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**The Impact of Learning Styles and Preceptorship Relations  
on Students' Perinatal Nursing Self-Efficacy within Midwifery  
Education**

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Long Abstract

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## ABSTRACT

Midwifery education is a social mechanism to socialize Registered Nurses into the organized profession of Midwifery. However, Midwifery students who are highly self-assured are best suited to become competent Midwives. One of the primary factors which contribute to successful development of self-efficacy in Midwifery Education is the clinical learning environment, particularly the Preceptor-student academic relationship. The **aims** of the current research were twofold: (1) to use and corroborate the "VARK Learning Styles" instrument to the "discipline of Midwifery Education" in nursing – "ME-VARK" and (2) to examine whether the Preceptee Learning Style and Perception of the clinical Preceptor as a Role Model are associated with their Perinatal Nursing Self-Efficacy.

**Methodology.** The research **design** utilized mixed methods (Creswell & Poth, 2018; Merriam, 1998) including two successive phases: a qualitative phase (one focus group, documental analysis, ethnographic interviews and a six round Delphi Procedure), and a quantitative phase (a questionnaire). The **questionnaire** included three major sections: The new ME-VARK (submitted to Preceptors and Preceptees) and PNSE (Perinatal Self-efficacy, Murphy & Kraft, 1993) and CTCI (Clinical Teacher Characteristics Instrument, Brown, 1981; Vaughn & Baker, 2008).

**Participants.** Three expert midwives Preceptors and ten expert judges participated in the qualitative phase, and in the quantitative phase 49 Midwifery Preceptors (98% response rate) and 98 Preceptees (82% response rate) responded to the questionnaires.

The central **findings** indicated that:

Question 1a – the most common Learning Style(LS) among Preceptors and Preceptees in the Midwifery practice is the Kinesthetic LS, in addition to one or more LS's (Verbal, Aural-Auditory, or Read-Write).

Question 1b – the Preceptors were highly-rated as Role Models during birth by their Preceptees, but no links were found between matched LSs of Preceptors-Preceptees and the Preceptee Perception of the Clinical Preceptor as a Role Model.

Question 2c – the Preceptor professional competence and the relationship between the Preceptor with her Preceptees were found to be related to the Preceptee Perinatal Nursing Self-Efficacy during birth. In addition, the distribution of the LSs of Preceptors and Preceptees was compared with previous studies that used VARK.

**The main conclusion** is that the preceptee perception of the preceptor as a *professional* role model *during birth* has the strongest link with socialization of the Preceptees into Midwifery, by developing competency and strong PNSE. These relations are carried out mainly through kinesthetic learning (but beyond differences in the other learning style preferences).

Keywords: social construction, PNSE (Perinatal Nursing Self-Efficacy), midwifery education, preceptorship, role model, learning styles, ME-VARK, adaptation and validation of questionnaires, Delphi method

## INTRODUCTION

Midwifery education is the social mechanism by which Preceptors (actors) socialize Registered Nurse (RN's) (preceptees, actors) into the organized profession of Midwifery (structure). Perinatal Nursing Self-Efficacy is an important factor in the socialization process of students, who are registered nurses, into the Midwifery profession. Preceptorship Relations in general, and Preceptee perception of the Preceptor as an "ideal" Role Model especially, may have on the achieving an impact of high Perinatal Nursing Self-Efficacy. This socialization process leads to development of a symbolized "ideal midwife" (Nieuwenhuijze et al., 2020). The World Health Organization (WHO, 2018) estimates that the world will need approximately another nine million nurses by the year 2030. Ten years ahead is the right time for planning and training how to develop a professional generation of midwives in the worldwide nursing workforce. In this context, the year of 2020 has been announced as the Year of the Nurse and Midwife (ACM, 2020). This year, 2020, was chosen because it is the 200<sup>th</sup> anniversary of the birth of Florence Nightingale, who is still relevant today. Midwifery Education began in hospitals or community clinics, based on the apprenticeship learning model, and over the years, transformed into higher education institutes, providing a Master's degree in some countries (such as the USA) or additional certification as in Israel (Dossey, 2005; Yigzaw et al., 2015).

The broad conceptual framework of the current research is anchored in the sociological context of Midwifery as a profession and Preceptorship in the context of Midwifery Education. Social construction and education are important to explore the world through phenomenological research and individual observations (Gergen & Gergen, 2008; Gergen & Wortham, 2001). The sociological and psychological environment of Midwifery and its professional knowledge exists in the habitus of the delivery room, which consists of a practice setting including agents, nurses, midwives, and the delivery room team members (Phillips & Hayes, 2006; Sweetman, 2003). Understanding social construction, involves both sociological macro and micro levels. The macro level refers to recognizing symbols and social structures (midwifery as a profession), while the micro level relates to actors – agents, that have a central role in the Midwifery profession and education. I.e., Preceptors (*registered nurses* who are licensed midwives qualified to function as clinical instructors) and Preceptees (*registered nurses* who are Midwifery Students, who are being qualified as professional licensed midwives), in the delivery room, which is the professional habitus (Bourdieu, 1977, 1990, 2012; Hobbs, 2012).

In this context, Preceptorship is the process in which teaching and learning interact and constitutes an exchange of professional capital between Preceptors and Preceptees. This leads to the socialization of the students (Preceptees) into the midwifery profession. The recursive interactions between agency and structure lead to development of professional Midwifery on the one hand, and PNSE on the other (Giddens, 1984; Hobbs, 2012).

Midwifery education aims to successfully develop confident and competent midwives with strong Perinatal self-efficacy (PNSE) in the Clinical Learning Environment (CLE), regarding the Preceptor-Preceptee academic relationship (according to the CTCTI – the Clinical Teacher Characteristics Instrument). However, "secondary socialization" (Berger & Luckman, 1966, p. 158) is performed within Midwifery Education in a process of exchanged capital via the communicative working relationship in Preceptorship, conveying culture, values, norms and roles. So far, the relationship between CTCTI and PNSE has not been examined in the context of Midwifery Education. The Perinatal period and giving birth are one of the most influential social and intimate events in a woman's life, that occur in the hospital environment. In this unique situation the midwife's role is to empower the woman, and help her to decide autonomously what kind of birthing experience she wishes to have. The delivery room woman's birth territory,

the habitus, is the arena in which the learning and professionalizing processes take place (Fahy et al., 2011; Mattison et al., 2020).

In the current research, within this context, and in light of social construction theory, the assumption is that matched Learning Styles of the Preceptee and the Preceptor may facilitate the Preceptorship relationship and likewise develop the Preceptee Perinatal self-efficacy. Because the Preceptors function as Role Models, they are able to promote their Preceptee professional attitudes, knowledge and skills. This learning and professionalism process is achieved by closing the gap between theory and clinical practice, as well as by enhancing self-confidence and self efficacy and the possibility of delivering professional quality care (Nieuwenhuijze et al., 2020). Nevertheless, previous research has not focused specifically on clinical midwives', learning styles, and development of professional competence (Bäck et al., 2017), and little research has studied the perceptions of clinical teaching and student learning among nurse Preceptors and Preceptees in general (Lee-Hsieh et al., 2016), and of Midwifery Preceptors in particular. Therefore adaptation and Validation of the VARK instrument (Fleming, 2001, 2008, 2012) for Midwifery Education in nursing – ME-VARK was constructed for the current research. In the discipline of Midwifery, the question is which items are best to describe and evaluate knowledge, capabilities and "Learning Styles in Midwifery Education"? In addition, the new tool ("ME-VARK" – Learning styles in "Midwifery education"), should be checked in order to establish its psychometric attributes. Furthermore, use of this new tool in the habitus of the delivery room as the clinical learning setting, raises the following questions: What is the distribution of the Learning Styles of Preceptors and Preceptees according to the adapted ME-VARK? Do their Learning Styles match? If so, to what extent? Finally, are the Learning Styles of Preceptors and Preceptees in the current study in line with previous studies that used the original VARK?

### **Gap in Knowledge**

So far, previous research has not focused on the relationships among Learning Styles in Midwifery Education, Preceptorship relations (CTCI) and Midwifery Student Perinatal Nursing Self-Efficacy (PNSE). Thus, based on the literature, a new theoretical model was constructed, to generate a social framework, leading Midwifery Students to professional socialization into the Midwifery Profession (see Figure 2). Therefore, the question at this stage was: What are the

links between matched Learning Styles of Preceptors and Preceptees (as measured by ME-VARK) and their Perinatal Nursing Self-Efficacy (PNSE) and perceptions of their Clinical Preceptors as a role model? In summary, the research aims and questions intend to fill the gap in knowledge regarding Midwifery Education as a socially structured profession that is influenced by social, economical, and cultural processes in the habitus of delivery room.

## **Research Aims**

### **The research aims are:**

- (1) To adapt and validate the VARK Learning Styles instrument for the "discipline of Midwifery Education in nursing – ME-VARK": Qualitative phase – construction and validation of the ME-VARK; Quantitative phase – ME-VARK pilot among pairs of Preceptors and Preceptees;
- (2) To examine: - Whether the Preceptee Learning Style and Perception of the clinical Preceptor as a Role Model are associated with their Perinatal Nursing Self-Efficacy; - Examine which background variables are related to CTCI and PNSE.

## **Research Questions**

### **(1) Research question related to aim (1) –**

#### **Adaptation and Validation of the VARK instrument (Fleming, 2001, 2008) to Midwifery Education in nursing – ME-VARK**

- (1a) Which items are suitable to describe and measure knowledge, competencies and Learning Styles in Midwifery Education (qualitative phase)?
- (1b) What are the psychometric attributes of the adapted ME-VARK: Face, content and construct validity (qualitative phase)?
- (1c) What is the distribution of the Learning Styles of Preceptors and Preceptees according to the adapted ME-VARK, in the Midwifery practice setting environment – the delivery room –(the habitus)? (quantitative phase)



(1d) To what extent do the Learning Styles of Preceptors and Preceptees match?  
(quantitative phase)

(1e) To what extent is the distribution of the Learning Styles of Preceptors and Preceptees according to the adapted ME-VARK in line with previous studies that used VARK?

**(2) Research question related to aim (2) – The relationships between Preceptees' Learning Styles and their Perception of the clinical Preceptor as a Role Model (CTCI) and Perinatal Nursing Self-Efficacy (PNSE)**

(2a) What are the links between matched Learning Styles of Preceptors and Preceptees (as measured by ME-VARK) and their Perinatal Nursing Self-Efficacy (PNSE)?

(2b) What are the links between matched Learning Styles of Preceptors and Preceptees (as measured by ME-VARK) and their Preceptees' Perception of the Clinical Preceptor as a Role Model (CTCI)?

(2c) Is there a correlation between Preceptees' Perception of the Clinical Preceptor as a Role Model (CTCI) and their Perinatal Nursing Self-Efficacy (PNSE)? to what extent?

## **CHAPTER 1. LITERATURE REVIEW**

### **1.1 The Sociological Context of Midwifery and Preceptorship**

This research about midwifery is based upon the work of Bourdieu and his notion of habitat which he understands in terms of people's views, ideas and activities that design their life history and experiences (Bourdieu, 1977, 1990). Scholars such as Hobbs (2012) have applied Bourdieu's theoretical ideas to the field of midwifery. She "adapted a model of cultural re-creation" from Fuchs (2003). His presentation of Bourdieu's theories is primarily concerned with demonstrating the flexibility and complexity of the French theoretician.

According to Bourdieu et al. (1986), every field has its specific logic and can be used in different situations in accordance with the following formula:  $\text{Habitus} \times \text{Capital} + \text{Field} = \text{Practice}$ . This means that individual situations that are related to specific social and symbolic institutions make up the settings of everyday life (Bourdieu, 1990). The delivery environment

demonstrates a setting that can be explained as a small group or community with its own rules, norms and hierarchy that are based on a specific discipline of knowledge. The women centred profession of Midwifery is socially constructed, has changed over the years, occurs in diverse cultures – and appears in various nursing practices. The core competencies and values of the Midwifery profession aim to ensure safe delivery environment, and to reduce mortality (of both mother and the child). These behaviours and performances are abstracted into a "role definition", which represents the society's expectations from the role holder (Cox, 1989; Giddens, 1984). Therefore, the "Role Model" demonstrates the appropriate role functioning from which students can learn. A licensed professional Midwife as a sociological agent, is expected to be committed to professional development as a socially constructed practice. In this context, the role of the Preceptor in midwifery education is essential for successful socialization of Preceptees in making the transition from novice to a competent licensed midwife, similar to the transition that the workforce nurses undergo (Quek & Shorey, 2018).

### **1.1.1 Social Construction Theory**

Social constructionism represents an special form of social construction and educational training (Berger & Luckmann, 1966). The Social Construction theory is based on the central ideas that it's important to be able to think how to explore the world through an individual's observations. Construction is a social procedure that should be examined through phenomenological research and has several senses (Dukes, 1984; Gergen & Gergen, 2008; Gergen & Wortham, 2001). One sense reflects perspective of reality as is, and the other perspective reflects the changing form of reality. The individuals' construction of reality is developed through accepted social understanding and life experience.

According to the sociological macro level (Dragonas et al., 2015; Gergen & Gergen, 2008; Gergen & Wortham, 2001), the main point in understanding social construction theory, is to recognize symbols, in order to create new realities in the future, i.e., promoting professionalism of midwifery as a profession – a social structure. However, from a sociological perspective on childbirth, this is a unique feminine experience that can be comprehended by the profound power of the society that affects pregnancy and childbirth processes (Fahy et al., 2011). On the sociological micro level, there are two primary agents that play a role in the arena of midwifery in general, and in midwifery education in particular. *Preceptors – registered nurses* who are

licensed midwives qualified to function as clinical instructors; *Preceptees* – registered nurses who are Midwifery Students, who are being qualified as professional licensed midwives. This "Preceptorship" process takes place in the environment of the "delivery room" and comprises the habitus of the midwifery program for nursing schools.

According to the constructionism perspective, the capital of knowledge is constructed as precise and correct representation of the professional world (Gergen & Gergen, 2008; Gergen & Wortham, 2001). By learning, the knowledge is "built up" through clear observation, discussion, and exposure to the reality of the delivery room – habitus. This conceptualization is well represented in the following figure (Hobbs, 2012). This model helps to describe the preceptorship relations in the habitus of the delivery room, as the ongoing interactions between Preceptors and Preceptees (the agents), both the objectivity (labour competencies in Midwifery) and subjectivity – the Preceptees perceptions of their preceptor as a professional Role Model. This cycle leads to strong PNSE on the one hand – and higher professionalism of Midwifery on the other hand (the structure).

The search of the locus of information (as the exchanged capital in midwifery education) in the communication process between the individual and society (culture, values, norms and roles) provides a broad perspective in sociology, including Nursing Education, i.e., socialization of an individual (personal identity and professional self-efficacy) into the midwifery profession as a sociological role (social structure, Berger & Luckman, 1966). In the context of the current research, the preceptor functions as a socialization agent, by presenting emotional, mental, and social support (Hautala et al., 2007). From a sociological perspective, the connections between the midwife Preceptor and the student Preceptee promote the learner's professionalism, i.e., "self-efficacy in midwifery". It also contributes to the formation of student's social consciousness as a midwife practitioner (Crossley, 2013; Phillips 2002, 2016; Phillips et al., 2002).

The social structure may lead agents, i.e., midwifery students and Preceptors, to shape their professional habitus, through an "exchange of capital", in this case, knowledge, between them may help them gain a feeling of confidence and significance (Hobbs, 2012). This relationship demonstrates the interplay ("the everyday experiences of midwives during their first year of practice as they interact with their social environment", *ibid.*, p. 391) between social

structures (qualified status and role) and individual agency (Bourdieu, 1977; Meyer, 2002; Zwedberg et al., 2020).

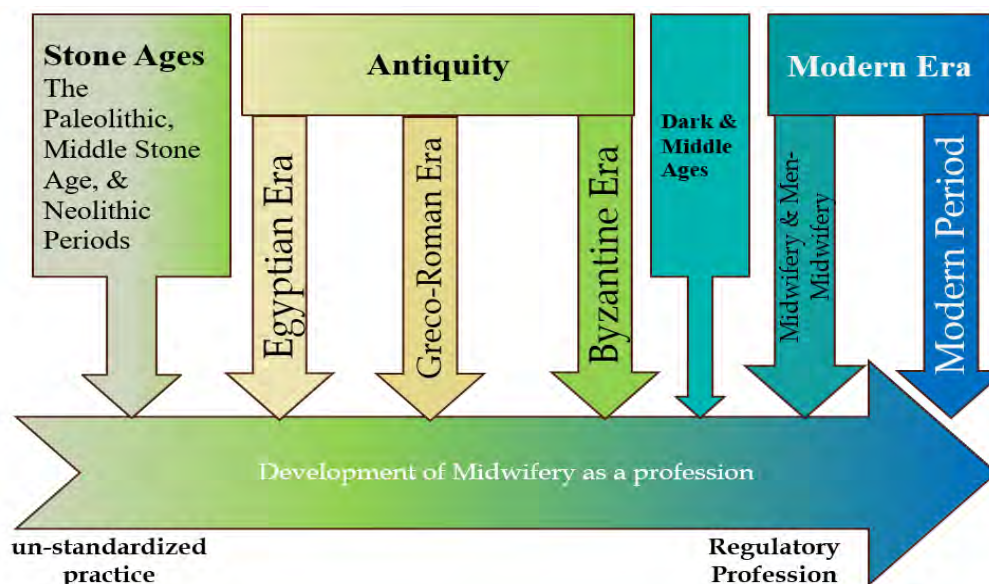
### **1.1.2 Role theory**

The term Role symbolizes a range of characteristics associated with a particular social position, as distinct from the personal characteristics of the person that position (Crossley, 2013; Phillips et al., 2002). In sociology, role theory concerns one of the most important aspects of social life, and distinctive behavior forms or roles (Biddle, 1979, 1986). A "Role Model" demonstrates good role performance from which other actors can learn (Kemper, 1968). The phrase "Role Model" was initiated by Robert, K. Merton (1957) the American sociologist who wrote about socialization of medical students during their training . In other words, a Role Model can be defined as "a person whose behavior, example, or success is, or can be, emulated by others" ("Role Model", 2013). Kemper (1968) defined a "Role Model" as "Usually an individual rather than a group, and possibly a fictional character or historical figure, the role model demonstrates for the individual how something is done in the technical sense". Such definitions are like Merton's (1957) as well as Bandura's (1977) conceptualization in his theory of social learning that is based on the principle of Modeling and providing practical examples in accordance with acquisition of skills, in a formal clinical environment (Tagawa, 2016), and embracing qualities of an "ideal midwife" (Nieuwenhuijze et al., 2020). In sum, the "Role Model" should exhibit the expected behaviors in order to expose the learners to important conditions, to guide, to educate, and to be compassionate to their needs; the aim of the Role Model is to facilitate growth and improvement, both personally and professionally (Perry, 2009). Lockwood and Kunda (1997, p. 36) noted that "Role Models are individuals who provide an example of the kind of success that one may achieve and provide a template of behaviors that are needed". This definition includes an aspect of the "Role Model" as a behavioral model, such as a qualified Preceptor (Fluit et al., 2011) modelling in the delivery room (Bandura, 1977), and developing the professional identity (Zhang, 2014) of their Preceptees. In the context of the present research, a "Role Model" serves as a catalyst that transforms, instructs, guides, and facilitates the professional development of others (Perry, 2009).

### **1.1.3 Midwifery as a profession**

Midwifery is recognized as one of the world's oldest professions for women from the dawn of time – until today (Borrelli, 2013, 2014), and all cultures have some system of Midwifery (Cassidy, 2006). Midwifery has helped to decrease lowering death of mothers and infants. Midwives are the occupational group responsible for normal pregnancy, labour, childbirth, and postnatal care (McClure & Black, 2013). Florence Nightingale, in 1871, highlighted the role of expert midwife as a process of systematic learning and unique skills that are being acquired to become a midwife. She was concerned in developing norms of the midwife role and allied competencies in 1871: She defined a Midwife as a woman who got her expertise through methodological learning, while exposed to various and diverse clinical situations to gain experience. She envisioned such a professional as knowledgeable, sophisticated, competent and skillful, an obstetric expert, who would not ordinarily have to consult with doctors (Towler & Bramall, 1986).

The professional midwife's priority is to promote safe care for motherhood through all the phases of pregnancy and motherhood. Halldorsdottir and Karlsdottir (2011) used the concept of "professional wisdom" to describe her professional ability to perform her clinical expertise, through good communication skills and relationships with patient and her significant others. A professional midwife is committed to continuing professional development. Midwifery "is a socially constructed practice that has transitioned through historical phases". "It is recognized as the first holistic profession in the world", defined as an "art of" support and caring to the woman in labour and her child (Bharj et al., 2016; Lay, 2000; Leap & Hunter, 1993; Marland & Rafferty, 1997). As a profession, "midwifery" has evolved as socially constructed professional practice due to "macro and micro socio-cultural factors", which have played significant roles during these transitions. The sociology of professions refers to the unequal relationships among various occupational sectors regarding the division of labour and the resulting struggle to achieve legal licensure and mandate, which provide the role-holder with socially recognized power to practice the profession (cf. Abbot, 1988). A brief review of major historical periods that shaped the professional role of a midwife through the four main historical periods of the transitions of midwifery from an unstandardized practice to a well-established and recognized profession are illustrated in Figure 1, based on the historical analysis of Barnawi et al. (2013) regarding midwifery and midwives:



*Figure 1.* Four major historical periods of evolvement of midwifery as a well-established and recognized profession (based on the historical analysis of Barnawi et al., 2013)

The current definition of Midwifery. The Midwifery model aims to give affordable personalized care and promise women support, respect, safety, and confidence (Stokes, 2019). In summary, Midwifery, as a social construction, a profession with a critical role during labor, has a crucial aspect for health promotion. Midwifery has been recognized worldwide as a profession that reduces infant mortality (Bharj et al., 2016; Feldhusen, 2000; ICM, 2018; Phillips & Hayes, 2006; Vladescu et al., 2016).

#### 1.1.4 Midwifery education via Preceptorship

**From sociological aspects** of the learning environment, the transformational model for Midwifery Education relates to the Phenomenological and Ontological range of practice which is constituted by oral or written Communication, and the relationship between the midwife Preceptee and Preceptor for achieving competencies in the clinical field, i.e., the delivery room. These interactions exist in the intersection between Structure (the role as defined by the organization) and Agency (the individual). **Structure** – evolves from the policy of the organization and is embedded into the clinical experience, determined by professional demands, and required competencies. **Agency** (action) – relates to the individual's clinical experience. In the context of Midwifery education, the training of midwives can only take place through human

agency, within the habitus of the professional communities, i.e., the delivery room, in addition to maternity units and community clinics. The Preceptor is the link between Structure and Agency (action) with the habitus of the delivery room as the learning environment. In the context of the current research, a clinical Preceptor is defined as a midwife who guides and supports students in their clinical settings. Preceptors are usually an integral part of teaching and training in various medical care professions. This process of teaching and learning is based on personal connection between the Preceptor and the Preceptee (Crossley, 2013; McClure & Black, 2013).

**Preceptorship** is defined as pairing an experienced and skilled nurse preceptor to a newer, less experienced nurse preceptee (Happell, 2009). The art of Preceptorship has been defined by three characteristics: Being together – the Preceptor and a Preceptee are together in the clinical field near the patient, and learning in "real time" how to focus on the patient's needs and safety; Doing together – practice and perform relevant skills; Getting along together – balancing between the professional relationship of the Preceptor-Preceptee and patient centered care (Nielsen et al., 2017). The Nursing and Midwifery Council (NMC, 2006) defines Preceptorship as providing structural support and guidance to enable new registrants to make the transition from novice to competent midwife, (Benner, 2001; Benner et al., 2009). The support includes professional *Role Modeling* and socialization into the role of a midwife (Power & Ewing, 2016). Regarding the role of the Preceptor, however, there should be a distinction between Role Modeling and being a Role Model. (Phillips, 2016). Thus, it requires to choose qualified and professional Preceptors (Gates & Cutts, 1995; Weidner & Henning, 2009). National and international organizations agree that the educational goal for midwives is to achieve competence (WHO – The World Health Organization, 2000, 2001) although the educational process for midwives differs worldwide. The global strategic directions for strengthening nursing and midwifery 2016-2020 (WHO, 2018) outlined four critical objectives in order to develop nursing and midwifery. Two of them are relevant to the present research: "Ensuring an educated, competent and motivated nursing and midwifery workforce within effective and responsive health systems at all levels and in different settings", "Working together to maximize the capacities and potentials of nurses and midwives through intra and interprofessional collaborative partnerships, education and continuing professional development", i.e., a Preceptorship model (Morrow, 2011). The effectiveness of the Preceptor depends upon clear role definition, describing its expectations (in the current research – **CTCI**) and responsibilities,

promising adequate professional knowledge, teaching theories and methods, and giving and receiving feedback for evaluation (Lazarus, 2016; Mantzorou, 2004). Students and nurses with high **PNSE** become better confident and competent midwives. One of the primary factors which contribute to successful development of self-efficacy in training Midwives is the connection between Preceptor and Preceptee. **Matched Preceptee – Preceptor "Learning Styles"** may promote their relationship on one hand, and enhance Preceptee self-efficacy on the other. Nevertheless, this theory has yet to be investigated. In summary, the inter-personal, professional and personal qualities of the Preceptor include three main qualities: *Relationship with the Preceptee; Professional Competence; Personal attributes*.

The focus of the Preceptor is on the relevant competencies a student needs to achieve "fit to practice" status. The reason for governmental support relates to the Preceptor's role as a social agent that enables the student to make the transition to professional Midwifery, and to promote the socialization to the profession as a reaction to the reality shock of working in a delivery room (Lalonde & McGillis Hall, 2016).

Preceptorship in nursing and midwifery education has several **shared** characteristics with other teaching roles in Medical Education related to the Features of the Role Modelling: Nature of trust and Psychological support. The main **differences** between other roles and Preceptorship are: Level of commitment involved; Type of commitment; Task and interpersonal balance ; Key to successful interaction/relationship; Duration of the relationship; Transactional nature of relationship; Control. According to the criteria suggested by Krishna et al. (2019, p. 9), Preceptorship in Nursing education includes teaching and tutoring, coaching, and supervision the following characteristics, related to the Features of the Role Modelling: Planned – Preceptorship programs usually have a common syllabus. Their aim is to plan the training period according to the curriculum aims, the duration of time in the clinical setting and relevant expected outcomes. Midwife Preceptors are often appointed by the ward coordinator of the institution; Structure – Preceptorship is a structured phase in the transition process of the Preceptee to become a qualified and competent midwife with high PNSE (prinetal self efficacy); Positive/Negative Exemplar – Preceptors function as both positive and negative exemplars of professional behaviour and conduct, performing as “walk the talk”. On the path to proficiency, the Preceptee learns both from successes and from failures that the Preceptor demonstrates;



Assessment – Preceptorship includes consistent use of various methods of formative assessment (observation, direct questioning, briefing etc.); Feedback – Preceptorship is based on effective formative feedback, which is not judgmental and strengthens good performance and points to improvement needs which fit to practice; Context sensitive – Preceptorship takes place in the delivery room setting, which is the habitus of the midwifery profession. Therefore, at the center of the delivery process is the woman in labour and the Preceptorship process is affected by each case (socio-culture characteristics, the woman's will, and the unique needs of the delivery); Goal specific – Both the Preceptor and the Preceptee work together in the delivery room in order to perform a safe delivery (for mother and baby) on the one hand, and in addition, they strive to gain professional competencies and qualification; Bilateral/dynamic interaction – the Preceptorship process is dynamic because it is strongly affected by the setting of the delivery room and the uniqueness of each labour. In addition, it is affected by the qualities of the interpersonal and professional relationship between the Preceptor and the Preceptee; Integrated – Preceptorship encompasses positive and effective combinations of social and professional behaviours, aimed at promoting the students' ability to integrate theory, decision making and practice – applying new competencies. Preceptors have an essential and integral role in midwifery education that is necessary during the clinical experience for students of midwifery; Reflection – Preceptorship utilizes reflective learning as a crucial factor for effective socialization of Preceptees into their new role. Reflection is useful in encouraging students to learn from their own experience to develop professional thinking and promote their ability to implement theory into practice; Specific – According to the curriculum Preceptorship is specific to the midwifery profession; Practice – Midwifery is a practice-based profession. Preceptorship aims at enabling the student to master the scope of practice in midwifery; Psycho-emotional support – Preceptorship supports the Preceptee during learning and experiencing not just professionally but also psychologically and emotionally.

Different from other medical teaching roles, the Role Modelling Preceptorship features are unique according to three criteria: Longitudinal – Preceptorship is limited to a predefined period of time (determined by the faculty and curriculum requirements); Type of relation – Preceptorship is characterized by a trusting and deep relationship; Tutor dependent – From dependency to independency; it although Preceptorship is Preceptor dependent, also allows for preceptee development through a wide range of opportunities, that aim to free the student-

Preceptee from her dependency on the Preceptors to become an autonomous practitioner; According to Krishna et al. (2019), Role Modeling has different characteristics than Preceptorship, which is defined in the current research as being a "Role Model". According to the new criteria deduced from the literature review, the Preceptor in Nursing differs from the other educational roles in the field of medicine with regard to three criteria related to the Features of Role Modelling: Longitudinal, Type of relation, Tutor dependent.

## **1.2 Preceptee perception of the Preceptor qualities as a Role Model (CTCI)**

"Social Construction of Reality" is a dialectical process between "externalization", "objectivation", and "internalization" (Berger & Luckmann, 1966). In Nursing Education, the Midwifery Preceptor is expected to perform as a "Role Model" for her Preceptees. Preceptors are the primary link in the process of transitioning the philosophy of "care" from the curriculum into clinical practice (Carlson et al., 2009; Thompson et al., 2019). According to Bourdieu (1990), the learning environment may be perceived as the habitus in which the interactions between the "actors", the Preceptors and the Preceptees perform in the arena of the clinical environment. The main goal of Midwifery Education is to train qualified, competent and skilled midwives, who can provide safe care (Hosseini et al., 2010; King et al., 2020). Additionally, nursing educators play a critical role regarding a student's ability to adapt and socialize into the clinical reality (Kim, 2020). The accessibility to knowledge becomes a central factor in transitioning from newly qualified midwives into the role. By learning the rules of the organizational culture they gain admission to the profession (Holland, 1999; Phillips, 2002). The process of gaining competence is linked with the ability to practice hands-on skills in a supportive organization that is not-intimidating, that enables advancement of self-efficacy, and encourages curiosity about learning (Bäck et al., 2017). The assumption is that Midwives working within an organization should be supported by developing their professional role in order to become knowledgeable, competent, and confident (Black, 2018). This assumption leads to the question, to what extent do the LS's of Preceptors and Preceptees match?

## **1.3 Learning Styles (VARK)**

*Learning Style preferences are defined* as the way, or the different ways in which individuals prefer to concentrate on the process of learning, and internalize and preserve new

and difficult academic information (Dunn, 2003; Dunn et al., 2002; Kocinski, 1984). Relevant to the current research is the finding that the kinesthetic learning preference was found to be a positive predictor of academic accomplishment in clinically based, hands-on training program for nursing students (Koch et al., 2011). According to Fleming (2015), VARK reflects the perceptual preference or modality preference that presents one of the factors the learning styles. Preferences reflect development through life span and experience. Adult learner preferences might shift from Read/write preference (R) to an Aural and a Read/write preference (AR). Fleming's theory of Learning Styles describes four major types using the acronym VARK: Visual (learning by seeing), Auditory (learning by hearing), Read/write and Kinesthetic (learning by doing) (Felder & Barnett, 2005; Fleming, 2008). The VARK questionnaire has been the most commonly used instrument to identify the type of Learning Style for the last 30 years (Alkhasawneh et al., 2008; Breckler et al., 2008; Lujan & DiCarlo, 2006; Meehan-Andrews, 2009; Milles, 2002; Murphy & Kraft, 1993; Peyman et al., 2014). The present VARK instrument presents 16 daily-life situations which require learning. The need to adapt VARK to specific worlds of content was mentioned also by Leite et al. (2009). They stated that potential problems using VARK are related to the wording of the items, and therefore, it seems that caution is needed with respect to using the VARK with research in specific fields and disciplines. So far, the links between matching Preceptor-Preceptee Learning Styles and self-efficacy have not yet been examined. The present VARK instrument presents 16 daily-life situations which require learning, but these situations are not relevant for Nursing Education in general nor for the discipline of midwifery in particular.

#### **1.4 Perinatal Nursing Self-Efficacy Theory (PNSE)**

*Perinatal self-efficacy* refers to the skills and competencies related to the entire process of labour and delivery. Perinatal Nursing Self-Efficacy is a meaningful intentional result of Midwifery Nursing Education. Truthful assessment of self-efficacy can be used to expect effective performance among nursing students. Educational models that encourage self-efficacy are significant components of successful educational training for future roles in the nursing profession (Cheraghi et al., 2009; Gore, 2006; Ferla et al., 2009). It is important and crucial that Nursing faculties take into consideration the impact of self-efficacy on student's clinical abilities, and the meaningful and critical influence of the instructor on student self-efficacy

(Rowbotham, 2013). Self-efficacy and competence are associated in nursing research, especially within the context of the relationship between the student-Preceptee and the midwife-Preceptor (Lauder et al., 2008ab). Self-efficacy is a central idea in Social Cognitive Theory, according to the habitus of the delivery room – that is the social setting, where learning occurs by observation, imitation, and modeling, in the practice (Thompson et al., 2019). The PNSE is based on successful mediated self experiences of significant Role Models, and verbal communication (Bandura, 1982, 1978, 1994, 1997). According to Murphy and Kraft (1993), Perinatal Nursing Self-efficacy encompasses: Labor Delivery Self-efficacy, Post-Partum Teaching and Support Self-efficacy, and Post-Partum Technical Skills. The authors reported that the instrument demonstrates strong factorial validity and high reliability (Cronbach alpha), and analyses of variance (ANOVA) results were consistent with self-efficacy theory and supported construct validity.

## **1.5 The current research**

### **1.5.1 Theoretical Model**

Following the literature review, a model describing the links between learning styles and preceptorship relations with preceptees' Perinatal Nursing Self-Efficacy within midwifery education, is presented in Figure 2.

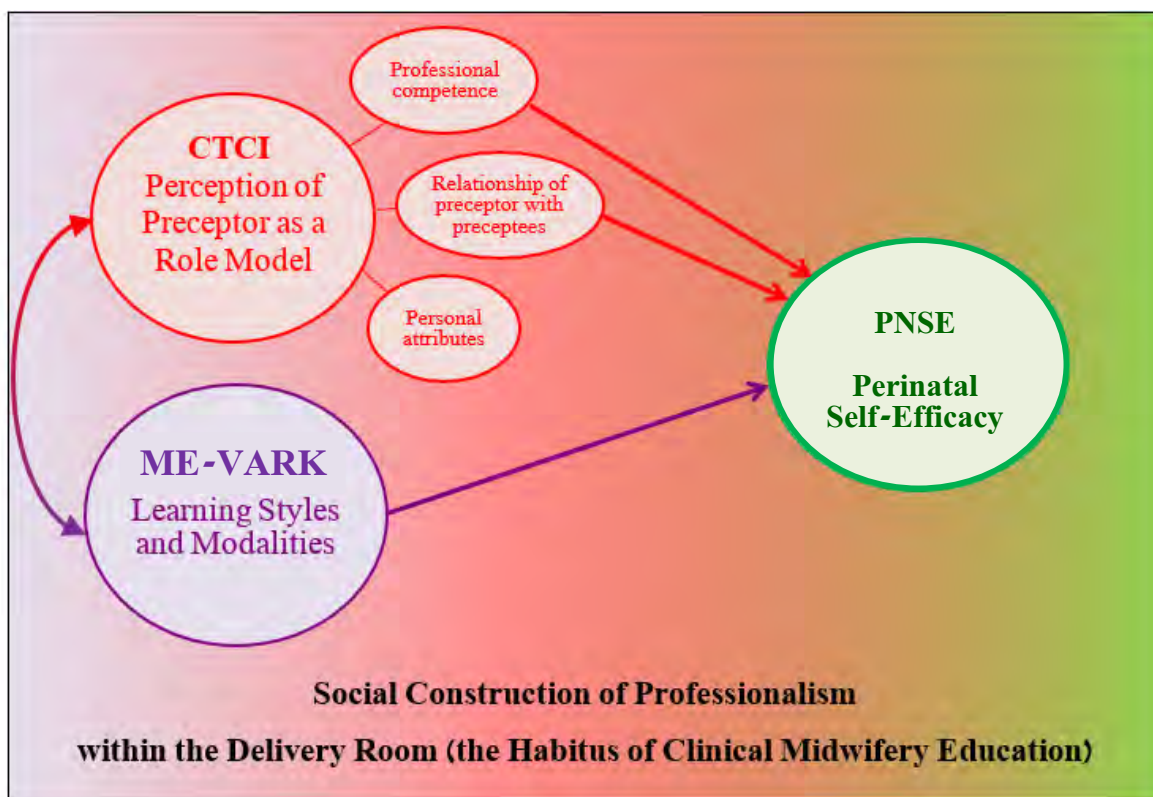


Figure 2. The Links between Learning Styles and Preceptorship Relations with Preceptees' Perinatal self-efficacy within Midwifery Education

### 1.5.2 Research Hypotheses

The hypotheses are related to the second research aim questions (The Relationships between Learning Styles – as measured by ME-VARK, CTCI, and PNSE):

- (2a) A positive correlation will be found between matched Learning Styles of Preceptors and Preceptees and the Preceptees' Perinatal Nursing Self-Efficacy (PNSE).
- (2b) A positive correlation will be found between matched Learning Styles of Preceptors and Preceptees and the Preceptees' perception of the Clinical Preceptor as a Role Model (CTCI).
- (2c) The Preceptee's Perception of the Clinical Preceptor as a Role Model (CTCI): Professional competence and Relationship of Preceptor with Preceptees – will **be positively** correlated with the Preceptees' Perinatal Nursing Self-Efficacy (PNSE), but CTCI – Personal attributes will not be correlated with PNSE.

## CHAPTER 2. METHODOLOGY

### 2.1 Procedure – The Mixed Methods Design

The current research utilized a mixed-methods research methodology (Creswell & Poth, 2018), including two successive phases: *(a) a qualitative phase: Focus group* (Kitzinger, 1994, 1996), *documental analysis* (Bowen, 2009; O’Leary, 2014) and *ethnographic interviews* (Byron, 2013) within a Delphi procedure (Adler & Ziglio, 1996; Colton & Hatcher, 2004; Green et al., 1999; Hasson et al., 2000) – for adaptation of the VARK tool to the discipline of Midwifery Education – ME-VARK, and *(b) a quantitative phase* (questionnaires) to test the hypotheses. A summary of research mixed methods design is presented in the following table.

Table 1

*Mixed Methods Research Design: Qualitative and Quantitative Phases*

Phase	Approach/ Design	Population and samples	Instruments	Type of variables	Data analyses methods
1. Qualitative	Focus group	Three expert midwives Preceptors	VARK → ME-VARK		Content analysis of the conversation's transcripts
	Documental analysis	Three sources ( <sup>a</sup> )			Systematic content analysis of the documents
	Delphi procedure and interviews	Ten expert judges	Focus group, interviews open-ended validation forms		Content analysis of the suggested questions, items and answers (in light of the documents)
2. Quantitative	Cross-sectional design – Nonexperimental explanatory: questionnaires	Non-probable convenience sample 49 Midwifery Preceptors 98 Preceptees 80 matched pairs	ME-VARK - Four Learning Styles and four modalities	Nominal / Ordinal scale <i>independent</i>	Descriptive Analyses Frequencies and percentages, means, medians, standard deviations and range (minimum and maximum), Spearman and Pearson correlations
			CTCI - Preceptees' Perception of the Preceptor	Ratio (Likert scale) <i>independent</i>	
			PNSE - Perinatal Nursing Self-Efficacy	Ratio (Likert scale) <i>dependent</i>	

(<sup>a</sup>) source (1) - Midwifery curriculum for qualified nurses (2019)

source (2) - The role of the midwife definition (WHO, 2017)

source (3) - PNSE questionnaire (Murphy & Kraft, 1993)

## 2.2 Qualitative research approach and design

**Population and participants.** Three of five education programs (each enroll 25-30 Preceptees) actively training registered nurses to become midwives. Each program represented a geographical region of Israel. The **Research procedure** is presented in figure 7.

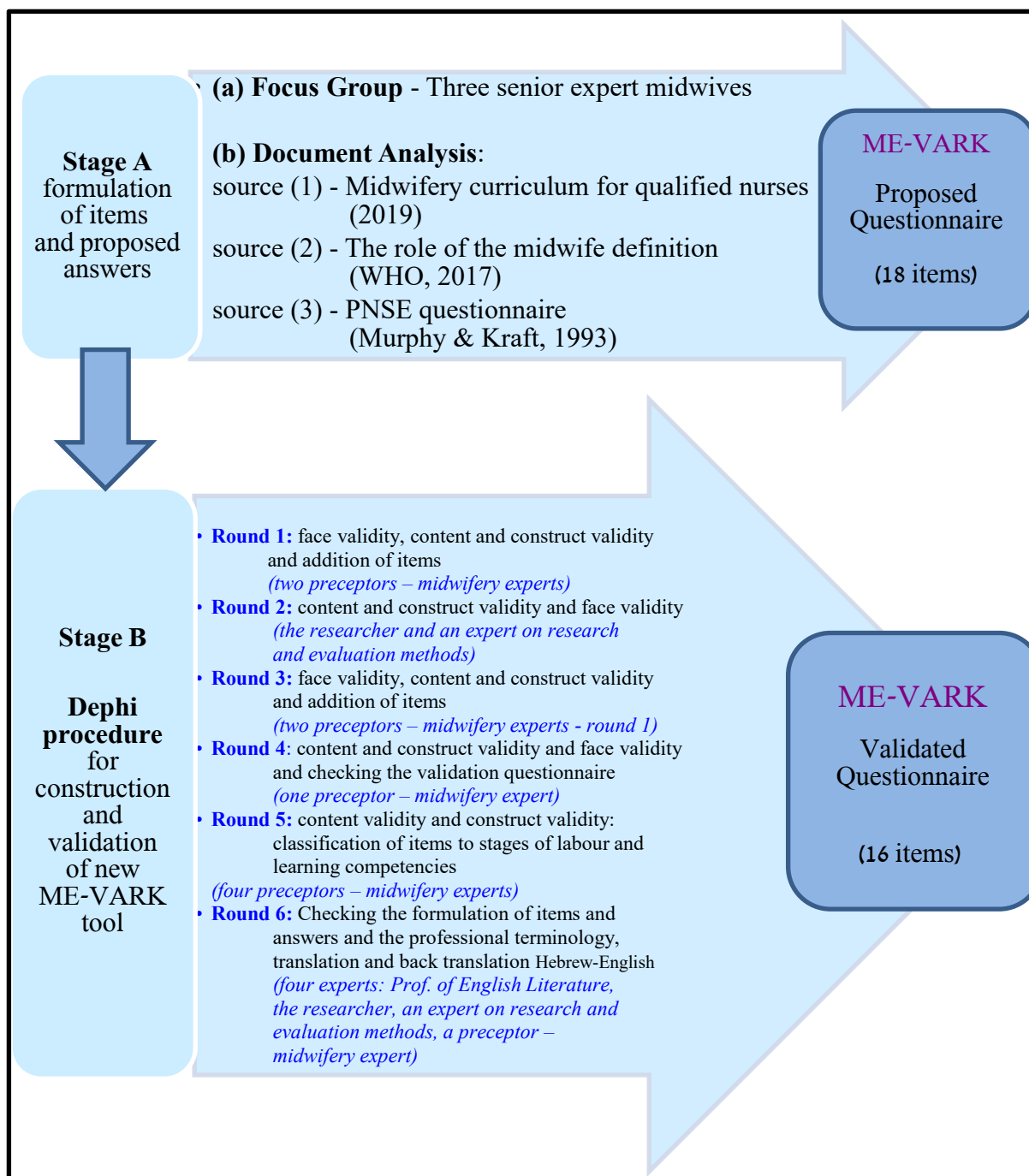


Figure 3. The design of the qualitative research stages – ME-VARK

### 2.3 Quantitative research approach and design

The quantitative phase of the research used a nonexperimental explanatory design (Creswell, 2014), and applied a cross-sectional design to enroll a non-probable convenience sample drawn from all midwifery program Preceptees in Israel ( $N = 120$ ), as well as their Preceptors ( $N = 50$ ).

**Population and participants.** The selection of participants is a non-probable convenience sampling. The questionnaire was distributed to 120 Preceptees and 50 Preceptors from three nursing schools whose Preceptees practice in *13 medical centers*. The database includes *80 pairs of Preceptor-Preceptee*. The aim of pairing Preceptors with their Preceptees was to represent the Habitus of the Midwifery practice setting environment.

**Preceptors.** For the quantitative pilot of the ME-VARK, 49 Preceptors (98% response rate) completed the ME-VARK (one Preceptor did not complete it and did not send it back completed). This is a high response rate as previous studies reported similar but lower response rates (for example, Al-Saud, 2013 obtained 93% response rates of 105 dental students). Two Preceptors were matched with four Preceptees (2.4%), nine Preceptors were matched with three Preceptees (11.3%) 20 Preceptors were matched with two Preceptees (25%) and 49 were matched with one Preceptee each (61.3%).

**Preceptees.** Out of the 120 Preceptees, 98 completed the questionnaires ME-VARK, CTCTI and PNSE questionnaires (82% response rate). Out of the 98 completed questionnaires, 80 (82%) were matched with their Preceptor. Seventy-two Preceptees were matched with one Preceptor (90%), and eight were matched with two Preceptors (10%). The 18 completed Preceptees' questionnaires that did not have matching Preceptors questionnaire, were not included in this analysis.

**Preceptor Background characteristics.** Most of the 49 Preceptors (who participated in the ME-VARK pilot) were born in Israel (59.2%), Former USSR (16.3%), and the USA (12.2%). The rest came from Ukraine, France, Australia, and Uruguay. The Preceptors' mean age was about 47 years (between 29 to 59). The majority were married (87.8%), and the rest single. Most of them (83.6%) have three children or more. Most were Jewish (87.8%), or



Muslim, Christian, or Druze. All Preceptors have an academic degree, BA (59.2%) or MA (40.8%). Above three-quarters work in a public hospital, and the rest in private hospitals. On average they have about 21 years of experience as registered nurses (between two to 38 years) and as midwife 16.7 years of experience (between three to 37 years) and deliver between 10 to 1,400 births a month (547.2 on average). On average, they had 9.6 years of experience as certified clinical Preceptors (between 1 to 30 years).

**Preceptee Background characteristics.** Most of the 98 Preceptees (who participated in the ME-VARK pilot) were born in Israel (74.5%), or the Former USSR (10.2%). The rest came Ukraine, France, Brazil, Moldova, Australia, Boleros or Bulgaria. The Preceptees' mean age was about 34 years (between 23 to 50 years). The majority were married (85.7%), and the rest single. Most of them have two (25.5%) or three (20.4%) children. Most were Jewish (83.7%), or Muslim, Christian, or Druze. All Preceptees have an academic degree, BA (83.7%) or MA (16.3%). Above half (54.1%) have finished their second clinical training year and the rest finished the first clinical year and have on average about 7.5 years of experience as a registered nurses (between 1 to 25 years).

**Perinatal Nursing Self-Efficacy (PNSE) – Dependent Variable.** The Preceptees' Perinatal Nursing Self-Efficacy was measured using the Perinatal Nursing Self-Efficacy scale, developed by Murphy and Kraft (1993). The overall reliability of the PNSE scale was high (Cronbach's  $\alpha = .967$ ), as well as each scale: labor-delivery self-efficacy ( $\alpha = .931$ ), Postpartum Teaching and support self-efficacy ( $\alpha = .945$ ), and Postpartum Technical Skill ( $\alpha = .911$ ).

**The Preceptor as Role Models (CTCI) – Independent Variable.** In the current research, the Preceptees' perceptions of the Preceptors as a Role Model, i.e., "a good midwife", have been measured using the "Clinical Teacher Characteristics Instrument" (CTCI) developed by Brown (1981). The overall reliability of the CTCI scale was high (Cronbach's  $\alpha = .955$ ), as well as each scale separately: professional competence (Cronbach's  $\alpha = .939$ ), relationship with Preceptees ( $\alpha = .916$ ), and Perception of Preceptors' personality characteristics ( $\alpha = .939$ ).

**ME-VARK – Learning Styles and Modalities.** The VARK questionnaire was developed by Fleming (2001, 2008). It defines the sensory modality (or modalities) through which learners prefer to take in new information. The most recent version (7.8) was used, after receiving

permission from Fleming. The validity and reliability have been discussed in many studies; however no specific measures on the validity and reliability were reported (Leite et al., 2009; James et al., 2011), mainly due to the fact that in each of the 16 questions, one to four options (Learning Style) may be chosen. The respondents are requested to choose one to four styles which they prefer to use when they are learning information: "Visual: looking at and making pictures, animations, graphs, tables, etc.; Aural/Auditory: listening to and participating in speeches, discussions, and question and answer sessions; Read-write: reading and writing text associated with the book, class notes, etc.; Kinesthetic: engaging in physical experiences, manipulating objects, etc". The Aural/Auditory is named in some of the studies: Aural (i.e., Fleming, 2011; Fleming & Mills, 1992; James et al., 2011) and in others: Auditory (i.e., Ahmed, 2013). Therefore, it will be referred to in the current research as Aural/Auditory. The respondents to the VARK (and accordingly, the new ME-VARK) are requested to select each option within a question/item, and therefore the questionnaire is composed of 16 tests of four dichotomous items each (Ahmed, 2013; Leite et al., 2009). The researchers suggested that respondents classify the results into groups of single Learning Styles or combined Learning Styles, and characterize the preference as very strong, strong, or mild. In the current research, the preference of a learning style did not refer to its strength. But rather, three measurements were used: According to Fleming (the preferred Learning Style), according to the literature and according to the fact that the Preceptors and Preceptees in the current studies selected more than one option for each item.

**Data analysis.** The responses to the questionnaires were coded into Excel and analyzed using SPSS 21 for Windows. Reliability of CTCI (perception of the clinical Preceptor as a Role Model) and PNSE (Perinatal Nursing Self-Efficacy) scales were tested using Cronbach  $\alpha$  reliability coefficients. The distributions of discrete variables were presented using means and percentages, continuous variable means, standard deviations, medians, and range (minimum – maximum). The correlations between discrete nominal/ordinal variables was calculated using  $\chi^2$  test (which provides the significance value), that was converted to Cramer's V – in order to establish the strengths of association (0 = no correlation; 1 = full correlation). The correlations between continuous ordinal/ratio variables were calculated using Spearman  $\rho(r_s)$ . Comparison between two means were calculated using between groups *t*-tests.

## CHAPTER 3. RESULTS

### 3.1 Results Phase 1 – Construction and Validation of ME-VARK

The adaptation of the VARK Questionnaire to Midwifery Education included two main stages: Stage A – formulation of items and proposed answers from one focus group and three sources of documents. Stage B included a Delphi procedure in six rounds in which interviews were conducted with the experts, for construction and validation of the ME-VARK Questionnaire. At the end of this Stage A – formulation of items and proposed answers based on a focus group and three documental sources, a final pool of 18 items (questions and answers) was gathered. Stage B – Delphi procedure. The qualitative phase of the research included interviews within the Delphi procedure, for adaptation of the VARK Questionnaire to the discipline of midwifery – ME-VARK. In this section the results of the six Delphi rounds are presented. At the end of Delphi round 1 – Examination of face validity, content and construct validity and addition of items, a 25-item form was constructed for the second Delphi round. Delphi round 2 – Examination of content validity and construct validity face validity. Because the original VARK questionnaire included 16 questions, it was decided that the new ME-VARK would also consist of 16 questions (later phrased as 'items'). Therefore, the amount of 24 questions (50% more that needed) – seemed to be a sufficient pool for the selection and validation procedure. Delphi round 3 – Examination of content validity, construct validity and face validity. After amending the questions and answers, the researcher and the expert on research methods chose 16 questions that are most inclusive and relevant to the midwifery discipline. To establish construct validity, we examined whether the selected 16 questions and answers describe a typical routine of the delivery process (all three labour stages). At the end of Delphi round 4 – the following construct of the ME-VARK was determined. Delphi round 4 – Examination of content validity and construct validity, face validity and checking the validation questionnaire. In sum, the next Delphi rounds established: ***Content validity*** – verification of accordance between the questions and answers – for the midwifery discipline regarding formulation and wording; ***Construct validity*** – confirmation that the proposed questions and answers are relevant to various aspects of the midwifery discipline (***meta-topics***); ***Inclusiveness of midwifery discipline*** – all the questions and answers concern the midwifery discipline and classification of items to stages of labour and learning competencies; ***Exclusiveness*** – all the

questions and answers are relevant and unique to midwifery and not to other disciplines; *Face validity* – the extent to which each question and answer is correctly formulated and therefore clear and understandable to midwives (both Preceptors and Preceptees).

This validation form (16 items) was checked by another expert judge (who has 20 years of seniority as a licensed nurse, and a licensed midwife for 12 years, eight years of clinical experience, and eight years as a Preceptor). She carefully read by herself in detail each of the 16 items, and afterwards was interviewed by the researcher, who read the items out loud with the expert judge in order to check if she understood the intended meaning of each item. Following this deliberation about the 16 items, some changes were introduced. Delphi round 5 – Examination of content validity and construct validity. The validation form which included the corrections of Delphi round 4, was submitted to another set of two expert-judges. Following the previous comments of the judges, the items were classified according to learning stages and competencies (construct validity). Finally, in Delphi round 6 – the formulation of items and answers and the professional terminology, translation and back translation Hebrew-English was checked.

At the end of the Delphi procedure, the questionnaire included 16 items, the same as in the original VARK, describing knowledge and competencies that are learned during midwifery training, through the interaction between the Preceptor and the Preceptee. For each item, four answers were worded which describe the four Learning Styles. In the new ME-VARK, the answers to each question were presented in the same order of Learning Styles used for the answers in the original VARK questionnaire, in order to not to impair the construct validity of the tool.

In response to question (1e), means of occurrences of each Learning Style in ME-VARK questionnaires completed by Israeli Midwifery Preceptors and Preceptees – compared to Romanian Psychology students and Australian Nursing and Midwifery students are presented in the following figure:

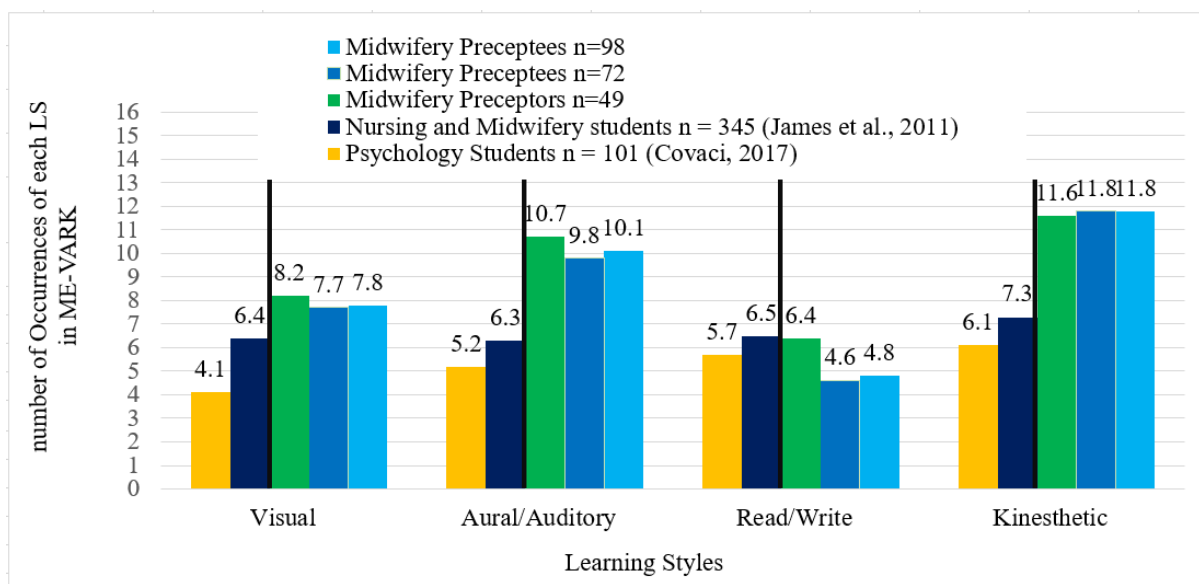


Figure 4. Means of occurrences of each Learning Style in ME-VARK questionnaires completed by Israeli Midwifery Preceptors and Preceptees – compared to Romanian Psychology students and Australian Nursing and Midwifery students

Comparing the Learning Style modalities of Midwifery Preceptors and Preceptees in the current research (2019) revealed that there is a *variance in Learning Style modalities* among Preceptors and Preceptees. Israeli Preceptees reported preference for the Kinesthetic Learning Style (K) together with one or more of the other Learning Styles (V-A-R). This finding is in line with other studies conducted among nursing students, which were identified as highly kinesthetic. The trimodal and the quadrimodal Learning Styles were also highly preferred, by the current sample as well as in other studies.

*At the conclusion of the quantitative pilot*, most Preceptors chose more than one answer (preferred Learning Styles) for each of the 16 ME-VARK items, while Preceptees chose fewer answers compared to their Preceptors. This suggests that the instructions for filling out the ME-VARK must include a clear request to choose only one or two preferred Learning Styles (answers) for each item.

No significant correlations were found between ME-VARK modalities of the Preceptees and the Preceptors with their background characteristics. *This finding indicates the stability and consistency of the new ME-VARK beyond sub-groups of Midwifery Preceptors and Preceptees.*

For the purpose of the ME-VARK quantitative Pilot, the ME-VARK was completed by **49 Midwifery Preceptors** and **98 student-Preceptees**. In order to apply and generalize the findings to the habitus of the clinical delivery room as the core of Midwifery education and training, **80 pairs of Preceptors** ( $n = 49$ ) and **Preceptees** ( $n = 72$ ) were matched. Among the Israeli Preceptors and Preceptees, the preferred Learning Styles as measured by the new ME-VARK questionnaire (16 items) were (in descending order): **Kinesthetic** learning style (means 11.6 – 11.8); **Aural/auditory** learning style (means range 9.8 – 10.7); **Visual** learning style (means 7.7 – 8.2); **Read/Write** learning style was the least preferred answer (means 4.6 – 6.4); **Second**, in order to specify the desired **Learning Styles of each participant**, the number of occurrences (in the 16 items) of each Learning Style **was collapsed into four Modalities**, according to the number of occurrences in the 16 items that were above seven. The most preferred modality was found to be the trimodal (Preceptors = 27%; Preceptees = 36%). Among **Preceptees** the next preferred modality was bimodal (28%), followed by uni-modal (19%), and then quadrimodal (17%). Among **Preceptors** the next preferred modality was quadrimodal (35%), followed by uni-modal (16%) and then bimodal (14%).

The Match Ratio index (that was **developed** in the current research) measured the percent of common preferred Learning Styles of Preceptors and their Preceptees. Pairs of Preceptors and Preceptees with half or less common Learning Styles were defined as "Not matching Learning Styles"; pairs of Preceptors and Preceptees with two-thirds or more common Learning Styles were defined as "Matching Learning Styles".

Among the 80 pairs of Preceptors and Preceptees: A third (33.7%) of the pairs shows – Learning Styles that did not match. Two-thirds (66.3%) –shows matched Learning Styles. **Discriminant validity** of this index was established by comparing the mean Match Ratio indices for each group (*not matching Learning Styles*, mean = 37%; *matching Learning Styles* mean = 82%) – this difference was found significant ( $p < .001$ ), i.e., the Match Ratio index discriminates between pairs of Preceptors and Preceptees. Nevertheless, further research should focus on the modalities because the variety of Learning Styles in the various matched pairs was large (instead of focusing only on the separate Learning Styles { V – A – R – K }, and their various combinations).

## 3.2 Results Phase 2 – The Impact of Learning Styles and Preceptorship

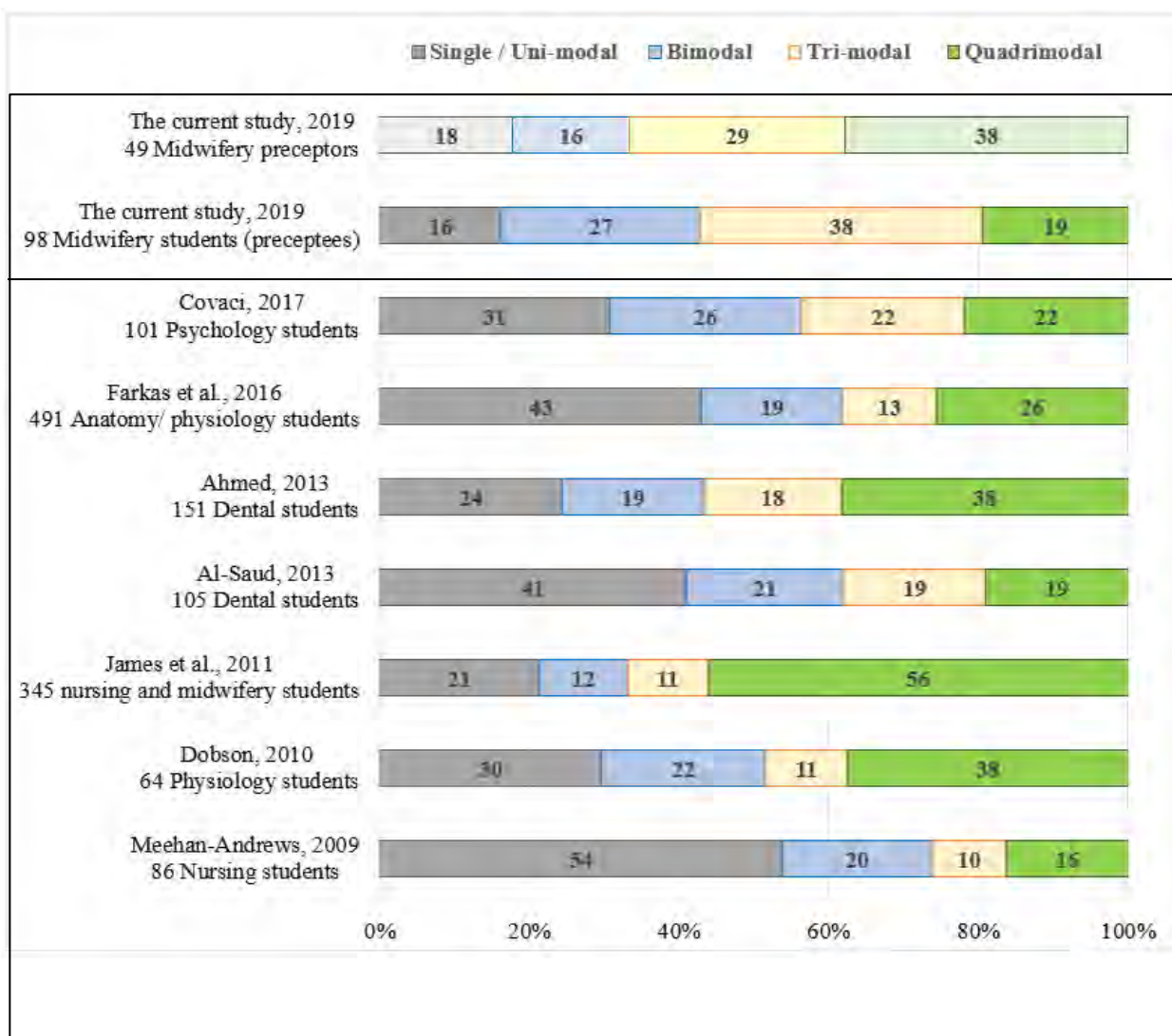
### Relations on Students Self-Efficacy

In response to question (1c), the distribution of the Learning Styles of Preceptors and Preceptees according to the adapted ME-VARK, is as follows: The most preferred Learning Style according to the adapted ME-VARK among both Preceptors and Preceptees was the Kinesthetic Learning Style (Preceptors:  $Md = 16$ ,  $Max = 16$ ; Preceptees:  $Md = 15$ ,  $Max = 16$ ). The least preferred Learning Style was Read-Write (Preceptors:  $Md = 3$ ,  $Max = 15$ ; Preceptees:  $Md = 0$ ,  $Max = 14$ ).

In response to question (1d), among the 80 pairs of Preceptors and Preceptees – the Mean percentage of matched Learning Styles was lower among pairs whose Learning Styles did not match (36.7%), in comparison to 81.9% of pairs whose Learning Styles matched. Comparison of the mean percentages of matching Learning Styles between not matching and matching pairs of Preceptors and Preceptees was found significant ( $t_{(1,78)} = -12.5$ ,  $p < .000$ ). This finding established the ***Discriminant validity*** of the Matched Ratio Index, developed in the research.

The Learning Styles modalities of Midwifery Preceptors and Preceptees according to the current study's (2019) sample are presented in Figure 5 (next page). The prominent conclusion is that there is a ***variance in Learning Style modalities*** among each sample. The smallest percentage of single (uni-modal) Learning Styles was found among the Israeli sample of Preceptees and Preceptors, as compared to the other samples. The reason is that in most items they reported use of the Kinesthetic Learning Style (K) *together with* one or more of the other Learning Styles (V-A-R).

Results with the VARK test have shown that the majority of first-year nursing students were highly kinesthetic, because the professional habitus of the delivery room requires learning by doing, and highlighted lectures and tutorials useful for their learning and practice (Ahmed, 2013; James et al., 2011, 2016; Meehan-Andrews, 2009).



*Figure 5.* Comparison of Learning Styles modalities among Midwifery Preceptors and Preceptees (2019) with previous studies (2009-2017)

The correlations between matched Learning Styles of Preceptors and Preceptees and Preceptee Perinatal Nursing Self-Efficacy (PNSE) are very low and not significant. Therefore, hypothesis (2a) is refuted.

The correlations between matched Learning Styles of Preceptors and Preceptees and Preceptee Perception of the Clinical Preceptor as a Role Model (CTCI) are very low and not significant. Therefore, hypothesis (2b) is refuted.



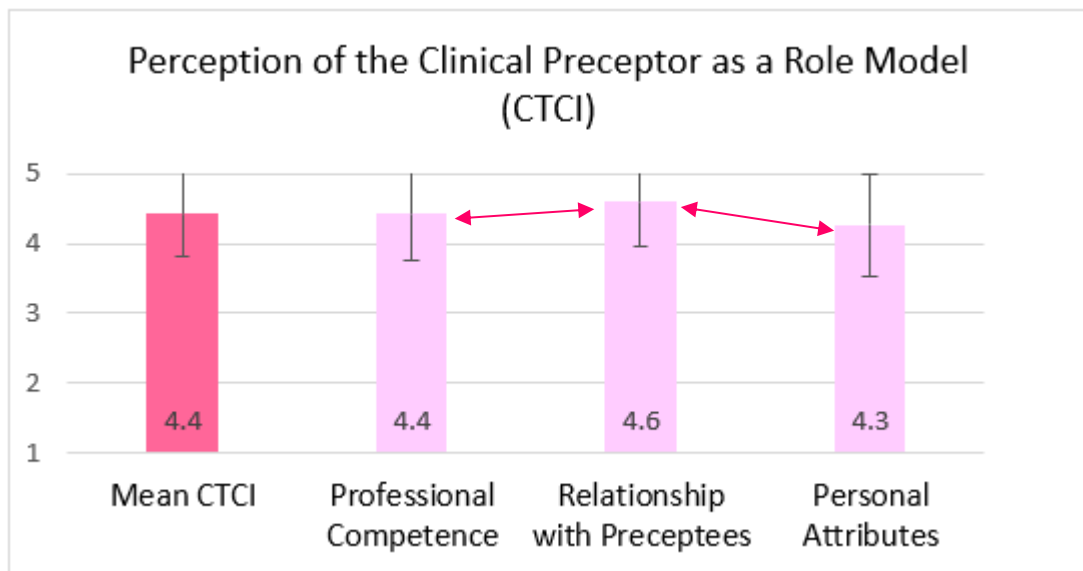


Figure 6. CTCI of Preceptees (Means and SD's)

On average, the Preceptees perceive their Preceptor as a Role Model (CTCI) to a high extent (mean = 4.43, SD = .62).

Additionally, the results of a GLM (General Linear Model) repeated measures analysis indicated that the difference between CTCI means is significant ( $F_{(2,194)} = 26.68, p < .000$ ). Tests of Within-Subjects Contrasts revealed that CTCI - Relationship with Preceptees ( $mean = 4.60, SD = .63$ ) is significantly ( $F_{(1,97)} = 20.62, p < .000$ ) higher than CTCI Professional Competence ( $mean = 4.43, SD = .68$ ) and CTCI Personal Attributes ( $mean = 4.26, SD = .73$ ) is significantly ( $F_{(1,97)} = 29.65, p < .000$ ) the lowest. According to Figure 7 (next page), on average, the PNSE of the Preceptees in high (mean = 4.01, SD = .71).

Additionally, the results of a GLM (General Linear Model) repeated measures analysis indicated that the difference between the three factors of PNSE was found significant ( $F_{(2,194)} = 23.25, p < .000$ ). Tests of Within-Subjects Contrasts revealed that PNSE during birth ( $mean = 4.22, SD = .66$ ) is significantly ( $F_{(1,97)} = 44.55, p < .000$ ) higher than PNSE after birth - guiding parents ( $mean = 3.78, SD = .88$ ). The differences between PNSE after-competences and - during birth and after-guiding parents are not significant ( $F_{(1,97)} = .25, p = .616$ ).

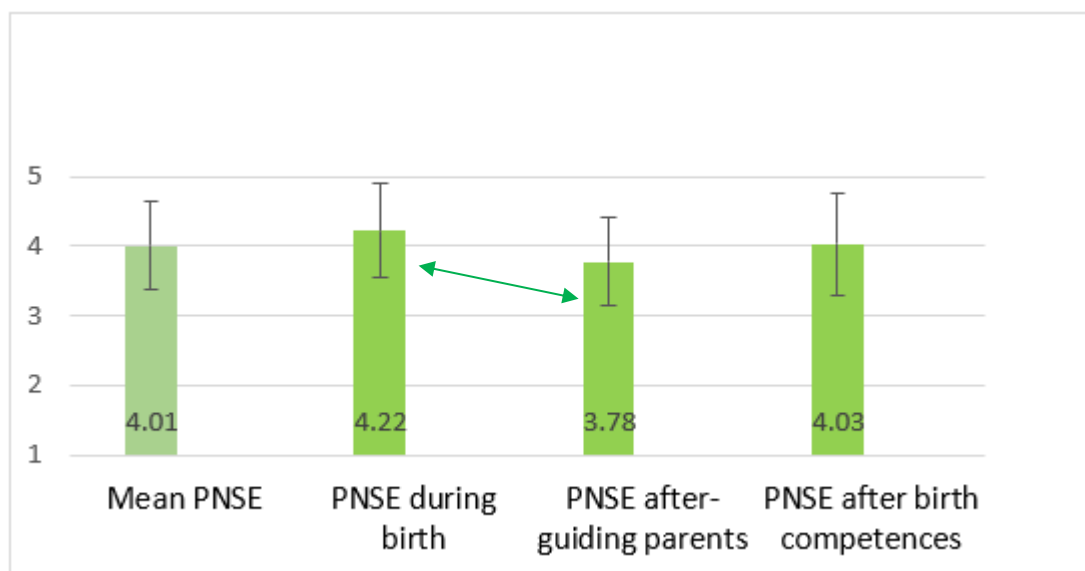


Figure 7. PNSE of Preceptees (Means and SD's)

According to hypothesis (2c), positive and significant correlations were found between CTCI components: Professional Competence ( $r = .22, p = .032$ ) and Relationship with Preceptees ( $r = .25, p = .014$ ) *with* one component of PNSE – during birth. The correlation with CTCI component: Personal Attributes, is low and not significant. Nevertheless, the correlations *with* PNSE after-guiding parents and PNSE after birth competences are not significant, and therefore do not support the hypothesis.

The reason for the correlations, is a result of the high ranking ( $mean = 4.43$ ) and the low variance ( $SD = .62$ ) in CTCI variables. seventy-nine students (80.6%) ranked their Preceptors between 4 (agree slightly) and 5 (strongly agree); 14 students (14.3%) ranked their Preceptors between 3 (agree moderately) and 4 (agree slightly); four students (4.1%) ranked their Preceptors between 2 (disagree slightly) to 3 (agree moderately), and only one student ranked her Preceptor below 2 – CTCI mean = 1.87 (1=strongly disagree).

The correlations between Preceptor background characteristics (age, years of experience in nursing, years of experience as a midwife, and average number of births each month) – with CTCI mean and components are not significant, except for a negative, low and significant correlation between the Preceptor experience with Professional Competence ( $r = -.24, p = .031$ ) and Relationship with Preceptee ( $r = -.25, p = .025$ ) (but not with Personal Attributes. I.e.,

Preceptors with more years of experience are less perceived by their Preceptees as Role Models regarding their Professional Competence and their Relationship with their Preceptees).

No correlations were found between Preceptee background characteristics (age, years of experience in nursing, and number of children) – with CTCI mean and components. No correlations were found between Preceptor background characteristics (age, years of experience in nursing, years as a midwife, years as a Preceptor, and average number of births each month) – with PNSE mean and components. No correlations were found between Preceptee background characteristics (age, years of experience in nursing, and number of children) – with PNSE mean and components.

## **CHAPTER 4. DISCUSSION AND CONCLUSIONS**

Pregnancy and childbirth are a unique feminine experience that shapes society (Fahy et al., 2011). The current research is based upon the sociological habitus theory (Bourdieu, 1977, 1990) realized in the delivery room, which is the clinical setting of the preceptorship training process (Hobbs, 2012; Phillips & Hayes, 2006). The role of the Preceptor in midwifery education has major importance for successful socialization of nursing students in making the transition to becoming a competent licensed midwife; i.e., the profession of Midwifery is socially constructed (Quek & Shorey, 2018). This professionalizing learning process can be regarded as a cultural innovation carried out by social actors, i.e., the Preceptors (as role models) and Preceptees (Fuchs, 2003). The concept of an "ideal midwife" is developed and formed as a result of this socialization (Nieuwenhuijze et al., 2020).

The conclusion is that Midwifery Education is built upon skilled Preceptors who function as socialization agents (i.e. students) into an organized structured occupation (Bandura, 1982; Van Teijlingen et al., 2004). The conclusion from the discussion is that Preceptorship, as a unique model in Nursing and in Midwifery education, constructs professional Midwifery in the habitus of the delivery room, especially during birth, by supporting strong PNSE. The professional relationship between Preceptor and Preceptee was found to be the most influential attribute by Midwifery students. The new ME-VARK that was adapted and validated in the research, is a unique contribution to Midwifery education that takes place in the delivery room – during birth. In hospitals and other medical organizations, the formal structure of the delivery

room generally, and particularly in Midwifery education, consists of complex social relationships with other role holders and disciplines and an ability to interact with other professionals (Bluff & Holloway, 2008). These include, among others, nurses and midwives, doctors, residents, midwifery students, and other allied professionals that are part of the networking actors in this habitus. Each of these professionals has an impact on the social accomplishments of the the actor (perceptee), and on the macro level the profession, the organization and society in general (Meyer, 2002).

In order to illustrate the conceptual insights provided by analysis and discussion of the research results and findings, a new Midwifery kaleidoscopic Model is suggested. Borrelli et al. (2016) used such a model to illustrate relations between the midwife and the woman in delivery. Similarly, in this research, the kaleidoscopic metaphor, by diverse colors and perspectives, symbolizes and illustrates preceptee socialization into the Midwifery Profession via Preceptorship relations. The Midwifery kaleidoscopic conceptual Model is constructed by triangulation of the theory with the qualitative and quantitative results of the current research. Triangulation refers to use of different methods, theoretic models, and a variety of information sources (Bryman, 2016; Lather, 1991; Patton 1990, 2001; Shkedi, 2003, 2015). Thus, the conclusions that derive from the triangulation strengthen the validity of the combined conceptualizations (Creswell & Poth, 2018; Merriam, 1998; Morgan, 1998, 2009). Based on the literature review, as well as the qualitative and quantitative findings, the following conceptual model is suggested. In this model, the Social Construction theory serves as an interpretive lens for analysis of the results and producing insights and conclusions, which create new unique knowledge. This Kaleidoscop Model describes the various diciplines of the current study that reflects the multi diciplinary lens that can be used which are based on midwifery, sociology, psychology, nursing education and future suggestions. In summary, the integrative conceptual model "Preceptorship in Midwifery Kaleidoscopic" is presented in Figure 8.

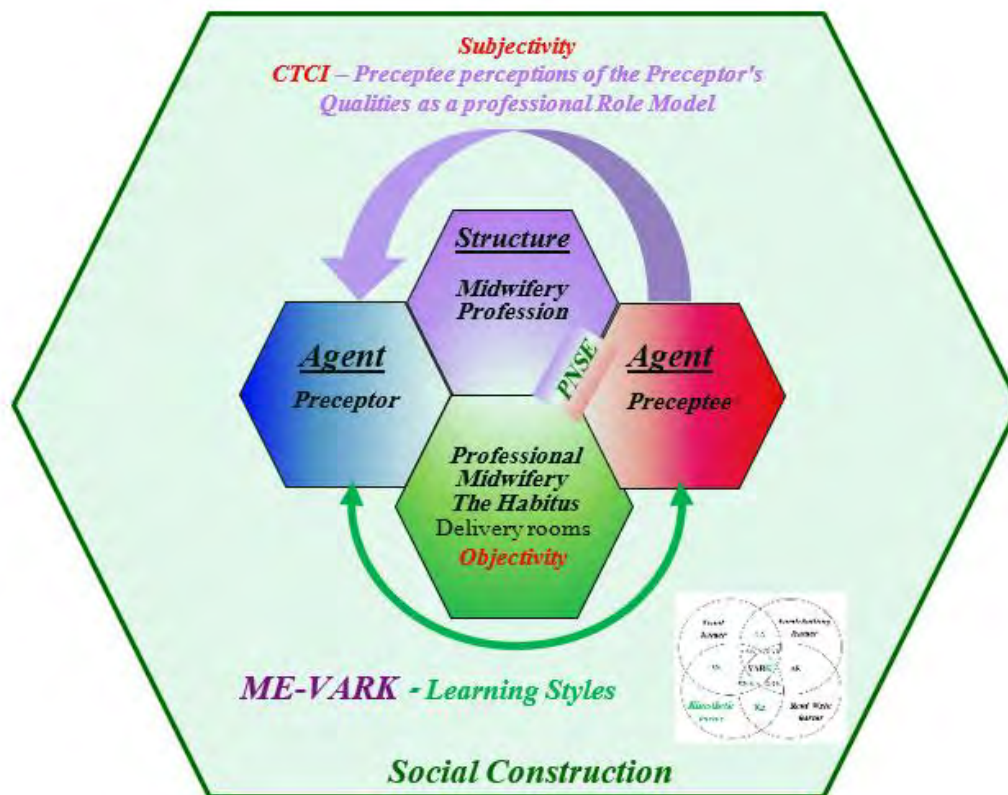


Figure 8. Preceptorship in Midwifery – Integrative Conceptual Model

According to the Preceptorship conceptual Midwifery Model, the midwife who functions as a role model should match her intervention to the needs of the pregnant woman during all the phases of labour. Her mission is to create a suitable environment and atmosphere that will provide support during labour. The midwife Preceptor is the social agent who mediates between the socialization and learning processes of the agents – i.e., the preceptees. Preceptees reflect the recursive links (Figure 1) between them as social agents that exchange with their Preceptors demands of professional knowledge, rules, norms and value, which are conceptualized as the "Social Capital" in the midwifery habitus – the delivery room (Hobbs, 2012). Being together as agents in the delivery room environment, may affect ways of thinking, modes of acting and interacting in social situations (Sweetman, 2003).

Preceptorship, according to the "Preceptorship in the Kaleidoscopic Conceptual Model of Midwifery", which is presented as a summary of this research, illustrates 'multi-coloured' and constantly changing perceptions of the preceptees of their preceptors as professional role

models, regarding her Professional Competence (the *objectivity* of the reality) and Relationship with her Preceptees (*subjectivity* of the reality). The preceptee's perceptions, as social agents, promote effective preceptorship that leads to stronger Perinatal Nursing Self-Efficacy in Midwifery, especially during birth. In turn, it advances the professionalism of Midwifery in Nursing (Hobbs, 2012). Furthermore, this process contributes to the field of Midwifery Education, aiming to promote continuous professional development according to the philosophy of care and safe delivery. It may also provide policy leaders, stakeholders and clinical directors with understandings and insights regarding issues of decision making and of policy implementation that may empower women's ability to control and choose autonomously where and how to give birth (ACM, 2004, 2020; ICM, 2018). Midwifery has been developed through historical and social events which had significant and direct influence on the birth setting (Van Teijlingen et al., 2004). Hence, a midwife with strong PNSE has the ability and power to act not only on the organizational level (the setting of the delivery room) but also have professional responsibilities and accountability.

To conclude, preceptees' perception of the preceptor as a *professional* role model *during birth* has the strongest link with socialization of the Preceptees into Midwifery, by developing competency and strong PNSE. These relations are carried out mainly through kinesthetic learning (but beyond differences in the overt learning style preferences).

#### **4.1 Conceptual and Theoretical contributions**

The unique contribution of this research to theoretical and practical knowledge has been deduction of new criteria showing that Preceptorship in Midwifery differs from its use in other kinds of medical education. The Preceptorship relations are longitudinal, have a unique type of relations, and are tutor dependent. Three new attributes, were suggested in the literature review regarding the unique characteristics of the Preceptorship model; They concern Professional equality, Legal equality, and Accountability and add an additional level of knowledge with reference to the Preceptor as a clinical educator and a Role Model. As mentioned above, it was found that Kinesthetic learning is the most preferred in the human-care disciplines (dentistry, psychology, anatomy, physiology, nursing, midwifery). Therefore, clinical learning environments should be an inherent part in planning curricula and teaching. We suggest developing a "personalized matched midwifery Preceptorship model" to enhance student PNSE.

Thus, the main conclusion of the current research is that preceptee perception of the preceptor as a professional role model during birth has the strongest link to socialization and developing competency in midwifery and strong PNSE. These relations are carried out mainly through kinesthetic learning (but beyond differences in other learning style preferences).

## 4.2 Practical contributions for Midwifery Education

- It is recommended that policy makers and managers in the clinical field should invest efforts to assess student expectations of their preceptor's qualities, including communication skills and ability to hold an open conversation and dialogue. Suggestion for Construction of a New Tool to Measure Teaching Methods and Teaching/Learning Aids in Relation to Learning Styles are presented in the following tables:

Table 2

*Suggestion for Construction of a New Tool to Measure Teaching Methods and Teaching/Learning Aids in Relation to Learning Styles*

<b>ME-VARK Learning Styles</b>	<b>New recommended tool</b>	
<b>Preceptee</b>	<b>Teaching methods</b>	<b>Teaching/Learning aids</b>
	<b>Preceptor</b>	
Visual	Modelling and demonstration	Three-dimension simulation, videos
Aural/Auditory	Lectures, explanations, guidance, debriefing	E-learning, recorded lectures
Read/Write	Guidance to reading material	Textbooks, manuals, written reflections, case studies
Kinaesthetic	Role modelling and working together with the learner	Simulations

- It is recommended that a dedicated curriculum be developed to enhance precepting skills and self-efficacy.
- It is recommended that an **Advisory Group** be developed (Sharma et al., 2015) to deal the variety of perceptions of the midwife's role. In addition, it is suggested that teams of preceptors should meet regularly (possibly online) to share their novel and creative methods to promote PNSE, competency and professionalism among their preceptees.
- It is likewise important to explore what are the appropriate alternatives for the clinical

learning environment, that fits the limitations due to the restrictions and challenges of the COVID-19 pandemic (Luyben et al., 2020). The systematic procedure (Delphi) developed in this study for construction and validation of the ME-VARK may assist formation of these new policies and agendas regarding Midwifery.

- Teaching of specific midwifery skills has become a big challenge. In Israel the midwifery students already work as nurses while they experience training in the clinical field. The main issue that Nursing schools face recently is how to keep social distancing, while educating midwifery students. Learning methods can replace the clinical learning environment that will ensure safe care.

### 4.3 Methodological contributions

- **The Delphi procedure** proposes a new and unique procedure for adaptation, construction and validation of the VARK questionnaire for Midwifery Education (ME-VARK) developed and performed in the current research.
- The Match Ratio Index was developed in the current research, to overcome the limitations of the data revealing a difficulty in identifying the preceptor's Learning Styles (most of them had strong preference for multimodal Learning Styles).

### 4.4 Research Limitations

- In order to reduce the threat of same source bias (Major et al., 2002) and common methods bias (Avolio et al., 1991) that might enlarge the extent of relationship between the variables, it is important to complete the ME-VARK in a separate session.
- Most Preceptors reported use of multimodal Learning Styles. This influenced the ability to calculate the matched Learning Style index. Therefore, while administrating the new ME-VARK – it is important to emphasize that each respondent should choose no more than two preferred options for each item.
- Learning style measurements have possible validity limitations. Respondents may be affected by imperfect memory, willingness to satisfy and tell what they imagine is expected response rather than answer spontaneously (Runco & Okuda, 1988).



- ME-VARK actually measured Learning Styles of Preceptors and Preceptees at different points and perspectives in time; while students referred to their current learning as Midwifery students, the preceptors referred to their past experience as students (as they were requested to do in the instructions to complete the ME-VARK).

#### **4.5 Recommendations for further studies**

- An in depth investigation of the relations between Preceptor and Perceptee considering the sociological power of the habitus of the delivery room, especially in light of the imbalance in their professional status.
- It is important to explore the personal attributes and qualities of a good preceptor who can create and nurture an efficient learning environment to promote PNSE.
- Validation of the new adapted ME-VARK is needed in order to confirm its psychometric attributes (Face validity, content validity, and construct validity) as established in this study.
- We urge developing, adapting and validating new VARK instruments for additional clinical disciplines.
- We likewise urge developing another version of the ME-VARK focused on the phases of labour. This revised tool will enable comparison between Midwifery students Learning Styles and gynecology residents.
- The new ME-VARK may be used in other countries, in national and international Nursing schools, to reveal interesting cultural and geographical differences in LS in ME.
- Since Learning Style preferences tend to change overtime evaluating and re-evaluating the educational interaction between pairs of Preceptors and Preceptees is recommended (Fleming et al., 2011).
- Further research should focus on the modalities because the variety in Learning Styles for the various matched pairs was large (instead of focusing only on the separate Learning Styles { V – A – R – K }, and their various combinations).

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