put into action, and results are examined. These communities can serve as opportunities for organizational improvement, professional development, innovation and enhancement of practice (McLaughlin & Talbert, 1994) as well as for breaking traditional teacher isolation.

### 1.2. Professional development and improvement of teaching

In such communities professional advancement occurs through social interaction (Lave, 1993). This paradigm supports the person-plus approach to intelligence (Perkins, 1995), which postulates that thinking and memory occur socially by sharing information and perspectives and by developing ideas. Learning and intellectual functioning are enhanced through social interaction rather than individual intellectual efforts. The group becomes the primary conduit through which learning occurs. Ongoing dialogue, individual and group reflection, systematic action, and mutual respect create an environment for nurturing deep learning and rigorous thought which engage members of the community and support their professional growth (Wilson & Berne, 1999). Development of personal expertise results from deep learning through interaction.

Through interaction, communities of practice contribute to innovation and improvement of practice (McLaughlin & Talbert, 2001). Communal discourse and working with pedagogic artifacts, teachers advance their understanding of professional practice. Teaching and learning have been shown to improve when teachers collectively question their routines, examine new paradigms, find generative means to acknowledge and respond to difference and conflict and engage actively in supporting professional growth (Achinstein, 2002; Grossman, Wineburg, & Woolworth, 2001; Little, 1990, 1999; Witziers, Sleegers, & Imants, 1999). Indeed, research has shown that professional communities significantly support instructional improvement.

Communities of practice are created from existing social networks in organizations; however, they require focus and

leadership in order to flourish. Wenger, McDermott, and Snyder (2002) describe a four stage model of development and nurturance of such communities in which the issues of domain of knowledge, community of interested persons, and practice around professional functioning are addressed. The initial stage called “potential,” people discover common knowledge needs and a leader is identified. At the “coalescing” stage new members are recruited, the community is launched with special events, and community spaces are initiated. The stage of “maturity” involves defining a learning agenda as well as the community’s role in the organization, while focusing on cutting edge innovation. The stage of “stewardship” attempts to maintain momentum, develop new leadership and mentor new members. Communities of practice do not occur randomly, rather they are intentionally initiated and promoted by leaders who are connected and responsive to the needs both of members and the organization.

### 1.3. *Breaking isolation*

Teachers work alone as adults with discrete student groups in separate classrooms with little time to engage in dialogue with colleagues about teaching practice. This commonplace applies both to schools and settings of higher learning. Teaching has long been characterized as taking place in isolation (Lortie, 1975) which is both restrictive and protective (Snow-Gerono, 2005). Factors that make individualized work patterns a prominent feature in schools and problems associated with them have been identified (Lortie, 1975; Rosenholtz, 1989; Webb & Sherman, 1989). The negative effects of isolation on the quality of teaching have also been demonstrated (McLaughlin, 1993).

This tendency towards isolation is even more apparent in higher education. Colleges and universities are organized by departments, a phenomenon which discourages interdisciplinary discourse. Further, within the departments only one to two experts for each subject are hired (Trower & Gallagher, 2008), resulting in limited opportunities to discuss student learning and share work related problems, successes and puzzles. Typically, college teachers take sole responsibility for course content. Interaction among faculty is often limited to cordial everyday talk instead of issues about student learning. When collaboration is promoted within the institutional culture, collegial interchange frequently stops at the classroom door.

Establishing professional learning communities promote sharing new ideas and practices across classrooms (McLaughlin & Talbert, 2001). They are characterized by a culture of collaboration geared towards questioning and learning and they serve multiple purposes including ongoing professional development, enhancement of instructional practice and promotion of continued school improvement (Little, 2002). Strong professional communities empower teachers with a sense of affiliation with their schools (Kruse, Louis, & Bryk, 1995). Likewise, the collaboration can increase teachers’ sense of mutual support and taking personal responsibility for effective instruction (Louis, 1992). Creating successful professional communities requires deliberate effort (Wardrip, 2009) to systematically analyze and improve classroom practice. This powerful community model applies to the college context as well.

A professional teacher community is a type of “community of practice,” a term coined by Lave and Wenger (1991) to describe any group of practitioners sharing common interest in a particular topic and working together towards a common goal. Wenger et al. (2002) broadened this definition by adding the sharing of a common concern, set of problems, or passion about a topic, and the deepening of knowledge and expertise by ongoing interaction. Their impact on the organizational culture depends on the group’s goals

and the scope of activities allowed by members. A supportive community of practice is a key component for deepening reforms (McLaughlin & Talbert, 2001).

The proven benefits of communities of practice in schools served as a basis for our college’s response to recent efforts by the Israeli Ministry of Education to infuse thinking into teacher training courses at the college level. In 2008, as part of the reform agenda in schools, the Pedagogic Secretariat offered grants to colleges and universities to support infusion of thinking into existing didactic and disciplinary courses as well as establish new courses. Thinking education was considered appropriate for an interdisciplinary approach which includes faculty from different departments. We sought a professional development model which would improve instruction, enhance faculty expertise and diminish isolation. These factors led us to choose a model of community of practice as the preferred framework for infusing thinking into college courses.

This study is based on a professional development project aimed at faculty committed to strengthening knowledge and thus improving practice in teaching thinking. We assumed that preparing students to infuse thinking into future teaching requires college instructors to teach in ways that develop higher-order thinking and performance. Studying current research and professional case literature in thinking education and engaging colleagues in critical discourse about their own teaching would enable teacher educators to implement instructional innovation. Although the college culture is characterized by passion for excellence in teaching and by cordial social interchange among faculty, there is a marked absence of discourse about the content and practice of teaching. This gap was addressed by establishing a learning framework in which teacher educators share their thoughts, knowledge and practice. Our belief that promoting a strong PDC would empower teachers with opportunities for innovation and improvement of practice served as the basis for the research question. The purpose of this study was to reveal the teachers’ understandings of how their participation in the PDC furthered their professional development specifically in the realm of teaching thinking. We chose to focus our research question on insight and awareness rather than behavioral outcomes. Frequently ignored in the literature on professional development, understanding is thought to be the foundation of professional learning and thus a sine qua non for teaching improvement (Hawley & Valli, 1999). Coming from a range of disciplines teacher educators who expressed prior interest in thinking education were asked to prepare individual grant applications for infusing thinking into their courses. In this initial phase, the teacher educators met twice to discuss thinking related goals for incorporate in their teaching. Seven course proposals were funded as well as an additional grant for professional development of the group based on a community of practice model.

The group convened 15 times throughout the academic year for three hour meetings. The first phase of the project consisted of exposure to the many aspects of “teaching thinking”. At these initial meetings the participants explored current theories in thinking education, read research and case material from the field and explored possible implementations in their own courses. Instructors shared expertise and experience, giving access to the topic of thinking in a variety of disciplines. In the second phase participants implemented tasks and activities learned previously. This process encouraged applying new skills and nurtured interactive feedback. Group members tried out different thinking routines and patterns in their courses and they documented these teaching experiences for the group as a basis for analysis and collegial discourse. The final phase of the professional development course consisted of joint investigation of the pedagogy and practice of teaching thinking through group reflection. As the year progressed, we tapped

understandings of the PDC's contribution to professional development.

## 2. Method

The study is based on a yearlong PDC project in which eight faculty members committed themselves to learning about and implementing thinking education in their existing courses. Our aim was assessing the PDC's effects on how teacher educators learn about and adapt a desired change in their practice of teaching as well as how they develop personally within their own profession.

For the purpose of gathering information we used a qualitative approach based on two rounds of data collection. In the first round, we conducted a semi-structured interview with five participants. These particular teacher educators were chosen because of the diversity of disciplines which they taught. In cases where two faculty members belonged to the same department, only one was asked to participate in the interviews. In these instances, the teachers were selected based on their availability and willingness to be interviewed. They were asked to talk about their motives and expectations for the project. Subsequent questions derived from the conversations. These interviews took place after the third meeting. In the second round, we addressed three specific motivational themes which were found in the initial interviews. This stage of data collection consisted of four components:

1. A second semi-structured interview after the tenth meeting: The five selected teacher educator informants were asked how their participation in the group contributed to their experience of infusing thinking into teaching. They were also asked to relate to the realization of the motives which they expressed in the opening interview. Subsequent questions derived from the conversation.
2. An entire group interview at the final meeting: The teacher educators were asked to evaluate their experience in relation to their motives for joining the PDC. Group conversation concerning the experience arose from this personal evaluation.
3. Reflective writing about the teacher educators' experience: Each of the eight teacher educators reflected on her experience using three guiding categories which were based on the participants' motives when the project began.
4. Written reflection prepared as part of the final report for the Pedagogical Secretariat: This report described the funded courses and included a reflective section on successes, difficulties and implications for the future written by each of the eight participants.

Because the purpose of the initial interviews in the first data set was exploratory, we saw no need for triangulation verification of the motivational themes which emerged. In contrast, the second data set served as the primary source of information about teachers' understanding of the contribution of the PDC to their professional development; therefore, we used four data sources to corroborate our findings. The unique nature of each of the four methods at this stage provided the benefits of triangulation of the qualitative data.

The individual and group interviews were recorded and transcribed. The reflective writings were collected. These data were analyzed qualitatively in stages. The initial interview was examined for motives and expectations. The individual interviews, the group interview, and the reflective writings were analyzed for processes and outcomes relating to the expressed motivations for joining the group found in the initial categorization process. The privacy of the informants was achieved by receiving their verbal permission to record the interviews, and by the strict use of pseudonyms in all

written transcriptions, including file names. This procedure was approved by the IRB (Internal Review Board) of the college where the research took place.

Qualitative data analysis relied on grounded theory methodology (Grove, 1988; Shkedi, 2004a, 2004b; Strauss & Corbin, 1990). The accepted procedure for the coding of qualitative data requires the analyst to create or adapt concepts from the data rather than to establish groupings according to an existing theory or to a priori categories (Shkedi, 2004a). The data were read and then reread to categorize teacher educators' views. Similarities, differences, and complementarities across and within participants were examined. In order to avoid subjectivity in the initial selection of categories and to assure trustworthiness, these categories were abstracted by two researchers separately, who then compared notes and agreed upon a list of preliminary categories of responses. The final scheme for categorizing teachers' views was abstracted at a second phase. We identified nine categories of responses and grouped them into three main response types. These final categories appeared in both rounds of data collection.

## 3. Results

The first part of the [Results](#) section explores the teacher educator's expectation from the program, while the second part examines the outcomes, as seen by them.

### 3.1. Motives for joining the PDC

The first round of interviews were characterized by three motives: improvement of teaching through developing thinking abilities among students, personal professional development, and dealing with their feelings of work isolation. It was clear from the outset that the program would take place in the context of a learning community; therefore, the college's program for faculty will be referred to as a PDC in this [Results](#) section.

#### 3.1.1. Improvement of teaching

The theme of improvement in teaching was given expression in the thoughts of the teacher educators on how the students' thinking skills would be improved as a result of their infusing thinking into their courses.

*Knowing how to teach thinking will enable the students to develop thinking skills and dispositions.*

One of the main reasons teacher educators give for joining the group is their opinion that the teachers in training do not know how to think. These college teachers feel frustrated and they perceive teaching thinking to be a solution, and therefore a motivator for joining the project. In our first conversation Sue, a Bible teacher, explains in detail how this situation influenced her feelings about teaching in the college.

I get frustrated from teaching here because I feel that the students are very used to just write down whatever you say and that they are not used to thinking about material that they learned. I would ask them to differentiate between... two different options within a text. And they were not able to say "O.K this is one opinion and this is the other opinion." And then when you present them something new, some of them did not know what to do with it. .... They were not willing to think about it for themselves. This is a very childish relationship with text and it leads to this extremely close minded approach to life. And that has always bothered me. They were not able to see complexity and to see differences or to see gray. But I would like them to know that there are other legitimate positions. I think that this is important especially for them as teachers. They are

going to have so many types of students and I don't want them to go out there and say that there is only one way to believe in anything. If they would have a student in the class that will question things, a teacher that is open and knows that there are many approaches will be able to say, "OK there are different ways of understanding this" and acknowledge that that's legitimate. And a teacher that will not be able to know that there are a variety of opinions out there will just push this child off. This can be tragic because for children it is so important to understand that it is ok to believe the way they do.

Sue explains her frustration with the students' limited capacity for thinking about alternative interpretations of Biblical texts, and reflects on how this problem affects her experience as a teacher educator. She expects that joining this PDC will render her task as a teacher educator to be more satisfying by improving her teaching. In this way she can develop thinking skills and dispositions among her students. Sue goes further to explain her goals for her students as future citizens.

I think that they should be able to evaluate, you know, those are life skills. This is not just something you need to do in school... You know people's ability to judge when they get out of here if a speaker that they are hearing is making sense or a politician, to know whether what they are being told makes any sense. To have the ability to figure that out instead of just being swept away with their emotions. I think that this is dangerous not to be able to see if what someone's saying is coherent.

Sue feels a distance between herself and her students. Bridging this gap is a primary motivator for her. She not only wants to teach her students to be able to think as future teachers, but also as informed citizens who can make sound judgments. She has a mission to save these young women from their own simplistic ways of thinking.

Sharon, a philosophy teacher, concurs with Sue's goal that thinking is a life skill, but she goes even further by viewing thinking as a tool for future employment flexibility. She expects to move forward towards achieving this goal through participation in the college's PDC focused on teaching thinking.

My vision of the college is as a place where women can learn skills which allow them flexibility and competition in the work world. People who train for teaching positions need to position themselves in a global economy such that they will have the skills needed to survive and thrive. And this goes beyond learning how to be a teacher. Our resources are human resources, and these are the resources which the college must develop... When a person has the freedom to choose, he can decide what he wants to do. It is our duty – the Ministry of Education, the universities the colleges and us the teacher educators to nurture teachers who will put upfront the need to develop students' thinking instead of teaching them something that is handed down by authority. I don't know if this is possible, but if it can be done, it would be wonderful.

Tova, a math education instructor, also expresses the need to develop thinking abilities among students, and she also frames the problem in societal as well as educational terms.

I have always been interested in the development of thinking skills in our students. I think if you look around the society, the biggest lack is [that] of the analytical thinking, creative thinking, and investigative process. So in math if particular students are so trained to be formulative (sic.), like algorithms, and they have no understanding of the basis behind what they are doing which means they take nothing away with them. If we focused on the

thought process rather than algorithms in getting to the solution, we would think about a problem and take it apart and think about a strategy for solving it... You can take it to another discipline. So I have always thought that without that flexibility and creativity... it is very rigid. So that is my interest in this course.

Like her colleagues, Tova is enamored with the possibility of improving her teaching practice in order to encourage her students to think. She views thinking in mathematics as a stepping stone to thinking in other disciplines, and therefore, a lifelong skill.

The improvement of teaching in order to develop students' thinking skills, abilities, and dispositions was found to be a passionate motive among all participants. This interest in improving the students' thinking was driven by a perceived need to prepare the students not only for their role as future teachers but also as informed members of society.

### 3.1.2. Personal professional development

*The professional learning community will enhance the teacher educators' overall skills.*

Personal feelings of skillfulness contribute significantly to the improvement of instruction at the college level. Many of the teacher educators admitted that they do not know how to teach thinking although they view this subject to hold great importance. They express an intuitive approach towards this type of teaching, and wish to enhance their skills more rigorously. Part of their motive for joining the group is to learn the skills involved with teaching thinking. Sue talks about the skills that she would like to acquire.

This is a general sense among the teacher educators that [thinking] is a skill that should be taught, that the students have strong need for it. And I don't know that any of us have been trained in how you do that. I came to this group because I wanted to learn. What I try to do anyway, I want to learn how to do it... My whole approach to teaching is trying to teach them how to think. I am doing this all the time but more by instinct.

Ronnie, an English instructor, also expresses her appreciation of being able to acquire a very useful and even marketable skill which she currently does not possess.

I was curious as to where these ideas will take me different to what I have normally done. That's what really interests me and the reason that encouraged me to come...also this seems to be something which is becoming very popular now. And it would be useful for me to have, and would be an interesting thing to do... I was really curious as to what is this new [skill] that I haven't been doing up till now. I would really like to get tools. If this is actually going to be a course which will sharpen my tools. That's... one of my expectations.

An early childhood didactics instructor and field supervisor, Hannah is committed to renewing her teaching skills each year. In her search for new directions, she found the project to provide not only the opportunity to update her skills, but also the chance to acquire new abilities as part of a team effort. Although she frames this project in terms of a professional obligation, she is motivated by the possibilities of renewal and team work.

Every year I try to find something that will be different. I teach the same course every year, except for this year – it [the didactics course] is a new course for me that I teach with Dov. I try to find a different spark, something that can be developed. In this sense I am glad. This [the thinking project] was put in my lap, so this is another obligation for me and this is another way to develop myself – and become more involved with what is

going on in our college. It is a chance for me to have a new interest to have something exciting at work. I feel lucky that I am partner on this with Dov that we are working on the same course. Otherwise it would have been too difficult for me. Even if I want to learn something new it is very hard for me to do it on my own. I really do need the support. Working in a group really means for me a chance to be able to share the burden as well as the learning. It is beautiful team work, really.

Professional development was viewed by the participants as acquiring new skills for improving a specific college course and for broadening their repertoire of abilities. As such, skill acquisition was a powerful motivation for teacher educators to join the project.

### 3.1.3. *Breaking work isolation*

We were not expecting to hear about isolation as a major motive for joining the project. However, the first round of interview protocols clearly indicate that teacher educators feel extremely isolated. Two levels of isolation were found: personal and professional.

*The PDC provides an opportunity for breaking a personal sense of isolation*

Ronnie expresses her alienation from the college faculty. A part-time instructor, she rarely meets other teachers. Her isolation is so great that she did not know the names of other people in the project. She poignantly articulates her loneliness while revealing curiosity for acquaintance with other faculty.

Because I am here so little, I don't really know them [the other teachers in the course]. Just from looking around the room I think that they are all genuinely interested. I know the Bible teacher ... from E. [a small town where they both live]. We used to come on the same day. So to be perfectly honest, with the others I didn't really have a chance to talk...I would be interested to see why those [teachers] were accepted [to the group]... and how they built it [their proposal for infusing thinking into their own courses], and that would be interesting. I really don't know them well enough to really know... I really didn't speak to anybody.

The nature of part-time college employment, multiple venues of teaching, and small academic departments creates this personal isolation described by Ronnie. The college provides few opportunities for faculty to intermingle on a personal level. In addition, the same factors contribute to professional isolation, as explained below.

*The professional development process provides an opportunity for collaboration.*

The participants collaborated on teaching thinking, a topic which they genuinely cared about. Because this collaboration was viewed as addressing isolation, it became a powerful motivator for joining the project. Sue reveals her excitement about collaborating with others on the topic of teaching thinking.

Through the meeting[s] that we have I know other people have similar issues. I think it could be great if we could share ideas about how to ... teach this. I am looking forward to that. Just to be able to have a discussion with other teacher educators, well you want to teach this skill, so how do you do it. I would love that. Until now I have been dealing with these issues alone. I would bring it up at a teachers meeting, complain about it, but try to solve it on my own. So this [group], I would hope, gives me a chance to learn from other people. Get ideas ..., see what works, see what doesn't work. And share my experience for them to learn.

Her isolation and loneliness in endeavoring to figure out how to teach thinking generate a sense of a lack of support from department colleagues. In the PDC, she expects to break this professional

isolation and find solutions to her pedagogic problems. She hopes that the group will provide collegial support not found elsewhere.

Reflecting on the opening round of PDC meetings, Sharon examines the possibility for collaboration, using a musical metaphor.

So far we have each played our own tune, each his "private music" for others to hear. There isn't a symphony yet. We did a lot of listening. Everyone came with his own story. Everyone plays his own tune. We are the audience listening to each other's presentation, but it is not there yet. I hope that this group will develop into some kind of symphony.

Sharon anticipates significant collaboration among group members as the project progresses. For her, passivity negates collaboration as individuals present their own work, their "private music." She hopes that this isolation will transform into active participation through collaboration, hence the metaphor of symphony.

Expressions of isolation were grounded in the teacher educators' experience not only in the teachers' room but also in their departmental meetings, and were found in many aspects of the narratives. Although teachers typically work in conjunction with others on a departmental level, they rarely talk about actual teaching or student learning with their colleagues. Participants felt strongly about this deficit which was expressed in their motives for joining the group and in the reported outcomes of the PDC. This will be discussed in the [Outcomes of the PDC](#) section below.

The teacher educators who joined this project were without exception passionate about their interest and commitment to teaching students how to think. They expected to learn new skills by reading, listening to lectures and discussing. They were required by the funding agent to implement changes in their college courses; therefore, learning new skills served as an instrumental motivation to join the project. In addition they expected to upgrade professionally by acquiring a new body of knowledge, thinking education. Seeking community was an additional motivation for joining the PDC which held out the possibility of collaboration with others. These motivators led to a surprising array of outcomes, which were more robust than anticipated.

## 3.2. *Outcomes of the PDC*

Sharon's metaphor of symphony captures her vision for PDC, and will be interpreted along several dimensions in the discussion section. A second round of interview protocols and reflective writings revealed two major topics: success in teaching students to think, and movement from isolation to collaboration. These themes were richer in their scope and complexity than articulated in the initial interviews. Although personal professional development was not delineated as a discrete outcome, it found abundant expression within the two major themes mentioned above. These aspects of professional development as well as the stated themes will be elaborated below.

### 3.2.1. *Improvement of teaching*

*The professional learning community provided knowledge on how to teach thinking.*

The teacher educators in our group began to reframe their own practice in terms of teaching thinking. The learning process in the PDC led to skills acquisition and to a change in participants' view of their own role as teacher educators. Dov and Hannah, who team taught an early childhood didactics course, wrote reflectively about this change in perspective.

In our teaching we found ourselves constantly checking every lesson that we have taught through "thinking lenses." We

wanted to infuse thinking abilities into the subject matter that we teach. This process was interesting, fruitful, and most importantly, it was challenging. We found new innovative ways to teach the same things that we had taught for years, but now we had to think things over. These methods were more effective in order to teach the problematic material that we are teaching. The problem of our course stems from the fact that we want our students to learn a whole different approach, very different from [what] they are used to working with. We found out that when we enable our students to make their thinking visible, then everything becomes clearer and understandable. In addition the thinking routines<sup>1</sup> that we have used enable the students to have deep and thoughtful discussions in class. We are not used to hearing such high level discussions. The students really listened to each other, related to each other's arguments, instead of attacking them, as they used to. We have learned a whole new method. We are planning our teaching according to the students' understandings, questions and puzzlements.

The teacher educators brought to the PDC concrete documentation of teaching innovations based on their new skills acquisition. For example, they brought video recordings of lessons and large charts generated with the students in the implementation of various thinking routines.

These teacher educators believe that use of thinking routines has led to better teaching and to improved learning. This holistic approach orders their thinking about course organization. In addition, they reflect on professional development related to thinking education. Learning in the group went beyond the theoretical as community members applied thinking routines in their courses and then sought collegial feedback in the group. Hannah talks about her motivation for coming into the group and how the learning process has motivated her to further implementation.

I think [the group contributed to my understanding of how to teach thinking] ... because we had a format of how to go about it and therefore it put me on the right track, and it was not just theoretical. We all believed in it before we started to learn it together, but now we have more of an actual plan of how to go about it and it was very helpful.

For Hannah, it was not only the practical aspect of the course which made a difference, but also the group learning experience. In addition, the specific tools were easily implemented; therefore, the task of teaching thinking seemed within reach.

Hannah's appreciation of a visible road map for teaching thinking is echoed in Tova's description of implementing thinking routines in mathematics teaching. The specific routines enabled a metacognitive expansion of her pedagogic knowledge by providing a language for articulating mathematical thinking skills.

At the beginning I felt that I did have an idea of what teaching thinking is, [and now] it has expanded tremendously from what I thought teaching thinking was and also nuanced the things that I was doing. Specifically, I'm more conscious of them now. I feel in this course, Mathematical Thinking, I want to teach them how to break down a problem and see its component pieces and build a solution step by step, but I haven't even verbalized that to myself and now I can easily vocalize it, and I have routines that I can fall back on that I can actually accomplish that. I always used "What makes you say that?", but the connecting

and the extending, I am now using a lot of. And now I can do it in a conscious way.

Tova gained a sense of efficacy in her teaching. As expected, the teacher educators came to better understand how to teach thinking through the implementation of routines using *Ritchhart's (2002)* explanation of how to structure a lesson on thinking routines. Unexpectedly, they developed a disposition towards infusing thinking into their college teaching by using thinking routines to structure a lesson as well as an entire course. Tova notes her attitudinal change:

In both my didactics and subject matter courses, we can step back and say "How is this helping our understanding?" and that's the other thing, the routines. If somebody has an idea for how they want to approach a problem, they get up [in class] and they do it. That is something that we established from the beginning of the year. And now it happens automatically. One time I had to excuse myself from the room. When I came back in I found that one of my students had jumped up [to explain her mathematical solution to the other students]. She was on the board .... I just sat down and watched her for a few minutes, I was so excited. In previous years I would have noted "Hey that's cool," but now I observed it through the eyes of what kind of routine have I developed in my class and how am I going to do this consciously in the future. Because it is a fabulous routine. And I also pointed it out to them, "Hey, look what we are doing. How are you going to build a class like this if this is what you want in your classroom?"

Tova expanded her views on the importance of infusing thinking on a macro scale in her reflective writing.

If we are to accept the premise that teaching and learning are about process and not product, how can we affect this culture change within the community of math teachers? Math education in Israel has an extreme bias toward product. Even processes [e.g. the quadratic formula] are used to produce an answer rather than being understood as learning tools in and of themselves. Recent and ongoing changes in the Israeli math curriculum are a step in the right direction, but without an accompanying cultural and philosophical change, it is unclear what the curriculum changes will accomplish.

Here Tova broadens her conceptualization of teaching thinking beyond the limits of her specific courses. Whereas she joined the project to improve one course, she now understands that attitudinal change at a very basic level is required. This realization and the commitment to effect change reflect professional development for Tova, although she does not articulate her learning in those terms.

*The professional learning community provided an environment for participants to reflect on their teaching*

By focusing on actual practice in the classroom, the meetings afforded rich opportunities for reflective dialogue which is a factor in thoughtful learning and implementation. Hannah emphasizes the importance of reflective conversations in this interview excerpt.

I have a partner with me...so we both talk about what we heard and we can think of what we [will do to implement these ideas in our course]. ... You brought a film [and] we right away started to talk, and... after that we filmed, we filmed something [we did in our course] and then Dov presented it in a meeting... It [people's reflective contribution to the group meeting] helps to generate thinking... and excitement in the group. That is good.

For Hannah the group conversations enhance individual motivation and clarity of thought. Such discourse generates thinking which in turn supports a reflective stance towards teaching.

<sup>1</sup> Thinking routines as described by *Perkins (1995)* were taught in the group meetings as strategies for teaching thinking in the classroom. These routines were adapted, practiced, and assessed by the group members throughout the year.

### 3.2.2. Isolation vs. collaboration

The theme of isolation shifted to center stage when the teacher educators described the PDC outcomes. Initially, discourse on a topic of mutual interest was the major component of breaking isolation. As the program developed, teacher educators emphasized practice, including trying out new methods and discussing their failures and successes in an effort to involve others in their own learning. This transition from escaping isolation to significant collegial interaction enabled the achievement of professional development goals.

*The professional learning community provided a format for meeting new colleagues.*

The part-time nature of employment at the college mitigates faculty interaction because teachers rarely see one another. On the other hand, the PDC enabled the teacher educators to make acquaintance with one another over an extended period of time, with a focus on a common goal. Sue talks about this phenomenon.

I also met one or two people that I have never met before. It was a very small group so some of the people I knew already. So I got to know them better. And it gave me more things to talk to them about. From my experience [these opportunities] are not there that often.

Using a very personal voice, Tova relates to her isolation.

When I'm here [at the college] no one else is here. I've hardly got to know anybody and now I feel like I have a connection not only in my own department but also across departments and the seminar is part of that.

Other participants reported a sense of belonging and commitment first to the process and then to the group members. As personal relationships were formed, teacher educators spoke of closer connections which included working together, and consulting with each other as a team. Hannah spoke about her improved connections as a result of the PDC.

You feel good, you see Sue, so I see someone who I have a lot of connection to. Not only because she teaches a course in my department, but because we are peers in this group ... It is nice. Honestly, I don't remember talking to anyone out of the group about teaching.... Because I see them I have a broader relationship with them. So it feels better when I go into the teachers' room and I have something in common with these people that I had nothing in common before. I feel that I have something to talk to them about, to share. I feel I belong more.

For Hannah as well as for others, the social benefit of the PDC was obtained through joint exploration of the common topic. All participants moved from curiosity and uncertainty about teaching thinking through a trial period to a stage of shared critique and mutual support. They formed deep personal connections which carried over to the social realm as signified by meaningful interaction in the teachers' room.

*The group's interdisciplinary character promoted and extended thinking in each participant's own discipline, as well as offering a broader perspective on student learning across disciplines*

Because the PDC was composed of teacher educators from different departments, collaboration was characterized by cross fertilization of ideas. Classroom doors opened as participants videotaped lessons for collegial feedback. This melding of disciplinary perspectives took on a life of its own, as the teacher educators came to understand the positive influence of the learning community on their teaching practice, particularly as it relates to the infusion of thinking. Tova spoke about the benefits of understanding how others teach in their own disciplines.

I found it very energizing to be a part of a group that we were all thinking about the same issues, which for each of us it was slightly different according to our discipline. And I'm finding myself listening to somebody with their case study .... And I'm thinking, ah... What does this mean for math? I try to play it out in math if I were to going to address the same issue. I don't think... I read all the articles ... and the thinking routines again are very different for the lack of exploring or extending in math. I didn't click into that when I was doing the reading, I didn't tune into it until I was hearing everybody ... I find it very energizing. I come home on a high. I constantly say how much I love this seminar.

Tova's engagement in the PDC links her professional development concept through interaction with others who bring varied academic perspectives. Implementation of thinking routines with varied subject matter allows their visualization in her discipline through comparison.

For Tova interaction with colleagues means going outside her discipline by engaging the PDC through collaboration which adds to her understanding of student learning throughout the college.

It's very different to hear things from different disciplines, like if everybody is very focused on their discipline and sometimes somebody says something from another discipline and it amazes you or it is something that you simply never had an opportunity to think about.... The interdisciplinary nature of our group informs a big picture of the learning processes in our college.

Inspiration and motivation to consider new ideas from other disciplines is for Tova an intellectual challenge. The PDC enables identification with students as learners across departments. Similarly, Sue values learning across disciplines, a perspective which leads to more effective teaching. She contrasts the interdisciplinary discourse of the PDC with the conventional compartmentalized university model.

If we would have been involved in a group of teachers only from one field then it might be too narrow, then we would be missing a whole other aspect of it. So I think that the model in which people from the same institution, but from different disciplines, are sitting together and developing is much better than the model in which each person is going to his own [department] and chooses what to specialize in. I think that our model is really helpful, because otherwise people just go anywhere they want and nobody knows what the other is doing and what is going on in the rest of the college, hence you teach less effectively when you don't know what is going on.

Sharon also endorses interdisciplinary discourse. While Tova and Sue refer to breadth in their perspective, Sharon reflects on depth. By appreciating solutions in other disciplines, she can better consider applying thinking education in her field.

There is an advantage to seeing how each person solves these problems of working on thinking in their own domain and seeing how other people do it is going to help me do it in my class. The interdisciplinary nature of the group deepens my thinking about applications in my work.

*The PDC provided a safe and comfortable environment for talking about mistakes and attempting new teaching methods.*

The teacher educators describe a need for community which is both safe and values risk taking. Sue's fear of experimenting was addressed by other members by speaking openly about their teaching and providing informative, supportive feedback.

It makes you feel comfortable experimenting. And it didn't matter if you are doing wrong, because you try, and you will do better next time. I remember the first time that Dov and Hannah presented, they first filmed themselves. And they showed what they did, and they were so honest about it. Like, this worked and this didn't. And it made me feel like ok, go for it. And then I think I saw you the morning before I was going to do this and you said, "Just try it. See what happens." And I did it. And what happened is that in one class it really went well and in the other class it didn't. And it made me ask the students at the end of the course about their learning experience .... I think the group contributed to that. In the sense that you could talk to people about it and they give you positive feedback or explain to you what went wrong.... The group experience helped me think – go try it out. I felt more confident in doing things.... I am not alone here, I am not doing this on my own. Other people are trying it out, and go for it. Go, and then tell us what happened – we will learn from it.

In Sue's case, several factors contributed to her enhanced self efficacy, which had been missing before. Group members modeled implementing thinking routines which enabled Sue to consider using them herself. Active support from the PDC gave her courage to take risks. She could return to the group with her experience, unpack it, and learn from mistakes. This supportive atmosphere is not available elsewhere in the college culture.

*The PDC provided an opportunity for teacher educators to talk about students learning*

Before the establishment of PDC the conversation among the teacher educators did not involve looking or talking about the process of teaching and their students' learning. Sue related to this tendency as problematic.

I would bring it up at a teachers meeting, complain about it, but try to solve it on my own... Usually the head of the department would gather everybody together at the end of the year and say: 'What are you teaching?' This is about where it ends. So people try to make an impression about how things had happened and that's about it. So I thought this was different, we had meaningful discussions about teaching and learning.

As Sue points out, the ongoing discourse between teacher educators in the college did not involve conversations about teaching or students' learning. Teacher educators usually complained, but rarely took the time to look closely at students' learning, to share their understanding of the process of learning with their colleagues. The PDC gave the teacher educators a chance not only to complain but to engage in a meaningful discussion with other colleagues aiming to understand teaching and learning processes. The meetings enabled this change in discourse to occur.

### 3.3. Results summary

These findings focus on motivation for joining the project and on its outcomes. The major motive was a shared mission to inculcate thinking skills among students. The teacher educators view themselves as thinking more openly and clearly than their students, and they desire to bridge this gap by improving teaching. They expected to develop professionally by acquiring a new field of knowledge – thinking education. Another motivator was the seriousness of the ongoing group and the importance and currency of the topic. Despite their common goal, each member operated in almost total isolation. Although teaching has long been characterized as taking place in isolation (Lortie, 1975), the group members sought to break this isolation. Thus the group format served as an effective means of breaking isolation. As the year progressed the

members found both confirmation and discrepancy between stated goals and group outcomes.

Satisfaction was engendered through skills acquisition, daring to change teaching methods, and boldly reframing entire courses. This adaptation of positive dispositions towards thinking education stretched beyond stated motivations to learn new skills. This unexpected attitudinal change supports the claim of the PDC's efficacy in fostering school improvement (see for example: McLaughlin & Talbert, 2001). These achievements correlated with breaking isolation and movement towards interdisciplinary collaboration.

In addition, our results indicate the acquisition of broader dispositions regarding effective college teaching, including the desire to examine learning and teaching as an important college-wide phenomenon. Viewing students as active learners in a variety of contexts led to widening perspectives. Breaking down departmental barriers encouraged teacher educators to familiarize themselves with problems of teaching thinking in other departments and to apply thinking routines across disciplines. This in turn made it possible to identify with the college as a whole, seeing students as learners beyond their own subject matter.

A final discrepancy between stated motives and outcomes relates to the value of interaction for professional development. Although not emphasized in the stated motivations, interaction became integral to the cultivation of new modes of teaching and learning. As noted by McLaughlin and Talbert (2001), innovation and improvement of practice occurred through group interaction. Half way through the year, teacher educators stressed how group interaction helped create and sustain safe spaces for further learning, implementation, and expressing uncertainty. Looking, commenting, or questioning personal practice can be a difficult and uncomfortable position for teachers (Snow-Gerono, 2005). In our group, teacher educators supported one another with informative feedback, making implementation an attainable goal. In the PDC mutual support was necessary for examining and executing changes in teaching practice.

## 4. Discussion and implications

This study is about educational change in a college community. The data reveal stories of individual change through group process and coalescence of a group into a community. The community's power to enable change is explored through looking at how teacher educators broke through their personal and professional isolation by participation in the PDC, and how they incorporated changes into their own teaching practice. As seen in previous research (see for example: Snow-Gerono, 2005; Lortie, 1975; Rosenholtz, 1989; Webb & Sherman, 1989; McLaughlin, 1993) isolation was a restrictive feature in our college. Breaking through this isolation, and working together on improvement of student learning through thinking became a foundation for interaction in the community, as the teacher educators understood how thinking can be supported in their classrooms.

Our most significant finding is understanding how the breaking down of personal and professional isolation became the driving force behind the pedagogic accomplishments of PDC members. Not only getting acquainted, but more importantly discourse focused on student learning enabled change to occur. It was not only breaking isolation as McLaughlin and Talbert (2001) suggested that enabled professional development to occur. This breaking of isolation included the creation of a safe environment in which sharing, daring, and support became commonplace. Because of the routine culture of isolation among faculty at small teachers colleges in Israel, the opportunity to form a community around professional development was deemed attractive to faculty members. The

generally cooperative culture in Israel is based on the socialist tradition on which the country was founded and on the siege mentality engendered over the past sixty years in light of constant security threats from both external and internal hostile factors. As such, Israeli society provides fertile ground for the formation of the supportive and cooperative PDC.

Previous research about communities of learners among teachers in school settings identified three primary outcomes: improvement of teaching, opportunities of personal professional development and the breaking of isolation (McLaughlin & Talbert, 2001). These outcomes are arranged neither hierarchically nor chronologically. Unlike teaching in schools where employment is a full time endeavor and the teachers room is central to the social functioning of the institution, college teaching is fragmented and faculty do not regularly see one another. This structural difference emphasizes the importance of breaking isolation in creating a community of learners. Duguid (2005) suggested that through social exchanges people build webs of trust, obligation, reputation, expectations, and norms. Our findings suggest that in a college community, the breaking of isolation takes on a critical function of social advancement, improvement of teaching, and adaptation of new dispositions.

Theorizing about the significance of professional community entails demonstrating how communities achieve their effects (Little, 2002). Thus, we propose a layered model for understanding the effectiveness of the PDC in our own college in which each layer forms the basis of the next (see Fig. 1).

The initial layer is called “Breaking of Isolation.” We found several components to be significant in this process: acquaintance, shared topic, interdisciplinary discourse, and safe environment. The shared concern for teaching thinking was heightened by the interdisciplinary nature of the group. As Little (1993) suggests, ‘common ground’ enabled teacher educators to make multiple connections beyond shared experiences. The resultant collaboration served as a foundation for the second layer in our model, which is called “Improvement of Teaching” which includes skill acquisition, classroom implementation, documentation, and collegial reflection. Both breaking isolation and improving teaching were driven by talk about student learning which previously had been absent from the college culture. This discourse is the glue which holds together collaboration and instructional improvement. It became the fabric from which they are both cut. An additional factor in the breaking of isolation could be the enhanced disposition to take risks in adapting innovative teaching practices. Ridenour and Twale (2005) note the conservative nature of teaching, and suggest that communities of practice are appropriate

venues for cultivating a culture of risk taking among faculty as well as graduate students.

As the PDC developed, the third layer called “Professional Development” includes a higher order of functioning and consists of acquiring dispositions towards teaching thinking, a sense of accomplishment, and most importantly, a feeling of efficacy. These changes were based on teachers’ establishment of new teaching criteria, as opposed to mastery of specific routines (Palincsar, Magnussen, Marano, Ford, & Brown, 1998). The teacher educators realized that their initial mission of teaching students how to think had been effectively addressed. Achieving the stated goal of teaching thinking led to adapting a broader pedagogic outlook. Our theoretical model of professional development at the college level suggests placing the community front and center.

Researchers and practitioners are increasingly calling for more collaboration to stimulate teacher learning (Hargreaves, 1997; Jenlink & Kinnucan-Welsch, 2000; King & Newmann, 2000; Lieberman, 1996; Little, 1993; McLaughlin, 1997; Rosenholtz, 1989). Our study suggests that institutions of higher education can benefit from collaboration among faculty members to improve teaching and encourage professional development. The PDC in colleges serves as a learning organization (Lick, 2000) where faculty members are committed to individual development stimulating institutional growth (Graff, 1996). The PDC provides a vehicle for individuals to extend their capacity to achieve the teaching results they desire. New and expansive patterns of thinking are nurtured, collective aspirations are voiced, teachers are continually learning how to learn together and collaboration drives institutional advancements.

The metaphor of symphonic harmony sheds light on the process documented in this study. Grounded in many different academic disciplines, the participants in the beginning each played their own music (content, structure, language, symbols, and ways of thinking). They began by passively listening to each other; however, as the year progressed they took on a more active role just as musicians in a symphony orchestra play their instruments in harmony with one other. The shared passion for teaching the students to think meets the basic condition which Wenger et al. (2002) delineated as critical for a community of practice. In this PDC, the achievement of the first two goals (teaching students to think and developing professionally) was accomplished through collegial discourse and interaction, and this synergy helped breakdown the isolation which the teacher educators had experienced. Their unabashed advice to one another came naturally, as they grew comfortable to listen, critique, and suggest changes to their colleagues’ practice. The symphonic harmony which had been only a vision in the beginning had reached its crescendo. A critical component in group learning, this process is strongly connected to identity formation, as noted by Salomon and Perkins (1998) and Sfard (1998). As individual teachers invested in the PDC both intellectually and emotionally, they came to understand, empathize, and offer collegial assistance to others in the community. These acts of commitment fostered a new kind of identity which went beyond the role of teacher trainer. The PDC’s influence on identity formation among teacher educators is a highly significant phenomenon which requires further investigation.

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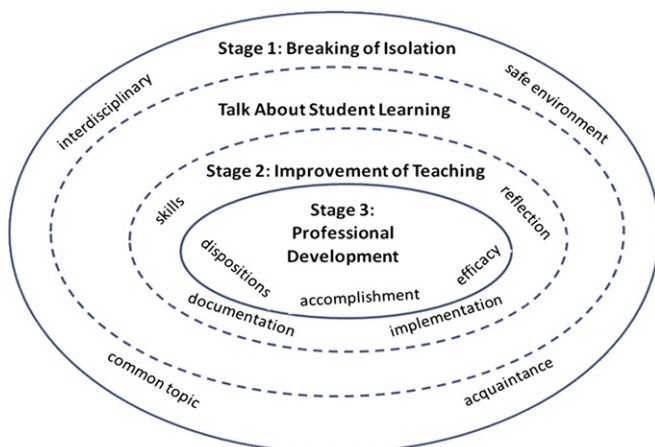


Fig. 1. Layered model of professional development based on the PDC paradigm.

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