**From a triangular to a pentagonal model in the teaching practical experience**

**Adani Neifeld & Yonit Nissim**

**Abstract**

Teacher-training has developed through a complex weave of processes, models and theories, founded on experiences and events in teaching and learning settings. In 2015, the Academia Class program was introduced in teacher-training processes in Israeli academic colleges and universities, necessitating changes in procedures and regularities[[1]](#footnote-1) and new thinking about student-teachers' practical experience. Some of the changes engendered meaningful insights and processes that helped to reshape training processes. This article is derived from qualitative research intended to inform the formation of a new model, a unique test case, offering improvement and enhancement of clinical practicum regularities.

Traditional pedagogic instruction is based on a "triangular instruction model" (student-trainer-teacher – pedagogic instructor). The present study aims to expand this model by offering a new “pentagonal model.” The pentagonal model incorporates the following roles: student / coach-teacher / pedagogic instructor / coordinator teacher / academic instructor. The proposed model creates a complex human ecosystem based on teacher-training processes and reinforces reciprocal connections, different figures and new role definitions and aims to connect the loose ends and the different participants involved in the training process of the practicum in a more comprehensive and holistic manner.

The proposed model is based on experience in practice over the past five years, as recorded in protocols, participants' voices, and work papers, as well as many meetings and discussions. This model is applicable to a wide range of schools and kindergartens and connects the different settings for training in the education field. This model, which is unique, was developed at the Ohalo College for school and kindergarten teacher-training in Northern Israel. It is important to emphasize that the model was tested gradually, improved, and made more accurate through a dynamic process using feedback between the college and the class, between the teachers and the instructors and pedagogic instructors. The process was shared with ten educational institutions throughout the northern region of the State of Israel. Participants included more than 500 students, 500 school and kindergarten teachers, and 40 pedagogic instructors, instructors, lecturers and others in relevant roles.

The theoretical underpinnings of the model rely on the concept of Pedagogic Content Knowledge (PCK), which emphasizes and reinforces pedagogic activity in the context of disciplinary knowledge content. In our opinion, the implementation of the model according to the approach described below creates a stable foundation for the student-teacher practicum, in a manner appropriate given the current winds of change. The model should be applied in conjunction with essential changes in structural and behavioral regularities necessitated by the Academia Class program.

Keywords: PCK, teacher-training, teaching practicum, triangle model.

**1. Theoretical background**

***1.1 Pedagogy, content, and practice in the teaching practicum***

The teacher-training program is founded on the approach of learning through practical experience. According to Kolb (1986), all learning is based on a repeating, four-stage cycle. Initially, there should be “concrete, practical experience” that affords a significant emotional experience. The second stage involves "reflective observation,” which entails personal reflection and group mirroring concerning the experience, during which insights emerge about the practical experience. In the third stage, the reflections are used to analyze the experience and form conclusions about the practice, which engenders the beginning of abstract conceptualization. In the last stage of "active experimentation," the learner tries to understand their lived experience. Thus, all student-teachers experience teaching of pupils in educational settings including practical experience, critical thinking, conceptualization and implementation (Zilberstein, Pnaievski & Guz, 2005; Zuzovsky & Donitsa-Schmidt, 2017). The practicum is performed in real time in the education field, in a clinical manner and is very meaningful for the future teachers' work. Theoretical knowledge studied in college courses is translated into practice in the field, and this helps to shape teachers with strong academic abilities and subject-specific knowledge who are able to use practical tools to cope with the challenges in the field (Ran, 2018; Ronfeldt & Reining, 2012). Several studies indicate that maximum exposure to teaching practice, closely monitored by a trainer-teacher, increases the students' readiness for their role as a teacher (Maskit & Mevurach, 2013), and students report that practical experience is a most meaningful component of their studies (Brandburg & Ryan, 2001; Brett, 2006; Walkington, 2005).

Many studies indicate the importance of combining pedagogic knowledge with the teaching skills that the student acquires in their practice, which helps to shape their professional identity (Jacob, Hill & Corey, 2017; Taylor & Cranton, 2012). In contrast, the reality of fieldwork points up the serious challenges and significant gaps in the students' performance of the "transfer" from theoretical programs they have studied in academia to the teacher's work in practice in the education field (Appleton, 2003). These testimonies indicate that there is room to tighten and strengthen the connections between practical work and theoretical learning, in order to attain the goal of creating meta-cognitive processes and contexts at all stages of the training and practical experience (Wæge & Haugaløkken, 2013). This approach follows the constructivist construction noted by Shulman (1987) in his description of the connections that form Pedagogic Content Knowledge (PCK).

***1.2 Teacher-training in Israel***

Teacher-training constitutes part of both the Israeli education system and the higher education system. The responsibility for this area is divided between two bodies: The Ministry of Education and the Council for Higher Education. Teacher-training programs are based on two different learning streams: (1) the parallel stream, in which disciplinary knowledge is studied in parallel with the pedagogic knowledge that the student acquires during their studies for a bachelor's degree and teacher's certificate over a period of 3-4 years; (2) the accumulative stream, in which the student acquires a bachelor's degree in a particular discipline and only begins their training as a teacher afterward. The training period for teaching is relatively short, as is the practicum in teaching (Zuzovsky & Donitsa-Schmidt, 2017).

*1.2.1 Models of teaching practicum*

Today there are three teaching practicum models in Israel:

In the traditional model, the practicum relies on three components: the student-teacher, the pedagogic instructor, and the trainer-teacher. These persons operate in the practicum where the experience is focused. This model does not see the school, the functionaries working in the school, or cooperation of any sort as a significant resource for the training process (Zilberstein, Guz & Pnaievsky, 2005). The student experiments with a marginal model—that is, most of the learning consists of mimicking the model presented to him by the trainer-teacher, rather than being based on their own actual teaching experiences (Lahav, 2010). The main assumption of this model is that learning takes place in the academic institution, with practical experience taking place in the school or kindergarten (Zilberstein, Pnaivsky & Guz, 2005).

A second model, such as the model of Professional Development in School (PDS), uses peer models and co-teaching for the student-teacher's professional development. This model sees practical training in a wider, deeper manner. Firstly, practical experience does not only involve "exercising" the material studied in theoretical courses. These collaborative models see the practicum itself as an opportunity for learning, constructing, and internalizing knowledge. Practical-reflective work is itself learning (Zilberstein, Pnaievsky & Guz, 2005). This model focuses on organizational aspects such as the encompassing “umbrella” and pedagogical aspects such as the “essence.” The encompassing umbrella consists of long-term communication with selected schools with a commitment to the process and involves large groups of student-teachers and many hours of practicum. The “essence” of this approach involves broad-ranging work with the entire school, working with people in different roles. Thus, student-teachers are exposed to different levels of the teacher’s work and participate in learner communities (Ariav, 2014; Ariav and Smith, 2006; Maskit and Mevurach, 2013).

Clinical models*,* such as the "Academia Class" and "Academia Colleague" models, are founded on a perception of teaching as a technically complex profession that requires the use of dynamic knowledge. Its development was inspired by the medical model, which relies on comprehensive clinical practical experience and emphasizes technical skills, the application of theories, concepts, principles, and interpretations, as well as analysis and action. This experience takes place in parallel with the acquisition of academic theory, which shifts the point of gravity of the training to the school (Ariav, 2014; Kriewaldt & Turnidge, 2018). Several studies show that this collegial model has advantages over other training methods in terms of the prevention of student-teacher dropout and the achievements of pupils during the first year of novice teachers' work. It was also found that the student-teacher’s sense of self-efficacy improved when they learned and taught pupils in schools as part of their teacher-training according to the collegial model (Allen, Ambrosetti & Turner, 2013; Hoy & Spero, 2005; Naifeld & Nissim, 2019; Latham & Vogt, 2007; Ridley, Hurwitz, Hackett & Miller, 2005).

***1.3 The Academia Class program for optimal practicum training***

In recent years, on the initiative of the Ministry of Education and with the support of teacher-training institutions, various programs and initiatives have been implemented to improve teacher-training processes, the most significant of which is the Academia Class program. The program, which was initially designated as experimental, was widely implemented in 2015 and quickly became the flagship for teacher-training processes. As part of the program, student-teachers and education students in their third year of studies participate in broad practical training for 12-16 hours per year in different educational institutions. The students are guided by a trainer-teacher from the school or kindergarten, with whom they teach as co-teachers, in a collegial model. The students take part in all educational activities and provide additional teaching resources. They gradually integrate into the activities of observation, assistance, individual teaching, and teaching a full class together with the trainer-teacher. Their presence reduces the teacher-pupil ratio in the class and enables meaningful learning. The Academia Class program has several defined goals:

(1) Reinforcement of the partnership between academia, the school or kindergarten, and the education ministry's regional offices

(2) Improvement of student-teachers' training

(3) Promotion of the professional expertise of experienced school and kindergarten teachers who participate in the training of student-teachers

(4) Advancement of meaningful learning in schools (Ministry of Education Thinktank, 2014).

Studies that investigated the Academia Class program from various aspects and tried to assess its contribution to teacher-training processes have found that the program's graduates had strong self-efficacy and readiness for the teaching role and had a better chance of successfully integrating into the teaching profession (Eran & Zaretski, 2017; Macdusie, 2018). Teachers and students who participated in the program expressed their satisfaction and believed that it contributed to all involved: teachers, students, and pupils (Arnon & Presco, 2018; Ratner & Shmuel, 2017). Ronen, Daniel-Saad & Holtzbart (2018) found significant differences between the knowledge (relating to subject matter, pupils, the teaching process, and parents) that students in the Academia Class program acquired in comparison to knowledge acquired in the traditional teacher-training program. Neifeld and Nissim (2019) found that the program made a significant contribution to the acquisition of teaching practices, co-teaching skills, and interpersonal interactions between teacher and pupils.

***1.4 The instruction triangle – the traditional model***

Research literature conceptualizes student-teachers' practical experience using the "instruction triangle." The trio of partners that participates in this experience is also referred to by Murrell (2001) as the "clinical triad." The "triangular model" includes the student-teacher; the pedagogic instructor, who is a representative of the training institute and is responsible for the student's professional training during their practicum in the training-classroom; and the trainer-teacher in the class where the student practices teaching. Emphasis is given to reciprocity and cooperation in the relations between the three partners (Zilberstein, Pnaievsky & Guz, 2005).



Key:

Green background – responsibility of the college

Blue background – responsibility of the school or kindergarten

*1.4.1 The student-teacher in the practicum*

Practical experience in teaching is a fundamental element of teacher-training. The field practicum is the space in which the meeting of three significant dualities of the teaching act take place: the dualities of discipline and education, theory and practice, and academia and the education field (Hamer-Bodenaro, 2014).

In this context, the student tries to translate theory into action and to indirectly become more familiar with the school as workplace and with other teachers. Practical experience enables the student to exercise planning and teaching and to critically observe the application of theories and systems (Dvir, 2005; Eyal, 2006; Lam, 2000; Zuzovsky, 1991). This practical experience varies according to the level of involvement by the student-teacher in teaching in class. In certain cases, the student passively observes and learns from observing the trainer-teacher as they teach, only later gradually becoming a student-teacher and taking an active part in the teaching activity. In other cases, student-teachers find themselves managing a lesson and class without any co-teachers, assistants, supervision, or instruction from a trainer-teacher. The correct balance between the opportunities for different types of experiences and the provision of supervision and control allows opportunities for the student-teacher's professional development (Bacharach, Heck & Dahlberg, 2010).

The experience of teaching creates a gradual process of change, enabling the student-teacher to develop reflective abilities and to identify their strengths and weaknesses. These abilities provide a basis for the continuation of the learning process throughout their career (Lai, 2005; Rajuan, Beijaard & Verloop, 2008). Additionally, the observation and experience of teaching contributes significantly to teachers' future self-realization (Clark & Newberry, 2019).

*1.4.2 The trainer-teacher*

The trainer-teacher is usually considered to be a teacher with appropriate characteristics and teaching abilities who can provide a desirable professional model for the student-teacher (McCormack & West, 2006; Ziv, Zilberstein & Tamir, 1992). The trainer-teacher's role varies over a broad range of functions from professional teacher, critic and examiner to guide, companion and supporter (Bray & Nettelton, 2006; Busher, Gündüz, Cakmak & Lawson, 2015; Sundli, 2007). The trainer-teacher's function focuses on three areas:

(a) Development of teaching skills – the trainer-teacher constitutes a model for educational and pedagogic activities and offers the student-teacher a concrete experience of the teaching profession. The trainer-teacher enables the student-teacher to enjoy different types of teaching experiences, to analyze them, to conduct reflective conversations on those experiences, and to analyze situations that occur (Fairbanks, Freedman & Kahn 2000; Lai 2005; Le Maistre, Boudreau & Pare, 2006).

(b) Development of ecological observation: the trainer-teacher explains learning programs, aspects relating to evaluation, class climate and working with parents to the student-teacher and arranges meetings for the student-teacher with the school as an organizational unit, allowing them to experience relationships with those who hold different roles in the school (Feiman-Nemser, 2003; Lai, 2005).

(c) Support and guidance: the trainer-teacher serves as personal instructor and mentor for the student-teacher throughout the practicum (Carr, Hermann & Harris, 2005). It was found that containment and support for the student-teacher is a central component for the success of the practicum (Boreen, Johnson, Niday & Potts, 2003). The trainer-teacher performs the teaching role in parallel, as a companion to the student-teacher (Jaspers, Prins, Meijer & Wubbels, 2018).

Trainer-teachers also develop and advance through their experience in this role. It was found that, thanks to their guidance of the student-teachers, trainer-teachers become more involved in the implementation of educational initiatives and go deeper into content, pedagogy, and evaluation. To perform their role optimally, they need the cooperation of the college, while taking care to maintain a uniform professional language and terminology with the pedagogic instructors and also comply with organizational arrangements and orderly mechanisms of work in terms of shared methodical planning and problem-solving (Ziv, Zilberstein & Tamir, 1992; Zidan & Aliyan, 2013).

The introduction of the Academia Class program included an aspiration that the role of the trainer-teacher would shift from the teaching of pupils and the mentoring of student-teachers to co-teaching, including shared planning, shared teaching in class, continuous dual activity and dialogical feedback, continuous learning, and investigation of practice in a shared professional community. Emphasis was given to the formation of reciprocal relations based on respect and concern. This experience is intended to influence the life-long professional development of the trainer-teacher (Guise, Habib, Thiessen & Robbins, 2017).

*1.4.3 The Pedagogic Instructor*

The pedagogic instructor is an experienced teacher who serves as the "guide" for the student as they undergo the developmental process of becoming a teacher (Ran, 2017). This person connects and mediates between the academic-theoretical realm of theories and college courses and the issues that arise in the professional field (Yogev & Zuzovski, 2011; Milat, 1999). The substance of pedagogic instruction is the interpersonal meeting between the instructor and the mentee, which relies on continual and developing bi-directional discussion (Katz, 2011).

In most teacher-training programs, the training institution's teacher-educators guide the student-teachers through observation sessions and provide feedback based on these observations. This guidance is an integral part of the practicum experience performed during and in parallel to the learning program. The attempt to find a decisive and unambiguous definition for a pedagogic instructor is challenging, because of the vagueness of this term with respect to the distinct features of the role and the fact that the instructor operates in a sort of third space that verges on both the academic and the educational field. Also, there is no particular training or defined conditions for acceptance as a pedagogic instructor (Ran, 2017).

The pedagogic instructor fulfils four main functions:

(a) Support for the mentee's personal development process. The pedagogic instructor guides the personal growth process, providing emotional support and motivation. The relationship between the instructor and the mentee is constructed in a uniquely personal manner (Katz, 2011; Emanuel, 2005).

(b) Promoting professional teaching abilities and compliance with desirable norms and standards (Emanuel, 2005). Soslau (2012) suggests different ways to achieve this goal: telling – the instructor suggests, guides, and presents ideas for improvement. Coaching – the instructor intervenes in the student-teacher's reflections and enables them to formulate characteristics, values and assumptions and to test alternative scenarios for events. Guidance – the instructor focuses on the "why" rather than "how" or "what" of teaching, examining the planning and intentions. Research – collaborative investigation of possible reasons and solutions. Using evidence from reflections on classroom activities, the instructor provides relevant contexts references, and together they consider factors that the student-teacher broaches as a result of their work.

(c) Promoting the functions of evaluation and feedback. The pedagogic instructor observes the student-teacher at work and reflects on the teaching quality together with the student-teacher and trainer-teacher. This process is part of the quality control evaluation conducted in parallel for the student-teachers and provides them with a work tool that can improve their functioning and serve as part of their life-long professional learning (Lam, 2000; Milat, 1999; Emanuel, 2005).

(d) Forming and maintaining a connection with the training school, the trainer-teacher, and other entities in the school. The connection with the school as an organization and the reciprocal relations with the college play a more important role in collaborative models of instruction such as PDS and Academia Class than in traditional models (Milat, 2005). With the introduction of the Academia Class program, there was an expectation that the role of the pedagogic instructor would be imbued with additional emphases involving student-focused pedagogic instruction and would also include the leadership of professional development processes in the schools and kindergartens where the student-teachers perform their practicum, in order to foster joint learning in a professional community made up of the student-teachers, teachers and academic staff. This activity should be accompanied by research that will influence the continued assimilation of the practice in the field, including the necessary change and improvement of guidance and training (Grossman, Hammerness & McDonald, 2009; Loughran, 2014).

**2. The research**

***2.1 Research method***

This article relies on qualitative-theoretical research by practical field workers. The qualitative approach was chosen because of its ability to systematically collect and analyze data, to construct a holistic picture of the studied phenomenon, and to clarify its substance and meaning from the viewpoint of members of the studied community in their natural environment (Sabar Ben-Yehoshua, 2016; Shkedi, 2003). This type of research also includes characteristics of the case study by focusing on an object, person, system, or process that the research wishes to understand in depth. The research also adopted an action research approach backed by field grounded theory, which relies on a constructivist approach. This approach advocates different interpretations for change processes through the construction of experiential memory and clear documentation, and helps to describe and explain multifaceted and complex phenomena rather than to discover a new reality (Sabar Ben-Yehoshua, 2016). In this research approach, the researchers are involved both as participants who experience the described processes, their implementation in practice, their investigation and improvement, and the construction of practical models, and they are also the authors and researchers of the article.

We focused our interest on the intervention processes, change and reconstruction of models of practical experience. Our aim was to enable the development of a theoretical approach that could be translated into practical applicable knowledge for those engaged in the educational act as part of their practicum.

***2.2 The proposed model: From triangular to pentagonal instruction***

With the expansion of the college's activities in the Academia Class program, several concrete challenges arose concerning the pedagogic instructors, the student-teachers' needs, the connection with the schools, and the bureaucratic management of the program. At the same time, as we accumulated experiences and familiarity with the program and its needs, we became aware of the challenges facing us and altered the pedagogic instruction as appropriate for the new model. The changes were performed gradually, based on results from surveys and research.

The modifications were driven by the desire to create processes of change in traditional and conventional teacher-training paradigms in order to adapt them to current reality. However, the constructivist building needed to connect more deeply to and cement the connections between the theoretical management of disciplinary knowledge and teaching and the instructional and educational methods applied in the classroom. This training reduces gaps between theoretical approaches delivered in college lectures and the practical experience student-teachers undertake in the field during their training. The desire for change that echoed continually through the process was based on the PCK approach (Shulman, 1987), which was expanded by including technology-assisted teaching to become the Technological Pedagogical Content Knowledge (TPACK) model.

In the researchers' opinion, the need and desire for change in the training paradigm created a new space within each of the practicum sites called a "third space." This new space is neither an academic nor a field space, but rather it is a point of meeting and bonding between the two (the link between Academia-Classroom). In this third space, there is continual learning shared by teachers, students, student-teachers, and academics. This space is intended as a place to strengthen the connection between teaching and teacher-training, the design of teaching methods, and the growth of research and practical knowledge (Furlong, 2011).

***2.3 The model building process***

*2.3.1 The first year*

At the first stage, as a pilot study, the program was offered to students with strong capabilities, in exchange for a participation scholarship. The pilot group participated in 16 practicum hours for three days a week in the schools and kindergarten. This differed from the regular practicum, which takes place one day a week.

A system of meaningful cooperation was constructed between the college and the Ministry of Education – schools, the kindergartens, and teaching staff development centers. Additionally, other new roles were added: an academic coordinator, whose function was to introduce the implementation of the program; education lecturers who delivered the student-teachers' training; and a school coordinator who coordinated the program in the schools and kindergartens. The title of "trainer-teacher" was adapted to be "coach-teacher," and these teachers were given more responsibility for the training of the student-teachers.

Already during the first year, several unique challenges arose in the program that required attention:

(a) Because of the large geographical space of the practicum field, the pedagogic instructors met with the student-teachers very infrequently. Moreover, the increase in the number of hours and days for the practicum and the shift of responsibilities to the coach-teacher made the coach-teacher far more significant for the student-teacher. Because of the large number of students in one school, the coach-teacher did not always a model excellent teaching.

 (b) The implementation of innovative pedagogy was challenging. Despite serious efforts by the college to develop teachers better suited for the challenges of the twenty-first century, the young student-teachers chose to imitate the coach-teachers, who were significant for them, many of whom taught in a traditional manner. The student-teachers found it difficult to implement the principles of innovative pedagogy that they had studied in college, and they adapted themselves to the traditional teaching practiced in the schools.

(c) Training the coacher-teachers: At the beginning of the program, college lecturers were enlisted to guide the coacher-teachers. These were lecturers experienced in teachers' professional development. However, in the follow-up after the training, there seemed to be a gap between the reality that existed in the morning hours, the human interactions between the coacher-teacher and student-teacher, the pedagogic issues and the contents of the training, and the ability of the pedagogic instructor to understand and help the coacher-teachers.

Despite these challenges, the initial pilot demonstrated very good development of the student-teachers in the process of their transformation into teachers, excellent connections were formed between the schools, the and the college. At the end of the pilot year, several of the program’s graduates were employed by the schools in which they had conducted their practicum year.

*2.3.2 The second year*

During the next year, the learning structure for all the student-teachers was changed, and each of the regular streams in Year 3 was adapted for the Academia Class program experiment. The training of the school coacher-teachers was separated from that of the kindergarten coacher-teacher. The pedagogic instructors for early childhood delivered special training for the kindergarten coacher-teachers. This approach proved to be especially effective. The pedagogic instructors knew the student-teachers from the college and guided them in their practicum working with the kindergarten teachers and created the connection and bonding with the training program. At the end of the second year, we determined that three additional challenges required attention:

(a) the gap in pedagogic instruction from September until the opening of the next academic year: the Academia Class experimental year began at the end of August with days of preparation in order to provide the students with a practical experience for an entire year. However, wthe ybegins on 1, the pedagogic instructors did not begin their work until the end of October, at the beginning of the academic year. This created a gap of two months in which the student-teachers in schools had no suitable guidance or direction. As a result, the student-teachers sometimes developed unsuitable practices and teaching habits during this period.

(b) the difficulty of providing an immediate, individual, and focused response to the student-teacher: when the number of student-teachers and participating schools increased, the issues and conflicts involved also increased, indicating a growing need for the presence of a college representative in the schools.

(c) the definition of the coordinator's role: according to the program's instructions, a paid coordinating teacher was appointed in each school. At first, the position’s responsibilities were left open to interpretation by the coordinator. However, we determined that it was necessary to define the coordinator's work and to use this resource in an intelligent manner to improve the college-school partnership.

To reinforce the pedagogic instructors' influence, they were offered additional work hours and their areas of responsibility were broadened beyond disciplinary instruction. The pedagogic instructors were asked to manage the procedures for working with the schools, to advance joint projects, and to lead the coacher-teachers’ training. This approach was unsuccessful for personal and organizational reasons.

*2.3.3 The third and fourth years*

In the third year, the role of "academic instructor" began to crystallize, with the addition of two instructors who reinforced the use of innovative pedagogy in the schools that had adopted the Academia Class. The goal was to encourage the student-teachers to vary their innovative teaching methods, to provide guidance and support for this matter in the education field.

The fourth year began with four instructors who guided the student-teachers in the mornings and also performed the schools teacher-training. In parallel, the early childhood instructors continued to guide the kindergarten teachers' training.

*2.3.4 Fifth year*

During this year, as a result of experience and conceptual refinement, the role of the academic instructor was strengthened, the role of school coordinator was clarified, and a "Pentagonal Model" was constructed as an optimal response involving reciprocal relations and collaboration for the training of the student-teachers.

***2.4 The Pentagonal Model***

This model was created to provide an optimal response for teacher-training, a network of collaborations and reciprocal relationships that were formed over the five-year process described above. The model relies on an ecosystem that creates links between traditional models and approaches (PCK) and an overarching innovative support system in a technology-assisted space (TPACK). A multi-dimensional model is thus formed on the basis of this web of connections. The model has been given the name "The Pentagonal Model."

Pedagogic knowledge technology-assisted

ידע פדגוגי ותמיכה טכנולוגית

Disciplinary and pedagogic content knowledge

**School /Kinder-garten**

The field context of clinical practice

Figure 2. The Pentagonal Model

Key:

Areas with green background – Under the college's responsibility

Areas with blue background – Under the school's responsibility

*2.4.1 The weave of collaborative relations*

The proposed model is composed of five main figures who each constitute a segment of The Pentagonal Model for the clinical practicum. In fact, The Pentagonal Model creates an ecosystem that provides a broad overarching umbrella for various challenges arising from the Academia Class program in general, and from the desire to create an optimal practicum in the education field in particular.

The number of individuals in the model required the development of managerial strategies and organized work programs, and the preparation of documents, role files, and clear role definitions for each of the participants in this model. Achieving this optimal model required an approach that demonstrated sensitivity, flexibility, and transparency. This was not an easy path; it involved a high degree of complexity at the interfaces and between the different entities involved. In this interweaving of relationships, there were tensions and difficulties that required responses and the creation of balancing and mediating solutions. We now describe some of the complexities that arose from the use of The Pentagonal Model.

(a) *Interaction between the pedagogic instructor and the academic instructor.* Introducing an additional person from the college into the relationship between the student-teacher and the pedagogic instructor initially prompted debate and caused whispered remarks and suspicion, including questions such as: who is responsible for the student? Who will evaluate the student? To whom will the student turn with difficulties? Will disciplinary guidance be disrupted? etc.

(b) *Bureaucratic issues of follow-up and control.* As a result of the experiment, clear role definitions were composed, and the areas of responsibility were demarcated for each of the individuals. Thus, for example, the pedagogic instructors ceased to manage the follow-up after student-teachers' behavioral regularities during the practicum under the assumptions that this would be undertaken by the coacher-teacher and the coordinator. Consequently, gaps appeared, and it was decided to restore the traditional follow-up by the pedagogic instructor along with the coordinator.

(c) *The dilemma of affiliation: Who does this student-teacher belong to?* After incidents that were resolved by the instructor and clarified in retrospect with the pedagogic instructor and vice-versa, it was decided to stipulate that each of these individuals would be required to notify and consult with the other as a partner on every relevant issue.

(d) *Clashes arising from the PCK background and issues concerning the system as opposed to disciplinary considerations.* Tensions arose about the assignment of the student-teachers to the coacher-teachers. The choice of the optimal professional teacher was made by the pedagogic instructor. The school coordinator was asked to assign the student-teachers in a particular school and to use the existing reservoir of teachers in the school. Often the pedagogic instructor did not think the chosen teachers were suitable because of their work methods or because of the age group they taught.

Following these incidents, steps were taken to improve the situation: each pedagogic instructor composed guidelines for disciplinary practical experience, which helped to direct a better coacher-teacher selection process and improved implementation of the practicum. It was also decided that the pedagogic instructors would participate in the assignment meeting and would express their opinion concerning the selected teachers.

E. *Teamwork.* It took some time until the pedagogic instructors trusted the role of the academic instructor and understood the importance and necessity of working in close cooperation with the pedagogic instructors. Openness and flexibility played an important role in enabling the participants to work together and to help the student-teacher.

F. *Reinforcing the relationship between the academic instructor (from the college) and the school coordinator.* On one hand, the school coordinator is the representative of the student-teachers in the program, but they also have to oversee the entire process and to guide the optimal training for the student-teachers. On the other hand, the academic instructor in this model becomes part of the Academia Class staff in the school. They maintain contact with the different role-holders and are involved in school procedures. Both the coordinator and the pedagogic instructor need to integrate into the parallel system – to get to know it and to support it. The ability to see beyond traditional roles and beyond loyalty to their habitual workplace is very important, so that communication with be effective and the training will be appropriate.

*2.4.2 Definition of role holders in the pentagonal model*

2.4.2.1 The Academic Instructor – a new role in the training space

The Pedagogic Instructor is a professional who has undergone academic training in education and completed studies for a teaching certificate. They have experience in working in schools and experience in mentoring student-teachers. They are responsible for all the student-teachers, irrespective of their discipline, in several schools. The Academic Instructor has various functions:

(a) accessibility to the student-teachers and development of personal relationships: the academic instructor works in the school at least once every two weeks. They are significant figures who accompany the student-teachers throughout the practicum. They serve as guides, trainers, and mentors. The academic instructor does not replace or contradict the guidance of the pedagogic instructor, but accompanies and complements their work.

(b) assignments: the instructor prepares the assignments together with the school for the following practicum year, while maintaining contact with disciplinary pedagogic instructors and student-teachers. A successful assignment requires a delicate interplay of considerations, taking a variety of factors into account including compliance with the necessary regulations and requirements.

(c) follow-up of the student-teacher's integration with and appropriate activity in the practicum: the academic instructor, who frequently visits the school, monitors the student-teacher's regular attendance through reports from the coordinator (as noted below), including the student-teacher's performance, and provides immediate response to difficulties in the field. Any special difficulties or success worthy of mention are considered together with the disciplinary pedagogic instructor.

(d) reinforcement and empowerment of innovative pedagogy: the academic instructor meets with the student-teachers, observes some of their lessons, and guides them to vary their teaching methods in line with twenty-first century needs. This is in parallel with the pedagogic instructor's guidance.

(e) training the coacher-teachers: the academic instructor also serves as mentor for the training for the coacher-teachers in the program. The training course includes contents relating to co-teaching and to the development of mentoring and feedback skills, and involves analyzing situations from the school's daily life, in which they also meet the academic instructor.

(f) co-teaching: one of the goals of the Academia Class program is to increase the extent of the student-teacher's involvement in the practicum setting until they are working together with the coacher-teacher as a second teacher in the classroom. The academic instructor teaches the student-teachers the principles of co-teaching and guides this teaching in the classrooms.

(g) follow-up and supervision of the program's regularities: the academic instructor notes whether the regularities and regulations of the Academia Class program are being followed. They make sure that a weekly meeting takes place between the coacher-teacher and the student-teacher, that co-teaching is taking place, that lessons are taught according to the instructions of the pedagogic instructor, and that there is involvement in activities beyond the learning program.

2.4.2.2 The disciplinary pedagogic instructor

The pedagogic instructor in the Academia Class program is responsible for the guidance of professional teaching, in a regular weekly lesson. The instructor follows the student-teacher’s weekly progression as captured by follow-up pages, reports, blogs, timetables etc. Additionally, the instructor observes the student-teacher as they teach lessons in the school, and communicates with both the student-teacher and the coacher-teacher.

The pedagogic instructor participates in the preparation of the assignment of the student-teachers to the coacher-teachers. They set the criteria for the choice of a good professional teacher and participate in the choice of professional teachers in the school and outline the instructions for the specific practicum. Difficulties or special problems that arise in the practicum are addressed either by the pedagogic instructor or the academic instructor depending on their availability or the topic at hand. In any case, communication between the pedagogic and academic instructors is required.

2.4.2.3 The Coacher-Teacher

In the Academia Class program, the coacher-teacher is a skilled and experienced teacher teaching the disciplinary specialization of the student-teacher. The teacher accompanies the student from the start, when preparing for the school year, until the end. The coacher-teacher serves as the mentor for the student-teacher, providing a personal model of optimal teaching, helps the student to become familiar with long-term processes and educational programs in teaching, co-teaches with the student-teacher, helps them to prepare plan and conduct lessons, and then to analyze them and to learn from the experience. The coacher-teacher introduces the student-teacher to a range of educational situations in the classroom and enables them to experience the teacher's work activities outside lessons: pupil evaluations, meeting with parents, staff meetings, etc.

One hour each week is reserved for meetings between the coacher-teacher and student-teacher. This hour provides time and space for reflection, learning, and planning. The coacher-teacher maintains contact with the disciplinary pedagogic instructor, receiving specific instructions from the instructor for the disciplinary practicum, working with the instructor to summarize their discussions after observations, and informs the instructor about any issues concerning the student-teacher. The coacher-teacher undergoes 60 hours of training, after which they participate in a yearly refresher and simulation course (8 hours annually).

2.4.2.4 The school coordinator

The school coordinator is a teacher from the school whose function is to assimilate the Academia Class program into the school’s processes. Usually the role of the coordinator is given to a teacher who holds an administrative role in the school and has a systemic view of the school, in addition to experience and interpersonal skills. The coordinator is responsible for the entire group of student-teachers in the school and coordinates the assignment of the student-teachers to suitable coacher-teachers.

The coordinator is responsible for ensuring the student-teachers' involvement in activities beyond the learning program, ensuring that they meet with other school role-holders and that they get to know various angles of the teacher's work. The coordinator monitors the regular attendance of the student-teachers in the practicum. They are also responsible for the student-teachers' integration into the school’s staff, welcoming them, introducing them to the staff, and creating an atmosphere of acceptance and participation for them among the staff. Together with the academic instructor, the coordinator solves problems and handles incidents connected to the functioning of both student-teachers and coacher-teachers and conflicts that arise in the relations between them.

***2.5 Summary of changes in the new model: Moving from a triangular to a pentagonal model***

.

School/

kindergarten

The following table compares the triangular and pentagonal models within the Academia Class program with regard to the processes and regularities involved in the student-teachers' clinical practicum as part of their teacher-training processes.

Table 1. Comparison between the triangular and pentagonal models, by role and category

| Role | Category | Instruction triangle | Instruction pentagon |
| --- | --- | --- | --- |
| Academic instructor | Individual attention to and availability for the student-teacher | This function does not exist in the triangular model | The academic instructor visits the school at least once every two weeks. They are important figures who accompany the student-teachers, serving as guides, trainers, and instructors. The academic instructor does not replace or contradict instruction by the pedagogic instructor but is in line with and complements it. |
|  | Assignment for practicum | By the pedagogic instructor | The instructor prepares the assignments for the practicum year with the school in communication with the disciplinary pedagogic instructor and the student-teacher. The success of the assignment requires consultation with stakeholders and compliance with the stipulated regulations and requirements. |
|  | Follow-up of the student-teacher’s integration into and appropriate performance of the practicum | The pedagogic instructor visits the student-teacher two or three times per semester and maintains communication with the student-teacher as necessary | The academic instructor frequently visits the school, monitoring the student-teachers’ attendance and performance and provides immediate response to difficulties that arises, with supervision from the coordinator (as described below). Any noteworthy difficulties or successes are addressed in coordination with the disciplinary pedagogic instructor. |
|  | Reinforcement and empowerment of innovative pedagogy | Courses are provided by the college, and the disciplinary pedagogic instructors were partially involved in their guidance. | The academic instructor meets with the student-teacher, observes their lessons, and instructs them how to vary their teaching in line with 21st century needs, in conjunction with the guidance of the disciplinary pedagogic instructor. |
|  | Training the coacher-teachers | Provided by college lecturers with experience in teacher-training | Also serves as the mentor for the training of the coacher-teachers in the program. Their course includes content dealing with co-teaching, development of mentoring skills, and feedback, as well as how to handle common situations arising in schools that are likely to be encountered by the instructor. |
|  | Co-teaching in the Academia Class program | There was no supervision of performance and only partial guidance. | The academic instructor teaches the student-teachers the principles of co-teaching and guides this teaching in the class. |
|  | Follow-up and supervision of regularities of the program |  | Monitors the performance of regularities and regulations for the Academia Class program. Ensures that weekly meetings of the coacher-teacher and student-teacher take place, that student-teachers attempt co-teaching, and that they teach according to the instructions of the pedagogic instructor and are involved in other activities outside the learning program. |
| Pedagogic instructor | Didactic course | Teaching disciplinary pedagogy workshop accompanying the practicum – processing and analyzing issues from the field | Teaching disciplinary pedagogy workshop accompanying the practicum. Processing and analyzing issues from the field. |
|  | Assignment for practicum | Choosing schools and teachers and assigning student-teachers to their practicum | Outlining criteria for assignment and participation in determining assignments. Outlining instructions for specific practical experiences. |
|  | The work year | In line with the academic year | From the end of August, i.e. the beginning of the academic year: sending instructions to student-teachers and coacher-teachers concerning the work at the beginning of the year. |
|  | Guidance, monitoring, and supervision | Inspecting the monitoring forms, reports, blogs, schedules, etc. Observation of lessons in school and participation in triangular discussion: student-teacher, trainer-teacher, and disciplinary pedagogic instructor. | Inspecting the follow-up pages, reports, blogs, schedules etc. Observation of lessons in school and triangular discussion: student-teacher and coacher-teacher with disciplinary pedagogic instructor. |
|  | Attention to problems/difficulties of the student-teachers and coacher-teachers | Individual attention to every difficulty the student-teacher or trainer-teacher encounters in the practicum | Addressed both by the pedagogic instructor and the academic instructor, depending on their availability and the type of problem. Communication between the two instructors concerning the issue is required. |
| Student-teacher | Support and guidance | Supported by the pedagogic instructor and the trainer-teacher | Guided by the pedagogic instructor, the academic instructor from the college, and the coach-teacher from the school. |
|  | Beginning of the school year at school and of the academic year at the college | Experimenting with the Academia Class program from the end of August until the beginning of the academic year without the college's supervision | From September until the beginning of the academic year, the student-teacher is guided by the pedagogic instructor with instructions for the practicum and personally supervised by the academic instructor. |
| Trainer-teacher or coacher-teacher | Connection with the college | A connection exists with the disciplinary pedagogic instructor | There is a connection with the disciplinary pedagogic instructor and also with the academic instructor. |
|  | Training of trainer/coacher- teacher | By college lecturer with experience in teacher-training | By the academic instructor who knows the coacher-teachers and student-teachers from their work in the field |
| School coordinator | Role definition | Role involves general coordination and is not defined | Responsible for integrating student-teachers into the school’s staff, ensuring their welcome and creating an atmosphere of sharing and acceptance among the school staff.Responsible for involving the student in activities beyond the curriculum.Enabling student-teachers to meet those in the educational institution and to understand diverse aspects of the teacher's work.Monitoring the "basket of hours" outside the learning program as well as the regular presence of the student-teachers in the practicum. |
|  | Connection with the college | A connection with an Academia Class coordinator. | Tight connection with the academic instructor and mediated by the disciplinary pedagogic instructor. |

**3. Summary, conclusions, and insights**

Teacher-training relies on a complex fabric of processes anchored in the training fields. With the introduction of the Academia Class program in 2015, we identified the need to implement significant changes in the way in which colleges and universities train school and kindergarten teachers: changes to processes and regularities and rethinking of practical experience. This reflection engendered significant insights and processes that have helped to reshape teacher training.

The research project aimed to observe and reflect on the teacher-training process and sought to derive a theoretical model that could be applied in teacher-training processes for student-teachers' practicum experience. Based on our work, we built a new model that extends the traditional pedagogical training "Triangular Model" (student-teacher/ trainer-teacher-instructor/ pedagogic instructor) into a new "Pentagonal Model" that introduces a new approach to creating a better and more meaningful overarching training umbrella. The new model incorporates a new set of connections: Student-teacher/ Coacher-teacher/ Pedagogic Instructor/ School Coordinator/ Academic Instructor. This is a complex human system (ecosystem) that reinforces reciprocal relations between the holders of different roles and newly defined roles, bonding the various partners to the practical training processes in a more complete and holistic experience.

This article is a product of the formulation of the new model, a unique case study that describes an improvement to the clinical practicum experience. The description of the model's processes relies on experience gained in the successful implementation of the model over the past five years as part of the Academia Class teacher-training program. The model was applied from 2015 to the present day in dozens of schools throughout the northern district of the State of Israel and was experienced by over 500 student-teachers, 500 coacher-teachers, 40 pedagogical instructors, academic instructors, lecturers and various other academic role holders led by the Ohalo Academic College.

***3.1 Limitations of the research***

It is important to note that the research described above is a qualitative-description and interpretative study. At the next stage we intend to perform a quantitative study to investigate the process as described here in greater detail and to identify the factors for success and/or to suggest operative improvements for the described processes as they were implemented in the field.

***3.2 Operative recommendations***

Given this experience, we recommend implementation of this model for the teacher-training practicum experience. The model provides advantages over the previous model that enhance the teacher-training process and offers a better overarching umbrella of support involving professionals who engage in meaningful reciprocal relations for the benefit of the student-teacher.

**References**

Allen, J. M., Ambrosetti, A., & Turner, D. (2013). How school and university supervising staff perceive the pre-service teacher education practicum: A comparative study. *Australian Journal of Teacher Education, 38*(4), n4.

Appleton, K. (2003). How do beginning primary school teachers cope with science? Toward an understanding of science teaching practice. *Research in Science Education, 33*(1), 1-25.

Ariav, T. (2014). Practical experience in teacher-training: Computers a new track. *Mofet Institute Journal, 53,* 13-19. [Hebrew]

Ariav, T., & Smith, K. (2006). Creating collaborations between teacher-training institutions and the field: An international view with emphasis on the school model for professional development (PDS). In M. Zilberstein, M. Ben-Porat & N. Greenfeld (Eds.) *A new trend in teacher-training: Partnership between colleges and schools – the Israeli story.* (pp. 21-67). Tel Aviv: Mofet Institute. [Hebrew]

Arnon, R., & Presko, B. (2018). Academia Class program from the viewpoint of the trainer-teacher. Research presented at a day seminar entitled: *Program research "Academia Class".* Tel Aviv: Mofet Institute. [Hebrew]

Bacharach, N. L., Heck, T. W. & Dahlberg, K. (2010). *Changing the face of student teaching through co-teaching.* Teacher Development Faculty Publications. Retrieved from: <https://repository.stcloudstate.edu/ed_facpubs/1/>

Boreen, J., Johnson, M., Niday, D., & Potts, J. (2003). *Mentoring beginning teachers*. Portland, ME: Stenhouse

Brandburg, R., & Ryan, J. (2001). Too little too late: Students’ perceptions of changes to practicum placement in teaching. Paper presented at the *Australian Association for Research in International Education Research Conference*.

Bray, L., & Nettleton, P. (2006). Assessor or mentor? Role confusion in professional education. *Nurse Education Today, 27*, 848-855.

Brett, C. (2006). Assisting your preservice teacher to be successful during field experiences. *Strategies, 19*, 29-32.

Busher, H., Gündüz, M., Cakmak, M., & Lawson, T. (2015). Student teachers’ views of practicums (teacher-training placements) in Turkish and English contexts: A comparative study. *Compare: A Journal of Comparative and International Education, 45*(3), 445-466.

Carr, J., Herman, N., & Harris, D. (2005). *Creating dynamic schools through mentoring, coaching and collaboration.* Alexandra, VA: Association for Supervision and Curriculum Development

Clark, S., & Newberry, M. (2019). Are we building preservice teacher self-efficacy? A large-scale study examining teacher education experiences. *Asia-Pacific Journal of Teacher Education, 47*(1), 32-47

Dvir, N. (2005). *Pedagogic instructor: Identities, practices and knowledge in structuring the teaching profession.* A Ph.D. dissertation, Herbew University, Jerusalem. [Hebrew]

Emanuel, D. (2005). Perception of the pedagogic instructor's role from three viewpoints. In M. Zilberstein & R. Reichenberg (Eds.) *Restudying the learning program for specialization in pedagogic instruction.* (pp. 69-106).Work Paper 2, Tel Aviv: Mofet Institute. [Hebrew]

Eran, Z., & Zaretski, R. (2017). The "Academia Class" program promoting self-efficacy in teaching: A comparative study. *Miclol: The Jerusalem College Multidisciplinary Journal,* 121-129.[Hebrew]

Eyal, A. (2006). The contradicting logics of teacher-training. In D. Inbar (Ed.) *Towards an educational revolution?* (pp. 166-176). Jerusalem: Kibbutz Hameuhad and Van Leer Institute. [Hebrew]

Fairbanks, C. M., Freedman, D., & Kahn, C. (2000). The role of effective mentors in learning to teach. *Journal of Teacher Education, 51*(2), 102-112.

Feiman-Nemser, S. (2003). What new teachers need to learn. *Educational Leadership,* 25-30

Furlong J. (2011) The English masters in teaching and learning: A new arena for practitioner inquiry? In N. Mockler & J. Sachs (Eds.) Rethinking educational practice through reflexive inquiry. *Professional* *Learning and Development in Schools and Higher Education, 7.* Dordrech: Springer.

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, re‐imagining teacher education. *Teachers and Teaching: Theory and Practice, 15(2*), 273-289.‏

Guise, M., Habib M., Thiessen, K., & Robbins, A. (2017). Continuum of co-teaching implementation: Moving from traditional student teaching to co-teaching, *Teaching and Teacher Education, 66*, 370-382

Hamer-Bodnaro, D. (2014). Pedagogic instruction: The personal and professional – Can they go together? *Education and its Surroundings, 36,* 161-177. [Hebrew]

Hoy, A. W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education, 21*(4), 343-356.

Jacob, R., Hill, H., & Corey, D. (2017). The impact of a professional development program on teachers' mathematical knowledge for teaching, instruction, and student achievement*. Journal of Research on Educational Effectiveness, 10(2)*, 379-407.‏

Jaspers, W.M., Prins, F., Meijer, P.C. & Wubbels, T. (2018). Mentor teachers' practical reasoning about intervening during student teachers' lessons*. Teaching and Teacher Education, 75*, 327-342

Katz, I. (2011). Mentoring as a discourse of love. In A. Yogev & R. Zuzovski (Eds.) *Mentoring from an investigative viewpoint.* (pp. 48-57). The Kibbutzim College and Mofet Institute. [Hebrew]

Kolb, D. A. (1983). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall, Englewood Cliffs, New-Jersey.

Kriewaldt, J., & Turnidge, D. (2013). Conceptualising an approach to clinical reasoning in the education profession. *Australian Journal of Teacher Education, 38(6),* 7

Lahav, I. (2010). First and foremost, hands on. On practical experience in teacher-training. *Massa, Mofet Institute.* [Hebrew] Retrieved from:

[http://portal.macam.ac.il/ArticlePage.aspx?id=2882](http://portal.macam.ac.il/ArticlePage.aspx?id=2882  )

Lai, E. (2005). Mentoring for in-service teachers in a distance education programme: Views of mentors, mentees and university teachers. Paper Presented at the *Australian Association for Research in Educational Education Research Conference.* Parramatta.

Latham, N. I., & Vogt, W. P. (2007). Do professional development schools reduce teacher attrition? Evidence from a longitudinal study of 1,000 graduates. *Journal of Teacher Education, 58(2*), 153-167.

Le Maistre, C., Boudreau, S., & Pare, A. (2006). Mentor or evaluator? Assisting and assessing newcomers to the professions. *The Journal of Workplace Learning, 18,* 344-354.

Loughran, J. (2014). Professionally developing as a teacher educator. *Journal of teacher education, 65(4),* 271-283.‏

Macdusie, A. (2018). From academia to the classroom: Testing the training model and patterns of assimilation in teaching in three educational sectors. Research presented at a day seminar entitled *Research on the Academia Class program*. Tel Aviv: Mofet Institute. [Hebrew]

Maskit, D., & Mevurach, Z. (2013). It can also be done otherwise: Teacher-training according to a collaborative-collegial PDS model. *Dafim, 56,* 15-34. [Hebrew]

McCormack, C., & West, D. (2006). Facilitated group mentoring develops key career competencies for university women: A case study. *Mentoring and Tutoring, 14*, 279-351.

Milat, S. (2005). The pedagogic instructor – A central figure in forming the partnership between the college and the school. In M. Zilberstein & R. Reichenberg (Eds.) *Restudying the learning program for specialization in pedagogic instruction,* Work Paper 2, Tel Aviv: Mofet Institute. [Hebrew]

Milat, S. (1999). What is the difference between "trainer-teacher" and pedagogic instructor? The process of becoming a pedagogic instructor – Case study. *Maof veMaase, 5*, 1-23. [Hebrew]

Ministry of Education Thinktank (2014). ”*Academia Class" – Partnership to reinforce teaching: Concluding policy paper of the thinktank.* [Hebrew] Retrieved from:

<http://academia-kita.macam.ac.il/Documents/%D7%A2%D7%99%D7%A7%D7%A8%D7%99-%D7%9E%D7%A1%D7%9E%D7%9A-%D7%9E%D7%93%D7%99%D7%A0%D7%99%D7%95%D7%AA-%D7%90%D7%97%D7%A8%D7%99-%D7%AA%D7%99%D7%A7%D7%95%D7%A0%D7%99%D7%9D.pdf>

Murrell Jr, P. C. (2001). *The community teacher: A new framework for effective urban teaching.* Teachers College Press, Columbia University, 1234 Amsterdam Avenue, New York, NY 10027.‏

Naifeld, E., & Nissim, Y. (2019). Co-teaching in the" Academia Class": Evaluation of advantages and frequency of practices. *International Education Studies, 12(5),* 86-98.‏

Rajuan, M., Beijaard, D., & Verloop, N. (2008). Student teachers’ perceptions of their mentors as internal triggers for learning. *Teaching Education, 19*, 279-292.

Ran, A. (2017). *The role of the pedagogic instructor in Israel and the world: Selected models from Ireland, Holland, Israel, Singapore and Sweden*. L. Yosefsburg Ben-Yehoshua (Ed.). Tel Aviv: Mofet Institute. [Hebrew]

Ran, A. (2018). *Field grounded teacher-training program: Teacher programs residency. Survey of selected models.* L. Yosefsburg Ben-Yehoshua (Ed.). Tel Aviv: Mofet Institute. [Hebrew]

Ratner, D., & Shmuel, H. (2017). *The Academia Class program: Evaluation research findings in 2016.* National Measurement & Evaluation Authority, Jerusalem: Ministry of Education. [Hebrew]

Ridley, D. S., Hurwitz, S., Hackett, M. R. D., & Miller, K. K. (2005). Comparing PDS and campus-based preservice teacher preparation. Is PDS-based preparation really better? *Journal of Teacher Education, 56,* 46–56

~~Ronen, A. (2013). A story of partnership – An umbrella and substance: Promoting science and technology teaching in the setting of College-School Partnership.~~ *~~Dafim, 56,~~* ~~88-119. [Hebrew]~~ לא מופיע בטקסט

Ronen, A., Daniel-Saad, A., & Holtzblatt, R. (2018). *Trial of the Academia Class model in comparison with the traditional model as evaluated by students from Jewish society and from Arab society.* Research report recommended by the Committee for Inter-collegial Research, Mofet Institute. [Hebrew]

*Ronfeldt, M., & Reining, M. (2012). More or better student teaching?*Teaching and Teacher Education*, 28, 8, 1091-1106.*

Sabar Ben-Yehoshua, N. (2016). *Traditions and genres in qualitative research.* Tel-Aviv: Mofet Institute. [Hebrew]

Shkedi, A. (2003). *Words that are meant to touch: Qualitative research – theory and implementation.* Tel Aviv: Ramot and University of Tel Aviv. [Hebrew]

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*, 1-22.

Soslau, E. (2012). Opportunities to develop adaptive teaching expertise during supervisory conference. *Teaching and Teacher Education, 28*, 768-779.

Sundli, L. (2007). Mentoring: A new mantra for education? *Teaching and Teacher Education, 23*, 201-214.

Taylor, E. W., & Cranton, P. (2012). *The handbook of transformative learning: Theory, research, and practice*. John Wiley & Sons.

Wæge, K., & Haugaløkken, O. K. (2013). Based and hands-on practical teacher education: An attempt to combine the two. *Journal of Education for Teaching, 39(2)*, 235-249.‏

Walkington, J. (2005). Becoming a teacher: Encouraging development of teacher identity through reflective practice. *Asia-Pacific Journal of Teacher Education, 33*, 53-64

Yogev, A., & Zuzovski, R. (2011). *Mentoring from an investigative viewpoint.* The Kibbutzim College and Mofet Institute. [Hebrew]

Zidan, R., & Aliyan, S. (2013). Satisfaction of practicing teaching according to the PDS model of practical work of students and of other factors involved. *Dafim, 56,* 29-261. [Hebrew]

Zilberstein, M., Guz, O., & Pnievski, P. (2005). *The instruction triangle: Pedagogic instructor- student-trainer-teacher.* Tel Aviv: Mofet Institute. [Hebrew]

Ziv, S., Zilberstein, M., & Tamir, P. (1992). The gap between pedagogic instructors and trainer-teachers in evaluation of students' teaching. *Studies in Education: Journal for Research in Education, 57,* 179-192. [Hebrew]

Zuzovsky, R. (1991). Professional development of the teacher and its implementation in teacher-training. *Teaching Methods, Journal of Teacher-training and Courses,* 59-84. Jerusalem: Ministry of Education and Culture. [Hebrew]

Zuzovsky, R., & Donitsa-Schmidt, S. (2017). Comparing the effectiveness of two models of initial teacher education programmes in Israel. *European Journal of Teacher Education, 40(3*), 413-431.

‏

‏

‏

‏

‏

‏

‏

1. School regularities: the repetitive activities and arrangements frequently employed in a school’s culture. [↑](#footnote-ref-1)