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# Learning the pelvic examination

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Omnia vincit amor

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## Abstract

The inspiration for the present studies was the learning concept that used professional patients (PP) as instructors for medical students in learning how to perform the pelvic examination (PE).

Interviews performed with women who were PPs showed that they experienced a continuous beneficial increase in knowledge. This promoted personal development related to bodily awareness and affirmed their femininity, making them less vulnerable and reversing their approach to their own body of being an object to becoming a subject. The growing ability to contribute to students' learning and the feeling of being valuable enhanced the PPs self-esteem and well-being and promoted independence in the learning situation. Being a PP was rewarding and contributed to the feeling of being empowered and growing as a woman in the examination chair.

Two models of teaching the PE to medical students were compared: with PPs or with clinical patients (CP). The outcome showed that the PP students were more skilful in palpating the uterus and ovaries and performed more PEs during the clinical clerkship than did CP students.

Female and male medical students were interviewed after they had performed their first PE with PPs as instructors. The female students' most obvious concern was about looking and touching another women's vulva whereas male students were concerned about how to establish rapport with the PP. The interactive and supportive feedback from the PPs enabled the students to overcome their hesitation and encouraged creative learning of interpersonal and palpation skills. The LS positively enhanced the female students' awareness of own bodies and promoted a deeper interest in PEs, both as an examiner and as patients. The male students became aware of the importance of creating a beneficial interaction with the woman and gained an insight into a previously "unknown" female world that deepened their understanding of women's possible vulnerability during a PE.

Women at an outpatient clinic participated in individual LSs about the female anatomy and the PE, and performed a PE on a mannequin prior to visiting the gynaecologist. Following the visit interviews were performed to gain a deeper understanding of the impact of the LS. The women's active participation during the LS generated increased self-confidence and knowledge, triggered empowerment and promoted a creative ability to interact subsequently during their own PE.

Part of the studies involved developing a questionnaire to measure the fear of performing the pelvic examination, the Fear of Pelvic Examination Scale (F-PEXS). The questionnaire was shown to have a very good reliability (e.g. Cronbach alpha is .96) and good construct validity.

Engaging voluntary, healthy and knowledgeable women as instructors in the PE situation creates a safe and ethical learning environment and promotes interaction with students. Immediate constructive feedback enables students to integrate communication and behavioural skills in a professional manner whilst learning to palpate the uterus, facilitating an inner security as a future examiner.

The learning sessions were of benefit to the PPs, the female students in the PP model, and the women in the clinical study. The acquired knowledge started something positive within the women; a will to act and find out more about themselves. The LSs initiated empowerment in the sense that an empowered person has increased capacity to act in goal-directed ways.

## List of Original Papers

This thesis is based on the original publications which will be referred to in the text by their Roman numerals I-IV:

I. Siwe K, Wijma B, Berterö C. A Stronger and Clearer Perception of Self. Womens Experience of Being Professional Patients in Teaching the Pelvic Examination: a qualitative study. BJOG. 2006;113(8):890-5. \*

II. Siwe K, Wijma K, Stjernquist M, Wijma B. Medical students learning the pelvic examination: Comparison of outcome in terms of skills between a professional patient and a clinical patient model. Patient Educ Couns. 2007 Nov;68(3):211-7. In press.\*

III. Siwe K, Wijma B, Silén C, Berterö C. Performing the First Pelvic Examination; Female Medical Students' Transition to Examiners. Patient Education and Counseling. In press \*

IV. Siwe K, Wijma B, Berterö C. Learning to perform the pelvic examination. "Women's active involvement triggers empowerment": a qualitative study. Submitted

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## Abbreviations

BAI	Beck's Anxiety Inventory
CP	Clinical Patient
CP model	Clinical Patient model
CCM	Constant Comparative Method
CP student	Student within the CP model
E-Pelvis	Electronic Pelvic device
EPE	Empowering Pelvic Examination
F-PEXS	Fear of Pelvic Examination Scale
GyExDQ	Gynaecologic Examination Distress Questionnaire
GTA	Gynecology Teaching Associate
LS	Learning Session
Med stud	Medical student
Ob/gyn	Obstetrics and gynaecology
PE	Pelvic Examination
PP	Professional Patient
PP model	Professional Patient model
PP student	Student within the PP model
SSAI	The Spielberger State Anxiety Inventory
STAI	The Spielberger State Trait Anxiety Inventory

## Definitions

Woman	"ordinary" woman/clinical patient
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## Authors

BW	Barbro Wijma
CB	Carina Berterö
KS	Karin Siwe

## Pretext

Jag vill tacka **alla** som på olika sätt har gjort det möjligt för mig att genomföra detta projekt. Särskilt tackar jag:

Barbro Wijma, som introducerade mig för PP verksamheten, forskningsinspiratör nummer ett, som med omtänksamhet, välvilja och skarpt intellekt visat vägen.

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Alla beundransvärda Q som genom åren förgyllt mitt kvällsarbete med skratt, allvar och tro på lärandet.

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Kollegor och medarbetare på Kvinnokliniken som underlättat min tillvaro när det behövts.

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## Introduction

The learning programme about the pelvic examination (PE) with professional patients (PPs) as instructors was introduced in Sweden at the Faculty of Health Sciences, Linköping in 1982 by Professor Barbro Wijma (BW). She introduced me to the concept in 1989 when I was doing my residency. I found it an interesting and challenging learning situation and decided to become a supervisor. Since 1992 I am the coordinator of the program.

During the years I have spent at least two hundred and fifty evenings supervising learning sessions. In addition I have given lectures about the PE, talked with and being available to students and the professional patients to discuss “whatever they wanted to talk about” related to the PE. These meetings have given rise to many thoughts and questions that finally led me into this research. The main question at start was: How is a PE going to meet the needs of all individuals involved and at the same time be of benefit for them?

In general, women have a positive attitude to PE, but the procedure itself is often a negative experience [1]. During a consultation women lack control and want to be met on equal levels, as human beings and with respect [2] and informed of the procedure and the findings [3-5].

A student who is going to perform his/her first PE, often experiences mixed emotions as he/she has a desire to learn, but at the same time has a fear of facing the situation [6-8]. In a learning situation, this means that both the patient and the student are filled with emotions of different kinds that have to be mastered in order to proceed - and - both have expectations of a positive outcome. In addition there is a supervising gynaecologist who is responsible for the consultation, wants to instruct the student and also find out for him/herself about the findings, often during time constrain [9].

The aim of using healthy, voluntary women as patients when students are going to perform the first PE, is to create a safe environment where learning about interpersonal and technical skills can take place, with the student as a learner and the PP as the instructor [10]. This concept has shown to have a beneficial outcome for students in gaining confidence and to prepare them for performing PEs in the clinical setting [11, 12].

This thesis was carried out to explore what learning the pelvic examination meant for professional patients in our learning model, medical students and women at an out-patient gynaecological clinic. We started the project with the following questions:

As the PPs stayed in the program for so long, we asked ourselves what the reason was for their continuing? Did the concept with PPs decrease students' fear about performing a PE? Did it facilitate their learning of the skills? How did students experience performing their first PE? Would there be other ways to enhance women's knowledge about the PE except by the examiners? Through a learning session?

## Background

### Women's experiences of the pelvic examination

Most women will have a PE at some time in their lives, but for various reasons. In general, women have a positive attitude to PE, but the procedure itself is often a negative experience [1]. Most women endure the necessity of a PE as it is an opportunity to rule out gynaecological disease [4, 5].

The PE is thus a procedure which reveals ambivalence in women maybe due to its intimate relationship between sex, power, and medical knowledge [4]. Patients in out-patient clinics are often cast in a dependent role, by the nature of the circumstances, which limits their power to interact with the gynaecologist [13]. The PE consultation is a short meeting between two people with different preconceptions. For physicians, who have professional knowledge, it is a routine procedure [2]. In contrast, for almost all women it is an unusual event, even shameful, as they are expected to expose their most intimate body parts [2]. It is not a natural situation and entails a loss of control [4, 14, 15].

Women are often nervous, anxious and apprehensive before a PE consultation [4, 15, 16]. Coincidental stress, such as life changes, and the direct consequences of the gynaecological problem are shown to be predictive of such anxiety and distress [17] as are previous experiences of PE. The experience of the first PE is a powerful background factor for subsequent attitudes to PEs [2]. It is thus important to use a woman's first PE "as an opportunity to condition positive emotions and behaviours to the examination situation, as a basis for future positive experiences" [2]. Negative PE experiences in general may also taint subsequent examinations [3]. An extreme example can be found in the fact that female survivors of childhood sexual abuse are significantly more negative about going to the gynaecologist than are controls [14, 18]. A challenge for examiners is increase their awareness of the emotional aspects of the PE and the non-verbal messages that are mutually exchanged in the examination situation, and to discuss and learn about the origin and implications of such messages [2]. Another aspect for the examiner is to constantly be sensitive to the patient's nonverbal discomfort cues [19]. Reddy found five behaviours that clearly reflect high levels of patient anxiety during a PE; holding hands/eyes covered or shut, hands on shoulders, covering pelvis, hands on legs and holding table [3]. These results were based on patients behaviours (primarily hand placement) exhibited as the speculum was inserted and correlated to the patients' assessed score on an anxiety scale (SSAI) filled in prior to the examination.

Women's experiences concerning the PE have been investigated through questionnaires containing multiple choices and open ended items [20], preformulated answer alternatives as well as open questions [2] and by qualitative approach [5]. The findings show that the experience of exposing a private sphere to a "stranger" when lying in the examination chair makes many women feel embarrassed, vulnerable and subordinate. Commonly expressed feelings and experiences are; afraid of own body odour, critical of own body, degradation, ill-informed and discomfort [2, 5, 20]. Discomfort is shown to be associated with a sexual history of abuse, mental health problems and the patient's sexual life according to a postal questionnaire study [14].

Performing a PE requires incorporated knowledge about interpersonal and technical skills that are implemented in a way that benefits both examiner and patient. During a consultation women want to be met on equal levels, as human beings and with warmth, respect [2] and empathy [20]. Most women indicate that the sex of the doctor makes no difference [2, 15]. Several studies about the PE emphasize the nature of the interpersonal relationship between the doctor and the patient as the most important aspect for women [20]. A physician appears to control the procedure of sociable conversation and, in doing so, maintains and perpetuates the social distance between a doctor and patient [19]. However, the physician also has the opportunity to change this into a positive interaction.

Women desire good and inviting communication in an understandable language [4, 5, 21]. Good conversation creates an atmosphere of safety that makes it easier to ask questions, feel respected and relax [4, 5] and decreases the experienced power differential in the relationship [17]. Discomfort during the PE is strongly associated with a negative emotional contact with the examiner [14]. Personnel enable trust and confirmation when they promote participation, create confidence, are supportive and show respect and engagement.

Information obtained from both quantitative and qualitative studies indicate that women often lack basic knowledge about their bodies and the PE procedure and are interested in becoming better informed [3-5, 15, 16, 20-24]. They want knowledge about their anatomy and a rationale for each aspect of the examination [3]. They request explanation of the procedure, step by step, and want the examiner to tell them what he/she is going to do and what a woman might feel during the examination [4, 20, 23]. Women want confirmation about the findings and to know whether they are healthy or not [5, 21]. As one in four teenagers fears that the gynaecologist might discover an abnormal anatomy, it is important to promote knowledge by informing teenagers when their genitals are normal [16].

Good communication may facilitate an informative, interactive setting which contributes to a positive experience [4] and learning. Introducing an educational component into the PE to promote knowledge and active participation has shown to relieve anxiety and enhance control [25] and to make the examination a more positive and less threatening experience [22], of benefit to both patients and examiners. Some women want mirrors to be available so that they can view and learn about their body and the PE [22, 23] whereas others have good experiences of self-insertion of the speculum [26]. Promoting information about the anatomy and the PE procedure is one way of enhancing women's awareness and knowledge and reverse their feeling of lack of control. By being better informed about the normal function of their bodies, women are more likely to recognize deviations from the norm and to seek appropriate care [22]. Another benefit of thoroughly discussing problems and treatment with the patient is that unnecessary follow-up visits or calls to the clinic may be prevented [22].

### **Ethics in learning to perform the pelvic examination**

The ethics of how and under which conditions an examiner should perform his/her first PE and PEs as such are important issues and have been intensively discussed during the past five years [27-34]. Coldicott stated that "medical schools have a duty to deliver ethically informed training programmes that develop doctors' skills and are acceptable to the patient volunteers who are a necessary part of medical education" [28]. These discussions have dealt with the fact that PEs have been performed for mere educational purposes without explicit informed consent from the woman in advance. When women learn of the purpose of these examinations after they occurred, it may leave the patient with a profound feeling of having been violated, and the physician-patient relationship may be damaged [31]. Patients are often willing to undergo PEs by students if asked in advance and clerkship directors should use this opportunity to inform and enhance medical students' awareness about the general importance of seeking permission from patients before interacting with them [35]. The doctor-patient relationship has changed over the past two decades, from one that was historically paternalistic to one more of a partnership between a patient and a physician. Medical education has evolved similarly and puts more emphasis on the patient and her participation in the education process [32]. Respecting patients should be a central issue in educational curricula, e.g. conveying that a patient should be regarded as the student's teacher, not as a training tool [36, 37].

There are multiple ways of learning how to perform the first PE. In the UK, Canada and the US, students at some schools still learn to perform PEs before a

surgical procedure starts on sedated or anaesthetised women who have not consented beforehand [28, 29, 31]. The educational benefits of performing PEs on sedated women are obvious according to Ubel; relaxed pelvic muscles facilitate the palpation of pelvic organs and masses, and the student can act without fear of causing the patient pain or discomfort. Even if this concern for patients well-being is real, the message that is given to the students is “that to do no harm, they should not ask and they should not tell” [29]. Examining unconscious patients fails to teach the students the essential communication skills that must be mastered in order to facilitate a sensitive examination [38] or learn how to approach the patient in such a way that she will relax. Students need to learn the “art” and not just the technology of medicine [39] which is why gynaecologists have a duty to facilitate student learning about the rights of patients and to ensure that patients are treated respectfully and with dignity [38]. Singer emphasises the importance of clinical teaching staff serving as appropriate role models for trainees in practical ethics in the learning environment [34, 40].

Students may also perform their first PEs on plastic models/mannequins [41] or on a newly developed mannequin which is a device with electronic feedback, “the E-Pelvis” (Paper II, Figure 2) [42]. The E-Pelvis consists of a partial mannequin – umbilicus to mid-thigh – constructed in the likeness of an adult human female. The mannequin is instrumented internally with electronic sensors: three placed on the cervix, one on the fundus uteri, and one on the posterior surface of each ovary. The sensors communicate indirectly with a computer-generated interface to provide immediate visual feedback. The screen visualizes which of the six areas is touched by showing a green dot. The E-Pelvis thus has the advantage of providing the examiner with feedback about what is being touched compared with plastic models, or sedated women. But none of these methods have the ability to promote interaction with the “patient” and facilitate communication and inter-personal skills.

In the traditional method, students perform their first PE on a clinical patient during an ordinary consultation and under the guidance of a gynaecologist. In this setting students may be embarrassed and anxious about performing a PE due to its intimate nature and/or be afraid of hurting a patient who is not prepared to interact [6]. This creates distress which hinders students from learning such a complex process as palpating female internal genitals. Due to the nature of a consultation there is often a lack of time and the patient is in a subordinate position that must not be taken advantage of for educational purposes [43]. The patient is very seldom knowledgeable enough to interact and promote learning and might also have gynaecological complaints and be nervous about the findings, which is a known source of distress [17]. The passive role of a clinical patient might give the

student a false perception of how to interact with a patient i.e. “wrong” role modelling. The gynaecologist in turn can not know whether the student has palpated the “right” organ or not.

As cited earlier “ medical schools have a duty to deliver ethically informed training programmes that develop doctors’ skills and are acceptable to the patient volunteers who are a necessary part of medical education” [28]. This can be implemented by learning and performing the first PE, with voluntary and healthy women as patients (PPs/GTAs). This approach takes into consideration the ethics of performing a PE [9, 12, 44, 45]. The PPs are specially trained both to act as a patient and an instructor in guiding the students’ performance of the PE. They have the ability to interact with the students and give immediate feedback about their performance and behaviour, and provide positive reinforcement when the students have palpated the correct structure [9, 12, 13, 44, 45].

### **Evolution of Professional Patients**

In the 1960s, R Kretzschmar, from the U.S.A., found that the existing way of teaching the PE to students was deficient in many ways [46]. Communication between the student and the instructor was inhibited by the presence of the patient and by the anxiety the teaching model caused the student to feel. The emphasis was on technical skills and little on interpersonal and communication skills. The fine art of interpersonal and communication skills was not promoted. Moreover, the patient was exploited by the teaching system, as the students’ examination did not contribute to patient care. The instructor never knew whether the student had palpated the organs as there was a lack of feedback and confirmation by the patient because she did not possess the skill to do so.

Kretzschmar therefore developed new ways of teaching. In 1964 he initiated a medical interview instruction programme in which “a group of intelligent, motivated women” were trained to simulate gynaecologic syndromes and also to simulate the appropriate personality problems associated with the syndrome. The students interviewed the “patient”, and the interview was recorded and followed by a critique of the interview by the student and the “patient”. The simulated patient was skilled in communication theory and gave direct feedback and reinforcement to the student. The “professional patient” concept developed from Kretzschmar’s simulated patient interview program.

In 1968 Kretzschmar introduced an educational programme with a new idea for improving pelvic examination instructions to undergraduate medical students.

Voluntary women were trained to act as patients while a gynaecologist demonstrated how to perform the pelvic examination on the patient. Each student thereafter mimicked the examination on the women. The “patient’s” responsibility was to compare how well the student could imitate the instructor’s examination and almost no feedback was given to the student about the technical performance. This teaching form was later described as “the live mannequin” and did little to enhance communication between student and patient.

In 1972, Kretzschmar initiated his next pelvic examination instruction programme. The women recruited for this purpose had advanced degrees in behavioural sciences and were selected for their teaching and communication skills, personal motivation to educate themselves and others, and sensitivity to the need of health care for women. They were also selected because their anatomy was normal and they were easy to examine, giving the students the opportunity to “learn what was normal” before being asked to examine and interpret the bodies of actual patients, who might have pathological findings. These women were initially named ‘professional patients’ and later Gynecology Teaching Associates (GTA). They acted as both patient and instructor and stressed the equally important areas of interpersonal and technical skills which need to be integrated to provide a good-quality PE. According to Kretzschmar this teaching experience took place in a non-threatening environment and was characterized by positive feedback and reinforcement from the GTAs about both interpersonal and technical skills for the students. The GTA programme drew attention from schools in U.S.A. [7] and Europe and came to serve as an eye-opener for a willingness to change various existing teaching programmes.

PE teaching programmes with GTAs/ PPs evolved and are now used in various forms in the U.S.A. [10, 47, 48], The Netherlands [49], Sweden [12, 50], Australia [13, 51, 52], the United Kingdom [9] and Belgium [44]. Reports from these programmes show very good results concerning both technical and communication skills. Students emphasize the ability of the GTAs/PPs to provide immediate informative feedback and to reduce their anxiety during the learning session (LS) [12, 44-46, 53, 54].

The PP programmes for medical students generally take one of two forms. Either medical students meet PPs twice, once during their second year of undergraduate studies and then again during their course in obstetrics and gynaecology (ob/gyn) [10, 44, 46] or only once in the beginning of their ob/gyn course [9, 12, 13, 52]. The PPs either work in pairs and both teach and serve as patients [9, 10, 13] without any faculty member present; or one PP teaches and serves as a patient and an attending physician supervises the session [12, 44, 50]. The pros and cons of

having a physician present or not during a session have been discussed. It has been reported that a physician's presence would inhibit the free interaction between the student and the GTA/PP [46, 55] whereas some students [56] and PPs [52] find it very helpful to have attending physician that can answer questions that the patient cannot.

A number of evaluation studies concerning the PE learning situation have been undertaken during the years which show that teaching programmes involving PPs are superior to teaching and learning on plastic models [41]. PP programmes also improve students' interpersonal and communication skills as well as their technical skills compared with controls who received training only on clinical patients [7, 57-59]. Students guided by a PP palpated the uterus and ovaries more easily than students instructed by a gynaecologist on a clinic patient. Rochelson claimed that male students particularly appreciated PPs in learning the PE [56] whereas in Wanggren's study female and male students ranked the importance and value of the programme similarly [12]. Hendrickx found no significant differences in anxiety and nervousness between male and female students before an LS with PPs which might have been due to the thorough discussions about the topic "anxiety" during precession preparations [44].

One of the goals of the PP concept is to facilitate learning about and reinforce good doctor behaviour early in medical education, and to enhance students' sensitivity to the need for better health care for women and to promote patient autonomy [10, 13, 46, 55, 60]. Significant improvements in female and male students' attitudes towards female patients and the PE were noted following a pelvic teaching associate programme with PPs in which the students ranked predetermined attitudes prior to a lecture and following participating in the programme [61].

Attitudes among students, evaluated before, during and after a learning session (LS) with PPs showed reduced nervousness and increased satisfaction following the LS as well as a positive outcome of students' joy and pride [12]. The PP concept is known to reduce anxiety by creating an atmosphere of patience and a mutual acceptance of the student as a pupil and the PP as the coach, thereby relieving the student from having to pretend to be knowledgeable [7, 13, 41, 43, 60, 62]. Most researchers agree that students' self-confidence in performing the PE increases if the skill is learnt with the help of PPs rather than through instructions on clinic patients in an ordinary out-patient setting [55, 59, 63]. Reports on students' evaluation of a PP programme give similar findings; learning to integrate behavioural and examination skills by instructions from PPs in a sensitive consultation such as the PE situation allows them to gain confidence and

competence [12, 13]. This facilitates the students' ability to form a respectful relationship with a patient during the clinical clerkship, which makes it more likely that a future patient will allow them to perform the PE [11, 44].

Women working as PPs within PP programmes have concluded that their participation as PPs resulted in a small but steady increase in self-esteem [12, 64] and a "professional" satisfaction in being able to contribute to students' education [10]. They experienced no negative effects on their relationship with significant others, e.g. husbands, family or friends and received support within their PP peer group. PPs' experiences were that students treated them with appropriate respect during the PEs and that such training program should continue [52]. Professional patients in a study by Kamemoto said: We create a safe environment where medical students not only learn the clinical portion of the exam, but also focus on the patient as the primary source of information on patient comfort. Students receive immediate feedback from us and have ample opportunity to ask questions about aspects of the clinical pelvic examination or doctor/patient communication skills. We guide them, teach them, and help them prepare for examinations with other patients who will not be as open or in tune with their bodies as we are [10].

### **The pelvic examination learning concept at Linköping University**

The learning concept with PPs as instructors for medical students was introduced at Linköping University in 1982, by professor Barbro Wijma, who had learnt about the programme in the Netherlands [49]. When the programme started, the medical students learnt to perform the PE, instrumental examination and bimanual palpation of the uterus and adnexa, prior to enrolling in the course of obstetrics and gynaecology (ob/gyn) during their 11<sup>th</sup> semester. During the years we noticed that the students often showed signs of fear before and during the examination procedure and learning could take very long. In the examination situation the students showed bodily symptoms of nervousness such as profuse perspiration on their foreheads, and also an inability to listen to instructions and coordinate their hand movements. In an attempt to reduce fear, we decided, in 1996, to acquaint the students with the PE situation and learn to bimanually palpate the uterus earlier in the curriculum. To this end, we introduced an LS with the PPs during the 4<sup>th</sup> semester when the students study the reproductive system.

Since 1996, medical students attend an LS about the PE and with PPs, twice during their undergraduate training. They perform a bimanual palpation of the uterus during the 4<sup>th</sup> semester and a complete PE with instruments and bimanual palpation of the uterus and adnexa during the 11<sup>th</sup>.

#### 4<sup>th</sup> semester

A lecture is given by a gynaecologist on interpersonal and technical skills in the PE situation (45 min). Great emphasis is put on making the students aware that the PE is a sensitive examination during which many women feel exposed and vulnerable [14]. The importance of acknowledging the woman as a partner during the consultation and approaching her with respect is also stressed [65].

The performance of the PE is demonstrated on a plastic model of the uterus and adnexa in real sizes (Paper IV, Figure 1). Thereafter, the students watch a video film, “The Pelvic Examination Step by Step” (36 min) where a gynaecologist demonstrates how to perform a PE in detail. The video is based on the additional pamphlet “The Pelvic Examination Step by Step” that contains detailed textual information supplemented with drawings about how to use the fingers and hands as well as the instruments in a favourable manner to aid learning [66].

During the LS, which takes place after working hours and lasts about two hours, two PPs, six students (mixed groups), and a gynaecologist with a special interest in students’ learning processes interact [67]. Initially everyone sits down for a moment of introduction (30 min) that is intended to reduce potential fear and make the students feel at ease. The PPs give their motives for participating in the educational programme after which each student verbalises his/her feelings and expectations about the upcoming examination. The PPs and the supervising gynaecologist make suggestions about how to act and approach women in the PE situation. The gynaecologist establishes the objectives for the session; 1) the aim of the session is to let the students become accustomed to the PE situation and ascertain that each student has palpated bimanually palpated the uterus, 2) the PP is the coach, providing education, reassurance, encouragement and instructions, 3) the student is a trainee and need not act as a knowledgeable physician [60] and 4) the student receive continuous informative feedback from both the PP and the gynaecologist [54]. The sessions allow the student to examine until he/she is contented. As the supervising gynaecologist does not have any clinical patient to care for, he/she can direct all his/her attention to the student and the performance.

Firstly, the gynaecologist demonstrates a complete PE on a PP, according to the instructions in the pamphlet [66]. Advice is given about how to use the instruments in a suitable way, and together with the PPs the gynaecologist demonstrates how to use the hands in a sensitive and creative manner. Under the supervision of the gynaecologist the PP then takes the role of a patient and guides the student, from a patient’s position, how to find the uterus by giving immediate informative feedback, including indications of any kind of discomfort. The students learn through observation and imitation of the gynaecologist’s initial performance of the

PE as well as from fellow students' performances in the group, so-called background learning [68]. One PP serves as instructor for three students.

Following the students' examinations, everyone sits down, and is asked by the supervisor to evaluate the session. Thereafter each student gets individual verbal feedback about his/her behavioural and palpation performance from the view of the examined PP and the gynaecologist. The students are also given suggestions about how to improve their interpersonal and technical examination skills.

### **11<sup>th</sup> semester**

The students watch the video "Step by Step" again and participate in a LS as described above. This time two PPs, four students and a gynaecologist interact. The aim is to perform a speculum examination, and palpate the uterus, ovaries and pouch of Douglas. The students then begin four weeks of gynaecological clinical clerkship.

The number of medical students at the Faculty of Health Science, Linköping has steadily increased. Initially the learning programme included 30 medical students per semester compared with 160 students at present. Since 1999 the programme serves midwifery students and since 2000 residents in obstetrics and gynaecology as well as in general practice take part.

The PP model is costly, takes time and effort to sustain, but is worthwhile as it creates a relaxed and interactive setting that promotes students' confidence and competence in examining women which in turn enhances their skill in performing PEs [13, 44, 69].

Medical schools in Sweden, except one, use some kind of learning concept with PPs as instructors for medical students in learning the PE.

### **Professional patients in obstetrics/gynaecology at Linköping University**

PPs in Linköping are healthy, specially trained women who voluntarily allow themselves to be examined by medical students, student midwives and residents. During the examination they coach the students in how to perform the PE [12, 44, 46].

The recruitment of “suitable” women is a key step towards a successful program [13]. The women, aged 35-55, are recruited, via supervisors and other colleagues, because they are comfortable with their body and the PE procedure, are easy to examine, have a commitment to improving women’s treatment in the PE situation, and have excellent interpersonal skills. The PPs are required to demonstrate the sensitivity and perspective of a woman presenting for a PE and the aim is to train the PP-to-be in these qualities and in the PE technique [13, 46, 69]. The PPs in our programme represent different occupations, e.g. registered nurse teacher, nurse, teacher, trained social worker, secretary, vice-principal, preschool teacher, welfare officer and children’s nurse.

On expressing interest in joining the programme, the woman is contacted by the coordinator by telephone. The woman gets oral information about the structure and outline of the programme, the role of the PP and the benefits of the PP programme for the women themselves [10, 69] for the students and their future patients. The women are informed that they can discontinue their engagement at any time and while in the programme the coordinator will provide them with adequate medical care concerning women’s health [70]. The women are paid 70 Euros per working session (2-3 hours). To establish a group identity, the women and the coordinator meet once a year for further education and to provide a forum where any issues that arise can be identified and dealt with [70]. Private gatherings are arranged every semester to further enhance the relationships.

A woman who decides to enter the programme is familiarized with the role in a series of meetings [13]. She first visits a LS as an observer to find out how it is conducted and to get acquainted with the concept of being a PP. Following this the woman is contacted by the coordinator by phone to talk about the experiences of the session and whether being a PP would suit her. If the woman decides to try it out, she later undergoes an empowering pelvic examination (EPE) [25, 43] performed by the coordinator of the programme to find out whether she is bodily suitable to become a PP. This means having a normal uterus that is easy to find and bimanually palpate in the way we instruct the students according to the manual in the pamphlet “Step by step” [66]. The aim of the EPE as such is to facilitate the woman’s learning about the PE procedure stepwise and to provide knowledge about how and why the examination is performed and the instruments used. The

woman is offered a mirror to be able to view her vulva when the anatomy of the external genitals is explained. She also gets to look at her vaginal walls and the cervix via the mirror when the speculum inspection is carried out.

The bimanual palpation is performed while constant information and feedback are given about what is being touched and palpated. The woman gets awareness of her body and learns how it feels when the cervix, uterus and ovaries are being touched and palpated so that she can give feedback to the students in the future. When the examiner lifts the woman's uterus towards her abdominal wall, she gets to palpate her uterus with a hand on the abdominal wall to be really sure of the uterus' location, consistency and size. When an ovary is being touched the woman learns how to recognize the location and the special sensation which is characteristic for an ovarian touch; an extremely short burning sensation or an extremely short sensation of a temporary electric shock.

Next the woman attends a workshop about the anatomy and physiology of the female internal and external organs. As there is no time limit, the woman has the opportunity to ask questions and discuss different matters of concern. To facilitate learning, a full-scale model of the uterus and ovaries are used (Paper IV, Figure 1) along with instructional sheets with drawings about the anatomy of normal female external and internal genitals. This is followed by information about the most common abnormal findings and "diseases", and an explanation is given about why a PAP/cervical smear is performed along with a demonstration how it is carried out. By using an electronic device (E-Pelvis) (Paper IV, Figure 2), which is a mannequin from the umbilicus to mid-thigh, the female internal genitals can be demonstrated by removing the abdominal wall. The coordinator performs a PE on the E-Pelvis, without and with the abdominal wall, hereafter one woman at a time performs a PE herself on the mannequin [71].

The women then watch the video, "The Pelvic Examination Step by Step"[66], about how to perform a PE. The video is the same as the one the students watch. The aim of watching the video is to reinforce the steps of the procedure and the concepts of behavioural and examining skills. The women are also given the pamphlet "Step by Step" [66] with detailed descriptions and drawings about how to perform the PE. Later on, after a period as a PP, the woman performs a PE on another PP to become acquainted with the role of being an examiner and performing the PE for the first time.

To feel safe and secure the first times a woman "works" as a PP, she is paired with a PP who has been in the programme for long, and if possible, for logistical reasons, continues to work with the same woman during the subsequent sessions.



## Theoretical Framework

### Learning

John Dewey, a spokesman of the philosophy of pragmatism promoted a problem-solving process and an inquiring, reflective approach to learning that involved doing and experiences. He held that knowledge appears in action, stating that an important stage in learning situations is to experiment, to discover and to examine [91]. The Deweyan perspective advocates that knowledge cannot be had in an instant; it takes time and is an achievement [92] and the central goal of education is to help students lead lives rich in worthwhile experiences. There is a distinction between an ordinary experience and *an* experience, meaning that an ordinary experience is something you do in everyday life, never comes to mean anything and does not affect you in any way. In contrast, *an* experience, affects a person as thoughts, feeling and action are unified. This is why an educative experience cannot be presented or arranged for students, they must actively participate themselves and become involved [93]. This favours the student-centred approach as proposed by Rogers, which holds that we cannot teach another person directly. Instead the role of the teacher is to be a facilitator of learning [88].

### Adult learning

When students in higher education are asked to identify a good lecturer, they identify the same ones as the lecturers themselves do: organisation, stimulation of interest, understandable explanations, empathy with students' needs, feedback on work, clear goals and encouraging independent thoughts [94]. Good teaching and good learning are linked through the students' experience of what the teacher does, teaching makes student learning possible [94]. This in line with the adult learning approach (andragogy) [95] which promotes self-directed learning. It views adults as being motivated by internal factors and a need to understand why something should be learnt if they are to be open to learning. They also respond best if learning experiences are applicable to real-life situations. Their previous experiences should be valued as resources and taken into account to facilitate learning [96].

One foundation of adult learning practice is experiential learning [97]. Learning is not an isolated event but a lifelong process based on the link between work, education and personal development whereby “knowledge is created through transference of experience” (Figure 1 ) [97].

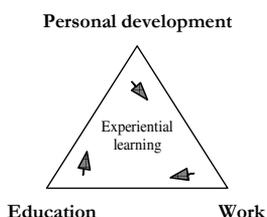


Figure 1. Experiential learning as the process that links Education, Work, and Personal Development (Kolb).

The processes involved in experiential learning combined with reflection are embodied in the Lewin & Kolb four phases experiential learning cycle: concrete experience, reflective observations, abstract conceptualization and active experimentation (Figure 2) [37, 97]. The key step is reflection, and the role of the teacher is to help students to move round and complete the cycle that can be entered at any stage.

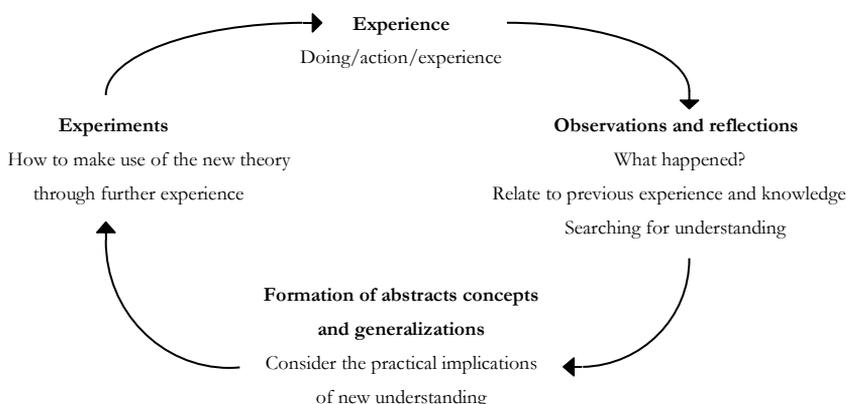


Figure 2. Lewin/Kolb experiential learning cycle.

According to Henderson there is no single definition of the term reflection in the literature, but the understanding is that it is a conscious process that reviews and focuses on the interpretation and understanding of experiences or events [54]. In ob/gyn curricula different reflective approaches such as portfolios [98], small-group reflective tutorials [99] and weekly reflective sessions [100] have been introduced to enhance and support the development of clinical skills, as the approach to women's health and the pelvic examination is sensitive.

### **Learning a skill**

Learning to perform a clinical procedure such as the PE involves learning two sets of skills: those related to conducting the procedure itself and those related to interacting with the patient [101]. A skill is a combination of ability, knowledge and experience that enables a person to do something well [102]. A learning skill defines a generic heuristic that enables mastery of a specific domain. "Learning skills" are achieved through iteratively "learning by doing" of a specific domain and by intentional personal development. Flow is achieved when a person meets the specific environments demands with appropriate skills and a feeling of mastery and increased self-esteem.

When first learning a skill all concentration will be on the bodily performance that will later become tacit. Background learning, like watching others, most often proceeds without conscious awareness but may give an additional understanding of the procedure [68]. The initial acquisition of a new skill involves a special time of transition before the possibility to perform exists on its own. The learner is first occupied with what has been explained in words, existing rules, what to do, how to do it and by performing in front of others. When the learner is put in the position of performing, the whole body is alert and attention will be paid to every body part that will be involved in the procedure, "consuming" a lot of energy. Emotional concerns have to abate for a person to be able to act when learning a new skill; anxiety, for example, needs to be minimized [103]. Once the skill is learnt, bodily awareness will disappear, and the performance comes without conscious effort, allowing the focus to be directed elsewhere. Leder maintains that a skill is finally and fully learned when something that once was extrinsic is *incorporated* into my bodily "I can" and is a result of repeated practice. The same applies to learning to use an instrument. It will be experienced as an external object and much attention will be paid to the impacts exerted on the hand. As soon as the instrument is mastered it will be incorporated into the body and the ability to feel through it has emerged.

Schön refers to this as *knowing-in-action*. We perform something without having to think of it, but are unable to make it verbally explicit. His experiences showed that

when a person was asked about how he/she did something, the know-how implicit in their actions was incongruent with their description. The knowledge gained had become tacit. This is like when a professional performs PEs on a daily basis. It is *knowing-in-practice*; the knowledge is tacit, and when a student asks them to explain in detail how they move their hands and fingers, it is not an easy task. In the process of learning, *reflection-in-action* is used as a way to stop and think while performing, with a chance to ask or change a particular action and enable improvement [68].

Schön observed that confusion was a necessary prerequisite for learning; it had to be tolerated by the student and understood by the coach [68].

### **Learning environment**

Educational research has shown that useful, sustained learning takes place in supportive environments;

*“Good teaching is nothing to do with making things hard. It is nothing to do with frightening students. It is everything to do with benevolence and humility; it always tries to help students feel that a subject can be mastered; it encourages them to try out for themselves and succeed at something quickly”* [94].

In a study by Hallet, students experienced that supervisors who showed an empathetic understanding and a positive attitude enabled a “helping relationship” [104]. According to adult learning theories, it is essential to clarify and promote understanding of the learning goals before learning takes place [95]. Students have reported that “anxiety could be reduced by unhurried, supportive doctor-teachers who provide good role models when preliminary learning took place” [8].

Furthermore, students have identified several characteristics to describe an excellent role model [105]. Some of the most commonly identified characteristics were; enthusiasm for their speciality and for teaching, involving and communicating effectively with students and enhancing the doctor-patient relationship, viewing the patient as a whole.

Becoming a doctor involves learning how to behave towards patients and colleagues and which attitudes are appropriate [106]. Much of this learning is tacit rather than explicit and as Paice paraphrased John Lennon: being a role model is what happens when you are busy doing other things. Observations have shown a divergence between the qualities that students seek in role models and the qualities they actually emulate. This implies that role models may not be a dependable way for students to learn. Paice suggested that professional behaviour and ethics should

be explicitly taught through peer group discussion, exposure to the views of people outside medicine, and access to trained mentors.

During a learning experience continuous informative feedback is essential to facilitate progress and as a basis for reflective practice [54, 101] as well as positive reinforcement by the patient [44]. Learning effectively from feedback requires that it is given in a way that helps the recipient to listen to it, receive it constructively, reflect on it, and consider how to take action as a result. This is nothing that is had in an instant, it has to be learnt and practised [54].

### **Learning to perform the pelvic examination**

Performing the PE requires the integration of technical skills with effective communication skills. Very often these skills are learnt separately, but experiences has shown that it is an advantage to facilitate this interactive learning simultaneously [101]. Learning to perform the PE technically while concentrating on approaching the patient with correct behaviour and communication skills is initially a difficult task. This learning has to be incorporated stepwise and acknowledged by teachers as skills that take time to learn [91]. Learning the examination involves palpating structures in the abdomen, where “hidden” organs are supposed to be found and felt bimanually, a skill most students have never practised before [50]. This has to be learnt through very detailed information from others about how to use the hands and fingers in a constructive and appropriate way. An instructional video and a pamphlet with detailed written descriptions and additional drawings have been produced to facilitate this learning and meet these specific requirements [66].

## Anxiety

It is well known that there is a relation between arousal, learning and performance which was described as early as 1908 in the Yerkes-Dodson law (Figure 3) [107]. Arousal is considered a hypothetical construct representing the sum of a variety of processes that mediate activation, alertness, and wakefulness and where no single measure can be considered an indicant of a the state of arousal [108].

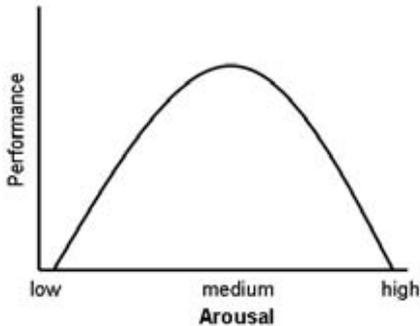


Figure 3. The Yerkes-Dodson law.

The Yerkes-Dodson law demonstrates an empirical relationship between arousal and performance. The process is often demonstrated graphically as a curvilinear relationship between arousal and the quality of performance, such as the best performance occurs not at the lowest level of arousal but at an optimum level of arousal wherafter the performance will decrease [109]. A consequence is that there is an optimal level of arousal for a given task. It has been reported that practice will make a performance less vulnerable to the level of arousal [110]. The difficulty in performing the task and the optimal level of arousal will covariate, indicating that complex tasks will be disturbed at lower levels of arousal than easy tasks [109].

There is a hypothesis that the Yerkes-Dodson law can be decomposed into two distinct factors: The upward part of the converted U could represent the energizing effect of arousal and the downward part could be caused by negative effects of arousal (stress) on cognitive processes, such as attention (selectively concentrating on one thing while ignoring others), memory and problem-solving. This means that if the level of arousal increases beyond the optimal, the individual will not be able to catch and process all relevant signals from the surrounding. There has been research indicating that the correlation suggested by the Yerkes-Dodson law exists

but the mechanisms of the relation have not yet successfully been established [108, 111].

Korchin meant that in general, the effects of anxiety depend on the intensity and extent of arousal, the nature of the activity, and the qualities of the person, in regard to stress tolerance, the type and effectiveness of defense, and other personality qualities [109].

Tooth describes the relation of stress, arousal and anxiety using Cox's criteria:

**Stress** is described as a psychological process, indicating failure of coping and **arousal** is a psychological state accompanied by a high level of sympathetic activity.

**Anxiety** is the vector sum of stress and arousal, containing components of both (Figure 4)[111].

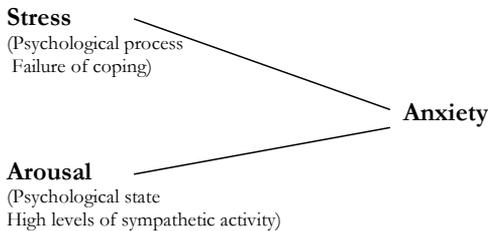


Figure 4. The relation of stress, arousal and anxiety according to Cox.

Problems in measuring anxiety are many and complicated as the display of anxiety may manifest itself in different ways and is a function not only of the eliciting stimulus but involves a wide array of factors that influence overall anxiety [112].

Cassady and Johnson promotes that to more effectively measure the specific effects of study skills and habits, perceptions of a particular testing event, or level of arousal surrounding an isolated evaluative event, it is desirable to collect data after inducing the participants to consider their feelings about a specific, imminent examination [113].

In a study by Cassady-Johnson, female university students reported higher levels of test anxiety in both emotional and cognitive test anxiety than males but there were no gender differences in course examination performance [113]. Cognitive test anxiety showed to have the strongest connection with and a negative impact on academic performance. They further described that the cognitive component may be composed of a) worry and fear of failure b) worry about coping, failure anticipation, escape cognitions, self-concern and irrelevant thinking or c) test-irrelevant thinking and worry. The cognitive interference model suggests that

individuals with high levels of test anxiety perform poorly mainly due to an inability to suppress competing thoughts during the exam. This theory was derived from findings that individuals with high levels of test anxiety are more likely to worry about the outcome of the test, compare their abilities with others, or dwell on the notion that they are not fully prepared for the exams [114, 115]. Effective cue utilization helps learners by constraining attention to only relevant cues, which promotes performance [116]. Individuals with high levels of test anxiety are either constraining their attention to inappropriate cues for the task or are incapable of restricting the range of cues, allowing competing thoughts to enter conscious awareness and interfere with performance [115]. Level of trait anxiety has also been shown to be an important variable influencing the receptivity of the situational cues [117]. Expectations built up by previous experiences might sometimes be an important factor determining the perception of the learning situation of the highly trait-anxious student.

Medical students, on their first day of their clinical experience, were asked about clinical situations they anticipated to encounter and were asked about how anxious they were about each of them [118]. The students most concerns were about relating to the hospital consultants, afraid of not performing well enough and being afraid of hurting patients. Male and female students showed to have different anxieties concerning vaginal examinations, males being more anxious than females. Carrying out rectal examinations showed the same ranking. Male students ranked undressing patients of the opposite sex a lot higher than the females. It is suggested that after identifying the sources of anxiety, students should have them explicitly addressed and get an opportunity to begin to develop their skills within a supportive environment [118, 119]. This is in line with Pugh's report that a specially created learning environment for students learning clinical breast examination significantly relieved their previously identified anxieties of "fear of missing a lesion" and the "intimate/personal nature of the exam" [120].

### **Anxiety and learning to perform the pelvic examination**

When students perform their first PE, most female and male students show signs of anxiety [6, 8]. Knowing the relation between arousal and performance leads to the conclusion that a complex tasks such as performing the first pelvic examination should be easier to learn in a relaxed atmosphere in which arousal is low. Students may also have different motivations for learning this examination which may influence their preparations.

Fransson explains the distinctions between intrinsic and extrinsic motivation as follows: intrinsic motivation for learning is a state where the relevance of the content of the learning is the main reason for learning [117]. Extrinsic motivation for learning is a state where the reasons for a learning effort have nothing to do with the content of the learning material. A good learning performance serves merely as a means of achieving certain good results. An intrinsically motivated student believes it will be of interest to learn how to approach the PE situation and perform the PE whereas others with an extrinsic motivation come to the session because it is a requirement.

During the performance of their first PE, students have been reported to be so highly anxious that learning has been inhibited and in some cases totally blocked [7]. Another study reports that 22% of students (female and males) felt shaky and sweaty, and 34% were sick and nauseous before conducting their first PE and 42% felt embarrassed during the performance [8].

To enable students to perform their first PE it is important to help relieve their anxieties and arousal. The relation between perceived anxiety and the ability to learn in the PE situation has been discussed by Buchwald [6]. He conducted seminars with small groups of medical students beginning their course in ob/gyn to help them cope with their emotional reactions to performing their first PE. The six most characteristic responses were, fear of: 1. hurting the patient, 2. being judged inept, 3. inability to recognize pathology, 4. sexual arousal, 5. finding the examination unpleasant and 6. disturbance of the doctor-patient relationship. Buchwald stated;

*“The air of humour is needed to permit the release of affect laden thoughts and seminar participants are grateful for the opportunity to recognize that their peers are similarly burden with thoughts that need relearning”.*

## Haptic perception

The combined input from the skin and from the joints provide the basis for the haptic system (from Greek “to lay hold of”) [121]. The use of one’s hand to perceive the physical world is known as ‘haptic perception’ [122]. It is described as perception in which both the cutaneous sense and kinesthesia convey significant information by “active touch”. Thus the haptic experience unifies input from many sources, e.g., position of fingers, pressure, into a unitary experience (Figure 6).

### Tactile perception

mediated solely by variations  
in cutaneous sense

### Kinesthetic perception

Mediated from joints, muscles,  
limb movements alone, hardness  
viscosity and shape



Figure 6. Haptic perception.

Haptic perception normally entails an active exploration of object surfaces over time, as when palpating an object to gauge its shape and material properties [123]. During this exploration the perceptual and motor functions of the hand are tightly linked, and the hand movements tailored to the information the person wishes to extract [122]. Local information about the object can be extracted by touching the surface; by a fingertip contact. More global features such as determination of the size, shape and texture of an object can be specified by enclosing it in the hand or by moving the fingertips over the contours of the surface and integrating sensory inputs over time. It has recently been shown that touch interaction with everyday, real objects also involves force-feedback: objects return forces that follow the physics of the interaction. Such forces are dependent on the person’s limb movements [123]. The sequential nature of haptic processing implies that the information must be stored in working memory for later retrieval. The neural processes that underlie haptic sensing are practically unexplored [124].

When haptic is compared with vision in the perception of objects, vision is more rapid and holistic, allowing the learner to take in a great deal of information at one time. In contrast, haptic involves sensory exploration over time and space. If an object is both observed and felt, more rapid observations can be made than if only the object was felt without the benefit of sight. Haptic is superior to vision in helping a learner detect properties of texture (microgeometry), e.g. roughness/smoothness, hardness/softness, wetness/dryness, stickiness/slipperiness as well as microspatial properties of patterns, compliance,

elasticity, viscosity, and temperature [125, 126]. Vision dominates when the goal is the perception of shape (macrogeometry) [127]. Haptic and vision together are superior to either on their own for many learning contexts.

### **Haptic learning**

Haptic learning refers to active touch such as how a student manipulates during hands-on explorations. Involving students in consciously choosing to investigate the properties of an object has been shown to be a powerful motivator and increase attention to learning. In active manipulation the students expend energy and make decisions to manipulate material. In passive learning, the students most often sit and observe. It is more difficult to maintain attention and motivation in a passive learning context than an active one. Active manipulation gives the student the opportunity to control actions, learning, and even the speed of exploration and in this way haptic learning facilitates the investigation. Control has been shown to be an important part of intrinsic motivation [128].

Learning to perform the PE involves learning two sets of skills- those related to interacting with the patient and those related to conducting the procedure itself. Haptic learning has to do with the latter. By using PPs when learning to perform the PE, the students are allowed to be learner-examiners and can pay all attention on palpating while receiving immediate feedback of their attempts [12, 44]. The students can thus use active touch and palpate the organs from different angles until they have found what they were searching for. Enclosing the uterus between the hands and actively move the hands and fingers to explore the size and shape, give an opportunity to “visualize” the organ/s and thus create a 3 D picture in the mind and thereafter describe what was found and felt between the hands.

## Empowerment

### Theories of empowerment

The term 'empowerment' has appeared with increased frequency in the literature over the past decade, most often in the context of psychological and mental health, but lately also associated with health promotion and patient empowerment.

Empowerment is an abstract concept and is difficult to define. Rappaport said that "Empowerment is easy to define in its absence; powerlessness, learned helplessness; alienation; loss of a sense of control over one's life. But more difficult to put into words as empowerment is an individual achievement and the end results can take on a variety of forms in different people and context". He further stated that empowerment is viewed as a process; the mechanism by which people gain mastery over their lives [72].

The Oxford Advanced Learner's Dictionary 1991 defines "empower" as 1. to give someone the power or authority to do something and 2. to give someone more control over their own life or the situation they are in. The Oxford Paperback Thesaurus gives the following synonyms for "empower": authorize, entitle, permit, allow, license, sanction, qualify, enable, equip, warrant, commission and delegate [73]. None of these definitions includes a specification of what the person is empowered to do and does not catch the "active" component that the concept of empowerment refers to. Empowerment stems from the Latin word 'potere' meaning "to be able to", which refers to something more active [74]. It suggests a sense of control over one's life in personality, cognition and motivation. It is a process ability that we all have but which needs to be released, meaning that everyone has it as a potential [75].

Brazilian educator Paul Freire was one of the first persons to contribute to theoretical writing on empowering education [76]. He worked with poor, illiterate people in South America in a successful way and held that the purpose of education should be human liberation so that learners could be subjects and actors in their own lives and society. Freire maintained that the prerequisite for getting people to enter an empowering process was that they themselves 1. acquired an awareness of and identified their problems in society and 2. through discussions and critical thinking together with others assessed the roots of the problems, leading to 3. emotional reactions to the situation that would promote the power to act and change it. "Knowledge mobilizes action for change" [76].

Swift & Lewin concluded that empowerment implies the growth or development of something positive, starts something happening e.g initiates a sequence of events or advances events already in motion, looks to the future and is primarily related

with the process. The empowered person has an increased capacity to act in goal directed ways [77].

According to Swift & Lewin two central issues should be considered when referring to empowerment 1. Empowerment refers to the development of a certain state of mind ( e.g., feeling powerful, competent, worthy of esteem) and to the structural conditions in order to reallocate power and 2. Empowerment is both a process and a goal.

Levin's analytic scheme of class consciousness has been used to describe three developmental stages to bring to someone the sense of empowerment; 1. to be able to enter an empowering process a person must be aware of self-interest and competencies, 2. affective feelings towards this cognitive awareness generate energy which 3. promotes action and is a precondition for participating in empowering activities. Each stage is a prerequisite for the following [77].

The concept of empowerment does not state that there is an absolute quantity of power. Increasing the power of one person does not decrease the power of another. Thus people can be empowered without diminishing the power of others. There is only a transformation of power where none of the parties has lost power but where one of the parties has gained. Empowerment is an ongoing process, which requires the disempowered not only to participate in decision-making but actually make the decisions [77].

### **Empowerment in Health Promotion**

The change of the existing medical model in health care to a system in which the patient is an active and empowered part of the process is similar to Freire's concept of liberating education [76]. Wallerstein and Bernstein proposed a model in which the health professional is not the power figure but rather serves as a resource and equal partner in a learning process [78]. This challenges the traditional system to promote a shift from professionals having power over the patient to having power with the patient, indicating a partnership where the patients views are respected [79]. This process lets individuals identify their own needs and focuses on patients' potentials rather than incompetence. This is in line with Knowles theories about adult learning, where he emphasises the importance of understanding the experience of an adult learner as the first step in their education. He further says that adults are motivated by 1) their need to know, 2) the applicability to their lives and 3) their self-concept as a self-directed adult.

It is important to bear in mind that all people are not the same and actions need to be taken to find out from people themselves the type of role(s) they desire in the health care [80]. This calls for more qualitative research that could elicit both the physician's and the individual's perspective on how to define empowerment [80].

So far there is no consensus about how best to define empowerment, but the concept entails a re-distribution of power between patient and the provider indicating that empowered patients take charge of their own health and their interactions with health care professionals [80]. A continuous debate about the empowerment approach in health care is of outmost importance; e.g to prevent Skelton's prophecy from coming true: "Empowerment is about getting you to come around to a way of behaving that I, the expert, knew in advance what was good for you and whilst encouraging you to think that changing your behaviours was your idea in the first place" [81].

### **The meeting in the pelvic examination situation**

The PE consultation is a short meeting between two individuals with different preconceptions and in a special setting. They meet on terms that are unequal from the start because all competence is considered to belong to one party. The physician has a monopoly of knowledge even though that knowledge concerns the patient's own body [82]. For physicians who have professional power [83] the PE is a routine procedure [2]. In contrast, for most women it is an uncommon event, and even shameful as they are expected to expose their external genitals, which are often seen as their most intimate body parts. Apart from this the patient quite often is in pain, which puts her in a dependent role and makes her more vulnerable.

The body part to be examined may be charged with sexual associations. Most often a woman does not expose her genitals if she is not in a sexual situation. To be able to proceed in the PE procedure, both partners let go all associations with sex and individually cognitively restructure the situation "as not to be sexually associated". This is effected by constructing a "medical setting" and performing a "medical investigation" in which the woman undresses in a special cubicle and puts on a robe to cover her naked body. Furthermore, the gynaecologist wears a white coat, puts on gloves before touching the woman's genitals and when talking to the woman perhaps uses unfamiliar words when describing her organs. If the woman should interpret anything at all during the examination as sexual, the physician has to be aware of this and behave professionally in a way that benefits the woman. This requires advanced communication skills [2, 43].

When a woman lies in the examination chair she may feel bodily and "mentally" subordinate. If so, this can be explained by the humiliation inherent in lying flat on one's back with legs separated and genitals exposed, feeling vulnerable and shameful [43]. Limited knowledge about the sizes, shapes and localisation of the female genitals organs as well as limited insight and understanding of the PE procedure puts women in a position of not being able to interact with the

examiner. Hence, there is an uneven distribution of power in the PE situation. The woman often feels like an object instead of a subject with the right to decide about her own body [43].

Studies have examined what “external” changes women desire in the PE situation. They desired a relationship of trust, respectful treatment, and an informative and interactive setting [4, 5, 65]. Little has been written about how to change the existing power imbalance in the PE situation and promote lasting changes in women that would enable them to make the transition from a subordinate position to being able to act as a “partner” during the consultation [84]. One way could be to adopt the philosophy of empowerment as a “tool” to trigger behavioural changes in the PE situation.

### **The empowerment approach in the pelvic examination situation**

Empowerment in this sense is defined as “the discovery and development of one’s inherent capacity to be responsible for one’s own life” [85]. Empowerment is an achievement and thus an outcome. From some researchers’ point of view; patients are empowered when they have the knowledge, skills, attitudes, and self-awareness necessary to influence their own behaviour and that of others to improve the quality of their lives [85].

Practising an empowerment philosophy requires a shift from a provider-centred to a patient-centred collaborative paradigm. This is a challenge for examiners urging them to redefine their professional role and mission. [84, 86]. A paradigm is defined by Kuhn as a worldview that is essentially an interrelated collection of beliefs shared by scientists. The way problems are defined, determines the nature of the strategies designed to solve the problem.

There are some barriers to overcome when adopting a new paradigm, in this case the paradigm of empowerment [87]:

1. For many examiners the paradigm is so embedded in their consciousness that they are unaware of its existence. The paradigm in use is often something that the examiners were socialized to during their professional training by adopting the worldview of their mentors and role models. The paradigm can have a deep hold on a person and act like a psychological “eye” with which he/she sees the world but which he/she cannot see.
2. Paradigm shifts take time but the rate of change may increase as more health care professionals and researchers in the context of women’s health recognize the need for a different approach to women in the PE situation.
3. The empowerment approach requires a change from feeling responsible for the patient to feeling responsible to the patients [87] which is in accordance with

Labonte's view of shifting from having power over to having power with [79]. Examiners/educators cannot empower patients, but can provide them with the information, expertise, support and skills they need to enable an interactive participation in the PE consultation. Wallerstein emphasized that care givers should serve as resource and an equal partner in the learning process [78] and according to Rogers facilitate learning [88].

Williams maintained that if professionals are to understand and adopt an empowerment approach in their work, they need opportunities to explore the process of empowerment in their own professional development [89]. To be able to adopt the empowerment paradigm, examiners have to come to an insight about the existing way of approaching a patient, realize it is not optimal and have an inherent will to change approach. The examiner then has a unique possibility to catalyze women's empowerment during a pelvic examination [84]. Empowerment is largely accomplished by the individuals themselves, but the process can be facilitated by health care professionals [90].

By providing a woman with different "tools" during a PE consultation, she may herself decide whether she wants to take them into consideration and act. Possible tools in the context of women's health include providing knowledge about the steps of the PE procedure, consistent description of what is performed during the examination, and the use of understandable words. Health care professionals who facilitate empowerment note that it is the method by which the content is presented that help empowerment to develop and flourish [90].

### **The empowering pelvic examination (EPE)**

The EPE is a conscious way of performing the PE to acknowledge the patient as a partner in the consultation and provide her with interactive feedback and information [43].

In the PE consultation, it is important to demonstrate that the woman has power over her body and can decide what will happen to it. This can be achieved by asking the woman whether she wants to have an examination performed. The question will give the woman an opportunity to decide if she wants to be examined at that moment and by that examiner. If the answer is affirmative, the woman is told to undress in a cubicle. She will be informed that there is a robe she can use, if she desires, to cover herself. Thereafter she sits down on the examination chair and the examiner takes a position alongside the chair to respect the woman's vulnerability when she separates her legs and positions them in the stirrups. By adjusting the pillow and asking whether the woman want the stirrups altered, the examiner shows concern. The back support of the chair should be raised so the

woman gets an opportunity to follow the examination procedure and look at the examiner at eye level. The woman is provided with a mirror to view what is examined.

Before the examination starts, the woman is asked to tell immediately if something doesn't feel right when examined and that the procedure will then be interrupted at once. When the examiner begins the examination he/she names explicitly the external genitals that are being touched, and if everything looks normal informs the patient about this. As the examination proceeds the examiner explains what is being performed, why, and what the findings are. When an internal genital is being touched, it is named so that the woman gets a feeling of the special sensation of palpating that specific organ and learns its location. In this way the women also incorporate the names in their own vocabulary for future use. When the uterus is lifted up towards the abdominal wall and moved sideways the woman might be able to view this from above. She is then encouraged to palpate the uterus herself from the "outside". This enables the woman to learn about her body. Throughout the examination the examiner uses understandable Swedish words and expressions. Following the examination the women is told about the findings and given time to reflect and ask questions of concern.

## **Aims of the Present Study**

The general aim of this thesis was to explore what learning to perform the pelvic examination means for professional patients, students and clinical patients.

The specific aims of this thesis were:

To identify and describe the experience of being a professional patient in teaching the PE. (Paper I)

To compare two models of learning the PE for medical students, with professional patients or with clinical patients, measuring perceived fear and learning outcome of skills. (Paper II)

To gain a deeper understanding of what female medical students experience when performing their first PE. (Paper III)

To gain a deeper understanding of women's perceptions of a learning session about the female anatomy, the PE, and performing a PE on a mannequin prior to a subsequent own PE. To find out how the learning session affected the women during the PE. (Paper IV)

To gain a deeper understanding of what male medical students experience when performing their first PE. (Cover story)

To validate the Fear of Pelvic Examination Scale (F-PEXS). (Cover story)

## Overview of the Studies

Study	Design	n	Data collection	Method of analysis	Outcome measures	Data collection period
I Paper I	Qualitative	13 women	Interviews	Phenomenology	Essence of women's experience of being a PP in instructing the PE procedure	April-June 2002
II Paper II	Prospective study	48 medical students at two medical schools  (26 females 22 males)	Questionnaires * GyEXD Evaluation of: * Learning session * Clinical Period	Statistics: Two way analysis of variance Multiple logistic regression Fisher's Exact test	Perceived fear and learning outcome of skills	January-June 2000
III Paper III	Qualitative	12	Interviews after performing the first PE.	Constant Comparative Method	Female medical students' perception of learning the PE with PPs as instructors	March-April 2003
IV Paper IV	Qualitative	12	Interviews following participation in an individual learning session about the PE and subsequent own PE	Constant Comparative Method	Women's perception of PEs in general, a learning session about the PE and the subsequent scheduled PE	January 2004-Dec 2005
V Preliminary results	Qualitative	12	Interviews after performing the first PE.	Constant Comparative Method	Male medical students' perception of learning the PE with PPs as instructors.	March-April 2003
VI Preliminary results	Validation study	100 medical students  (60 females 40 males)	Questionnaires: * BAI * STAI * SSAI * F-PEXS	Statistics: Correlation Variance t test	Validity Reliability	March 2006 Dec 2006

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## Methods

### **Qualitative and quantitative approaches-complementary methods in research**

In the present studies, qualitative (I, III, IV and V) and quantitative (II and VI) research approaches have been used depending on the purpose of the study and how well they answer particular research questions [129]. Qualitative methods have a long history in social sciences and education [129-131], but traditionally have been rarely used in medical research and medical education where the quantitative approach has dominated [130, 132]. Numbers alone can never provide the whole range of evidence needed for clinical work in medicine so there is a need for diversity in medical research [133, 134]. Using a qualitative approach, where the method relies on “making words count” [135] is an additional way to gain knowledge and capture patients’ experiences and opinions as living human beings in their sociocultural environment.

Qualitative and quantitative research should be thought of as being complementary rather than conflicting [129, 133, 134]. Qualitative methods can be used to supplement quantitative work or by exploring complex phenomena or areas not amenable to quantitative research [129]. The methods capture different aspects of knowledge that can be presented alone or combined in order to gain a more comprehensive and multifaceted understanding of certain issues [136].

### **Qualitative research**

Qualitative research is a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live [137]. It is suitable when researching a previously unexplored topic or one that is poorly understood [130]. The researcher looks for the social processes in a given context, how they are experienced and the outcome of the processes. Qualitative studies gain information in the context studied from the people, who are able to give a rich description. The sampling strategy usually reflects the diversity within the study population, and sample size is determined by the specific purpose and context of the research. The sample size must be sufficient to gain depth rather than breadth, and might comprise only a small number of participants [138]. One way to select informants is by purposeful sampling, e.g. a deliberate selection of informants depending on the research aims another way is by self-selected volunteering [135]. Data are obtained by various methods e.g. observations, fieldwork or interviews.

Interviews might be semi-structured and conducted on the basis of questions which define the area to be explored or in depth which may cover only a few issues but in great detail [139]. The researcher is the instrument in qualitative inquiry [140-142], and works in close contact with the informant. The aim is to encourage the interviewees to display their own understanding and perspective. The interviews are interactive, and the flexible agenda tries to go below the surface of what is discussed. Further questions are based on what the interviewee says [130]. Good questions are supposed to be open-ended, neutral, sensitive and clear to the interviewee [136]. The interviews are tape-recorded and transcribed verbatim. During the analysis the individual interviews are read and reread several times to generate individual themes and are analysed inductively to generate theories. Analysing the data is the most time-consuming part of qualitative research [130].

Qualitative data cannot be replicated to prove reliability, but they can be audited. Qualitative research methods call for accurate descriptions of how data can be traced to their source, “audit trail”, to verify the rigour of the work and confirmability of the data collection [136]. An audit trail requires clearly stated reasons for theoretical, methodological and analytic choices so that others can understand how and why decisions were made and to enhance the reliability, or dependability, of the findings. This means that the trustworthiness of a study is enhanced by a satisfactory audit trail.

The qualitative researcher has an obligation to provide adequate detailed descriptions of the findings. Quotations from the informants are used to support the data. It is wise to number quotations with the informants’ code number, to make clarify whether the data presented are drawn from different individuals. The aim of this research is to produce information that can be shared and applied beyond the study setting [134]. The findings are not generalised in a quantitative sense but may be transferable (external validity) to a similar situation. The onus is then on the reader to evaluate its applicability in another setting [143, 144]. Interpretation is an unending process in which the readers of the report make the final interpretation [145].

### **Qualitative methods used in the present studies**

#### **Phenomenology**

Phenomenology is a rigorous science whose purpose is to bring to language human experiences [136]. It is a useful method for describing unexplored topics and was therefore chosen to analyse “being a PP” (Study I).

The aim of phenomenology is to determine what an experience means for the person who has had the experience. It is able to provide a comprehensive

description and bring to language human experiences [137, 146, 147]. The interviewees are selected by purposeful sampling [136], which means selecting individuals to participate in the study based on their particular knowledge of a phenomenon and for the purpose of sharing that knowledge. The interviews are in depth, using open-ended and clarifying questions.

Different methods are used in analysing phenomenological research. In Study I Heidegger's Interpretive Phenomenology was chosen [147]. The transcribed in-depth interviews were analysed, and individual descriptions of the "phenomena" were derived. From these descriptions, general or universal meanings were generated, describing the essence or structures of the "lived" experience of being a PP. The essence was representative of the group as a whole [137, 146]. Thereafter Heidegger's approach was applied, and the written text was re-examined to elicit what has remained unsaid ('Auslegung'). This reveals a deeper meaning of the text, which reaches beyond that which is explicit [147].

Two authors (CB, KS) analysed the transcripts individually, interpreted emerging themes, and reached a consensus.

### **Constant Comparative Method**

The Constant Comparative Method (CCM) was chosen for analysing the interviews in Studies III, IV and V. CCM is a variety of qualitative content analysis and constitutes the foundation of grounded theory (GT). The method of GT was not applicable as a method to use in these studies, due to logistical reasons, as each study was carried out in a short time span and with prescheduled LSs.

The aim of these analyses was to conceptualize 'what was going on' in the empirical data that is, to develop ways of understanding human phenomena/behaviour within the context in which they were presented and not individual people [148]. The unit of analysis is the incident, not the person. The transcribed interviews were analysed one at a time, line by line, and coded according to Glaser's scheme of open coding to generate substantive codes i.e. words grouped together indicating a relationship to the research question [149, 150]. Data were compared, and similar substantive codes were given the same conceptual label, becoming categories at a higher, more abstract level. Categories were identified, and the underlying meaning of the research questions was presented. Categories were then compared with each other and scrutinised to verify their relevance. A core category was identified by developing integrative hypotheses about the relations between the categories in such a way as to present the concept and not the persons [151].

The (underlying) meaning of the core category needs to be present in every interview and every category as this is the foundation for the identification of the core category.

Two authors (CB, KS) individually analysed the data to identify important characteristics of a PE and the outcome of the learning session. For confirmability, comparisons were made between their coding and categorisation. Any discrepancies were resolved through discussion.

### **Interviews**

In-depth interviews were used in Study I, whereas semi-structured interviews were used in Studies III, IV and V. The interviews were conducted according to a specially designed interview guide for each study [136, 139], in which each informant was asked the same main questions. Prior to the interview, there was some small talk to establish rapport [136, 152]. The interviews, varying in length from 15 to 90 minutes, were audio taped and transcribed verbatim. The interviewee or the interviewer often spontaneously raised topics related to those in the interview guide. Probe questions were asked to let the informants clarify their experience in a broader context. The length of the interviews varied as the interviewees differed considerably in respect of how interested and articulate they were about the subject [136]. The interviewer's ability to ask probing questions also affected the length of the interviews. It should not be assumed that a lengthy interview is more informative than a shorter interview. Following the interviews, the interviewer and the interviewee talked and reflected on what had been said [139]. During these talks, new information of interest were brought up at five occasions. The tape recorder was then turned on again to capture the additional data.

### **Methods in Study I-VI**

#### **Study I**

At the time of Study I (spring 2002), 13 women, age 37-62, were active as PPs. They were contacted by telephone by one of the researchers (KS) and received information about the study. All women gave their oral consent to participate. Six of the women were nurses, three teachers, two trained social workers, one occupational therapist and one secretary. They were all mothers of one to three children.

The individual in-depth interviews were conducted by KS at a place of the informants' choice. Eight were interviewed in their home, two at their workplace and three in a neutral setting at a youth centre. The main questions were: Tell me why you became a PP? Tell me about your experience of being a PP? How has

being a PP influenced your life? The interviews were tape recorded and transcribed verbatim. Each interview was then read and listened to simultaneously by the transcriber (KS) to ensure that the oral information had been correctly understood and written down.

Data were analysed according to Heideggers' Interpretive Phenomenology to capture the experience of being a PP. The unit of analysis consisted of the complete transcription of the 13 participants' interviews. 'Meaning units', which are data concerning the 'lived experience' as a PP were listed for each informant and grouped into five themes. The statements under each theme were described in a common description and from these a major theme, the essence, was constructed to describe the structure of the lived experience of the women who were PPs.

## **Study II**

Medical students taking the course in ob/gyn in Malmö (8<sup>th</sup> semester) and in Linköping (10<sup>th</sup> semester), during spring of 2000, received postal information about the study before the semester started. Included was a form to be signed and returned if they did not wish to join the study, and an query about the reason for declining participation. In Malmö, 30 students, 14 women and 16 men, were invited to participate. Of these, 5 (2 women, 3 men) declined, and 1 male student was excluded due to failure to answer the questionnaires. In Linköping, 27 students, 17 women and 10 men, were invited to participate. Three women declined. Thus, 24 students (12 women and 12 men) in Malmö and 24 students (14 women and 10 men) in Linköping entered the study. The participants' median age were 23,5 in Malmö and 25 in Linköping.

The aims of Study II, were to compare two models for learning the PE for medical students, with PPs or with clinical patients (CP). Based on our educational experiences, the first hypothesis (I) was that students following the PP model and who had attended a learning session (LS) earlier during the 5<sup>th</sup> semester would experience less fear at the prospect of performing PEs during the 10<sup>th</sup> semester than students in the CP model, who were going to perform their first PE during the 8<sup>th</sup> semester. During the LS, the hypothesis (II) was that a higher proportion of students in the PP model than in the CP model would receive enough guidance from the gynaecologist and the PP/CP and would be certain they palpated the uterus and at least one ovary. Hypotheses III concerning the clinical clerkship were that a higher proportion of PP students than CP students would find the LS useful when later performing PEs on CPs, and that the PP students would more often than the CP students perform speculum and bimanual examinations and be certain they palpated the uterus and at least one ovary.

The different teaching methods, CP model and PP model are described in Paper II.

The design (Paper II, Figure 1) was a prospective study in which the participants answered coded questionnaires on four occasions during the semester. All questionnaires were distributed from, and returned to, the investigator at the other participating medical school. Reminders were sent once after each occasion.

**Evaluation methods**

**The Gynaecologic Examination Distress Questionnaire (GyExDQ)**

The GyExDQ was designed to measure different aspects of distress in the PE situation [62] by means of students’ cognitive appraisals of performing a PE. Traditional anxiety scales such as Spielberger’s State Trait Anxiety (STAI) were presumed to be too unspecific for the very special situation of performing a PE. The development of GyExDQ was based on our empirical experiences and observations from many years of teaching students how to perform their first PE. The questionnaire has been validated (Study VI). The GyExDQ was answered on four occasions and has 40 items (Figure 7) which are rated on a 0-6 scale, ranging from “not at all” to “extremely strong/intense” (minimum score 0-maximum score 240). The students were asked to rate their feelings at the prospect of performing their next PE. A higher sum score indicates more intense distress.

**The Gynaecologic Examination Distress Questionnaire (GyExDQ)**

Step in the PE	Global fear	Impulse to avoid the situation	Disturbing thoughts/ Associations	Discomfort	Stress
1. Inspecting external genitalia					
2. Separating the labia minora					
3. Performing the speculum examination					
4. Inserting fingers into the vagina					
5. Putting the outer hand on lower abdomen					
6. Pushing the outer hand deep in abdomen					
7. Bimanually palpating the uterus					
8. Bimanually palpating the ovaries					

Figure 7. The Gynaecologic Examination Distress Questionnaire (GyExDQ.)

**Evaluation of the learning session**

The students rated whether or not they had received enough guidance from the gynaecologist and the PP/CP by ticking one of five answers: 1="no", 2="some", 3="more or less", 4="not enough", 5="enough". The answers were dichotomised to "no"= 1-4 and "yes"=5. The students rated whether they were certain they had palpated the uterus and at least one ovary by ticking one of four answers: 1="no"; 2="very uncertain"; 3="yes; I think so"; and 4=" yes, I am really certain". The answers were dichotomised to "no"= 1-3 and "yes"= 4.

**Evaluation of the clinical period**

At the end of the semester, the students rated whether what they had learnt during the LS had been useful when they subsequently performed PEs during the clinical period by choosing one of five answers: 1="did not perform any PEs"; 2="no"; 3="some"; 4="useful; and 5="very useful". The answers were dichotomised to "no"= 0-3 and "yes"=4-5. The number of instrumental examinations and bimanual palpations performed during the clinical period and how many times the uterus and at least one ovary were palpated for certain, were recalled retrospectively at the end of the semester.

**Statistics**

The Stat View™, the Minitab (version 13) and the SPSS (version 14.0) for Windows were used for the analyses. The data from the questionnaires were manually entered into Stat View™.

Two-way analysis of variance on ranked data was used, when calculating students' fear and numbers of examinations performed. The p-values were calculated on one-tailed post-hoc tests. Multiple logistic regression was used concerning guidance and palpation of the uterus during the LS and whether the learning session had been useful during the clinical period. The p values were calculated on one-tailed tests for the regression coefficients. Fisher's Exact test was used when analysing whether at least one ovary was palpated during the LS as the data were distributed in a way that made logistic regression inapplicable. Statistical significance was accepted at  $p < .05$ .

**Study III and V**

Medical students attending their 5<sup>th</sup> semester (spring of 2003) were orally informed about the aim of the studies by one of the researchers (KS). The information was given four weeks prior to the course in the female reproductive system during which the LS about the PE would take place. A letter was sent to the 52 eligible students (30 women and 22 men) with information about the studies, including a form to return indicating whether they wanted to participate or not. If they responded in the affirmative, they were asked to answer a number of biographical questions and to supply a phone number on which they could be reached. Twelve female students (Study III) consented to participate, 6 women did not answer, and 13 declined. The participants were between 22 and 34 years of age, median 23.5. Four women were living with male partners and 1 was married. No one had children.

Thirteen male students (Study V) agreed to participate, 2 did not respond and 7 chose not to join the study. The participants were between 21 and 34 years of age, median 26.3. Two of the students were married and each had two children, 2 informants were cohabitants with female partners, and one was living apart together.

The participants-to-be were contacted by telephone (KS). Interviews were scheduled during the days following the LS at the interviewer's (KS) office at the hospital. The lecture about the PE was held by one gynaecologist (BW), who also instructed during the LS, and the analyses were undertaken individually by the interviewer (KS) and a third person (CB), who was not involved in the programme.

The research could have been interpreted as surveillance by the medical school. Reassurance was therefore given to allay this concern, and we stressed that we were only interested in their explicit experience and perceptions. Issues addressed in the interviews were: thoughts about pelvic examinations in general (female students); preparations before the session; experience of the introductory and final discussions during the session; and perceptions and learning experiences from the pelvic examination procedure.

The decision to undertake separate analysis of the female and male students' interviews was a conscious choice as gender predisposes for different relations to the female body and likely for heterogeneously emerging themes. The analyses of the female students' interviews (Study III) are presented in the cover and in Paper III. The preliminary findings from analysing the male students' interviews (Study V) are presented in the cover story.

### Study IV

This qualitative study is one part of a larger research project that examines women's experiences of earlier PEs, of different educational preparations prior to a consultation with a gynaecologist, and of the subsequent consultation and the PE. Women who had a scheduled appointment at the gynaecological out-patient clinic at the University Hospital, Linköping, Sweden, during 2004-2005 were the target group for the entire study. To be able to select women who were eligible for participation, all lists of scheduled appointments were read through by one of the researchers (KS) for the days when the study could take place, for logistical reasons. An invitation letter was sent to 354 women who met the inclusion criteria for the entire study, i.e. aged between 18 and 60, Swedish speaking, uterus and ovaries in place, and not treated for gynaecological cancer. Moreover, the women were not to be attending the hospital for colposcopy, unwanted pregnancy, infertility or outpatient surgery. The letter contained written information about the study and its confidential and voluntary nature. A form was included, to be returned in a week, if the woman did not want to be contacted over the phone. By ticking one out of four boxes, the woman could select the reason for not wanting to participate in the study, or provide a written comment as an alternative.

Prior to the start of the study, a DVD (9 min) was produced in Swedish by two of the authors (KS, BW), showing how a gynaecologist performs an instructional PE on a woman [153].

Participation involved being randomised to one of three groups A) no intervention, B) watching the instructional DVD about the PE (see above), and C) attending an individual learning session (30 minutes) about the female anatomy and the PE procedure and performing a PE on a mannequin (E-Pelvis) [42] under the supervision of a gynaecologist. Questionnaires were to be answered at three times; before and after the intervention, i.e. the learning session, and following the consultation. Women who consented were contacted per telephone by KS and the recruitment continued until 90 women had been included and randomised to one of the three study groups.

Twelve women from each study group were invited to an interview. They were purposefully chosen from different age groups to ensure breadth in the sample. They gave their oral informed consent to participate and were scheduled for an interview at a venue of their choice (in each participant's home or workplace, or at the hospital) during the week following the consultation with the gynaecologist. Reassurance was given to the women that their answers would not have any influence on their future care, and that we were only interested in their explicit experience. A flow chart about the sampling procedure and the reasons for declining is shown in Figure 10.

Study IV deals with the 12 women in group C who participated in an LS and were interviewed following their appointment with the gynaecologist.

**The learning session**

The individual LS took place at the outpatient clinic and lasted 30 minutes with one out of the two gynaecologist researchers as instructor (KS, BW). To facilitate learning, a full-scale model of the uterus and adnexa (Figure 8.) was used along with instructional sheets about the anatomy of the external and internal genitals.



Figure 8. The full-scale model of the uterus and the adnexa.



Figure 9 . The Electronic Pelvic device, the E-Pelvis.

The PE was demonstrated by using a model and a mannequin with electronic feedback (E-Pelvis)(Figure 9) [42]. The E-Pelvis was placed on a table in front of the participant to simulate a PE situation, with the screen at eye-level beyond the mannequin. The E-Pelvis consists of a partial mannequin – umbilicus to mid-thigh – constructed in the likeness of an adult human female. The “abdominal wall” is removable, whereby the internal genitals are revealed. The mannequin is instrumented internally with electronic sensors, three placed on the cervix, one on the fundus uteri, and one on the posterior surface of each ovary. The sensors communicate indirectly with a computer-generated interface to provide immediate visual feedback. The screen visualizes which of the six areas is touched by showing a green dot.

During the LS, the “abdominal wall” on the E-Pelvis was first removed to reveal the internal genitals and their location. This was followed by a demonstration by the gynaecologist of a bimanual palpation of the internal genitals firstly without and then with the abdominal wall in place. Thereafter the women performed the palpation part of the PE on the E-Pelvis under the supervision of the gynaecologist.

The gynaecologist who supervised the LS did not perform the interview with the same person and vice versa. Data were collected using exploratory open-ended questions, such as women’s views and experiences concerning prior pelvic examinations, the learning session and learning experiences, and the subsequent PE.

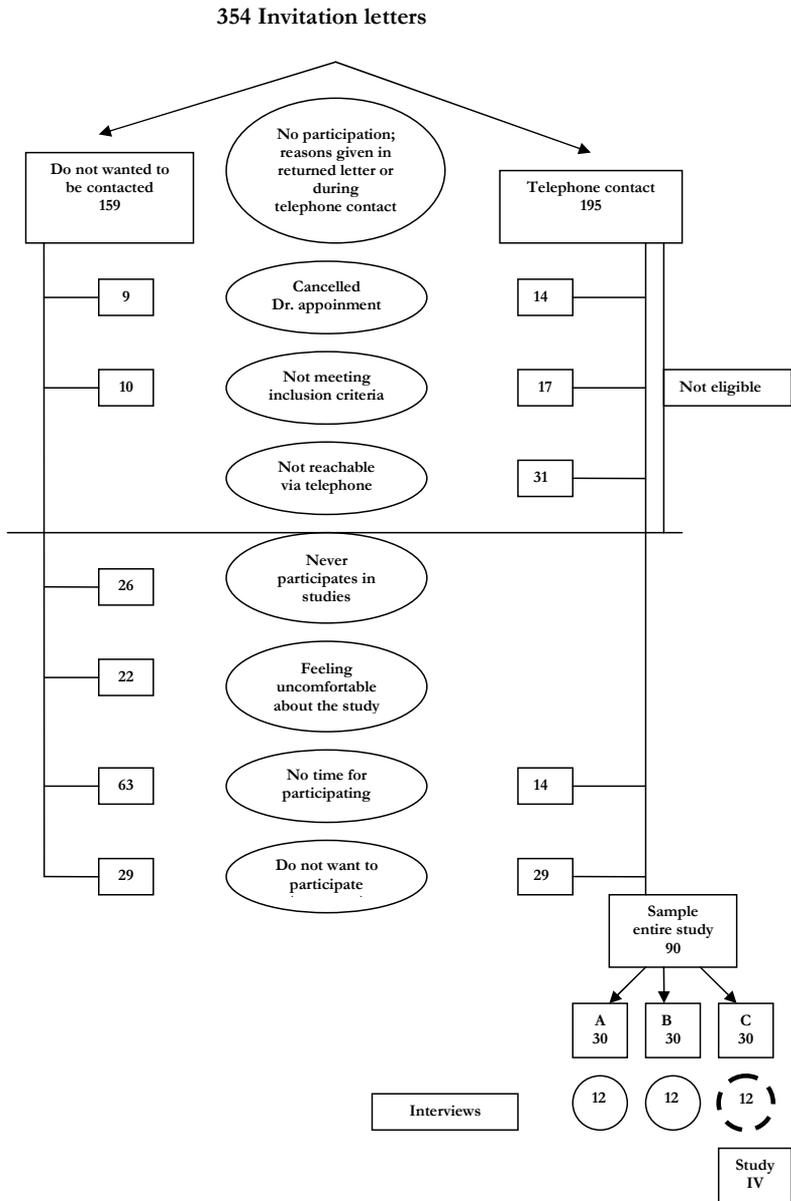


Figure 10. Sampling procedure for Study IV.

## Study VI

In view of Study II, the questionnaire with the working title Gynaecologic Examination Distress Questionnaire (GyExDQ) was developed to measure students' fear at the prospect of performing a pelvic examination. In Study VI we examined the validity of the GyExDQ by means of item analysis and reliability assessments (Part 1), and an analysis of the construct validity (Part 2) in comparing the GyExDQ with the Spielberger State (SSAI) and Trait Anxiety Inventory (STAI), and Beck's Anxiety Inventory (BAI).

Here the questionnaire was given its final title, Fear of Gynaecologic Examination Scale (F-PEXS). The target group for the study comprised medical students attending the course in the female reproductive system, 4<sup>th</sup> semester, during which the LS about the PE should take place. A letter about the study was sent to 103 students (62 women and 41 men), one week prior to their participation in the LS (see study II). The letter contained information about the study, an informed consent form to be signed, and questionnaires to be filled in. The students could call the main investigator (BW) if questions of concern arose. The form and the questionnaires were anonymous and put in separate envelopes that were sealed and handed to the supervising gynaecologist, prior to the LS. All in all, there were three moments of measurement; Time 1 at home, prior to the learning session (STAI, BAI, SSAI, and F-PEXS); Time 2 just before (SSAI, and F-PEXS) and Time 3 just after the learning session at the hospital (SSAI, and F-PEXS). At Times 2 and 3, the questionnaires were also filled in anonymously and put in envelopes, sealed by the students and taken care of by the supervisor.

Sixty female and 40 male students signed the informed consent and participated in the study. One of the researchers (KS) acted as supervisor at the LSs.

## Description of the Fear of Pelvic Examination Scale (F-PEXS)

The **F-PEXS** was designed to measure different aspects of experiencing fear in the PE situation [62]. In this validation study, students rated their fears at the prospect of performing seven consecutive steps of the PE, i.e. separating the labia minora; inserting fingers into the vagina; performing the speculum examination; placing the outer hand on lower abdomen; pushing the outer hand deep into abdomen; and bimanually palpating the uterus and ovaries. The students participating in this validation study did not perform a speculum examination as students did in Study II. Therefore, the validation of the F-PEXS comprises seven steps of the PE. For each of the seven steps the students rated global fear, impulse to avoid the situation, disturbing thoughts/associations, discomfort, and stress by giving a score between 0 and 6 (0= "not at all", 6 "extremely strong/intense").

In the F-PEXS, scores for all seven steps of the five aspects of fear are summed up to a total sumscore for each stage of measurement (min-max score 0-240). The higher the score, the greater the fear the individual experiences of the gynaecologic examination in question (Figure 11).

**The Fear of Pelvic Examination Scale (F-PEXS)**

Instruction: Rate your feelings for each of the steps below at the prospect of the next pelvic examination you will perform by giving a score between 0 and 6 (0 = “not at all”, 6 = “extremely strong/intense”).

Step in the PE	Global fear	Impulse to avoid the situation	Disturbing thoughts/ associations	Discomfort	Stress
1. Turn light on. Inspecting external genitalia					
2. Separating the labia minora					
3. Inserting fingers into the vagina					
4. Placing the outer hand on lower abdomen					
5. Pushing the outer hand deep in abdomen					
6. Bimanually palpating the uterus					
7. Bimanually palpating the ovaries					

Figure 11. The Fear of Pelvic Examination Scale (F-PEXS).

### **Ethical considerations**

The Committee on Research Ethics, Faculty of Health Sciences, Linköping University, Sweden approved the studies in this thesis.

The potential benefit of the present studies has been balanced against the risk of intruding on the participants' integrity. Each participant was carefully informed about confidentiality, and told that they could drop out of the study at any time. Participation would not have any influence of future care or in any way affect their being a student at the faculty. Informed consent was given either orally or written. Completed questionnaires were coded or anonymous. Transcribed interviews and quotations used in the papers were coded to prevent that data from being traced back to an individual source. The transcribed interview and the tapes were stored in a special safe, to which only two of the researchers (KS, BW) had access to.

Questionnaires and interviews are interventions [136] that affect people. Therefore, the information sheet for each study contained a name (BW) and a phone number to be used if questions and thoughts of concern arose during participation. An intervention such as an LS in Study IV, may evoke memories about earlier examinations, good or bad, but may also be of benefit as knowledge was provided and time was spent alone with a gynaecologist.

The PPs (Study I) were contacted and informed about the study by the coordinator (KS) of the program who knew the women well. It is possible that a woman might not have wanted to participate but had difficulties declining because of this existing "friendship". On the other hand, the women felt confident in what they were doing and said it would be interesting and important to share their experiences of being a PP.

Performing studies with students as participants (Studies II, III, V and VI) is a delicate task as students are in a dependent position to the researcher, who is often a lecturer and/or an active physician at the clinic. Reluctance to participate could be a result of being a student, the sensitive nature of the PE and of the students' opinion that this topic was too intimate and private. The women in Study IV might not have wanted to participate because they were patients, the study awoke feelings of distress or the sensitive nature of a the PE (Study IV).

## Findings

### Study I

The method of analysis used relies on the “written image of the word” [146, 147]. During the analysis five themes were identified that captured the experience of being a professional patient. From these a major theme, the essence, “experience of a stronger and clearer perception of self” was constructed which is the described structure of the lived experience of being a PP (Figure 12).

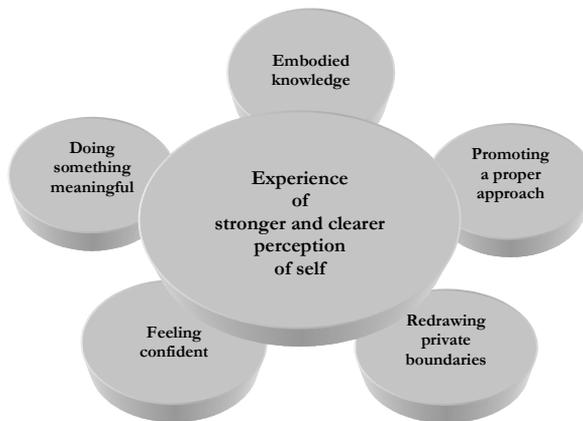


Figure 12. The essence and themes identified from the analysis of the interviews.

### The themes

#### Embodied knowledge

The PPs appreciated and felt enriched by learning about the female anatomy and the PE procedure in detail as this had previously been very much “wrapped in mystery”. This knowledge and awareness facilitated interaction and involvement with the students as well as with the gynaecologist when the PPs were patients themselves.

#### Promoting a proper approach

The PPs expressed a concern about their opportunity to share and explain patients’ views of suitable behaviour and appropriate attitudes to the students. This was

reinforced and promoted actively by using immediate verbal feedback and “hands on” demonstration.

**Feeling confident**

The PPs experienced an emotional safety and a supportive friendship within the group of PPs which facilitated trust. The benefit of being cared for medically induced a mental security.

**Redrawing private boundaries**

Being a PP was never routine. It was different as they were both patient and instructor at the same time. To be able to act the PPs mentally transformed the situation into a learning event. By taking the lead and being relaxed the PPs set the rules and created an unconstrained atmosphere indicating this setting was meant for learning.

**Doing something meaningful**

The PPs expressed satisfaction about contributing to students’ learning in such a sensitive examination. The students’ gratitude was rewarding and promoted a feeling of having a valuable body and being significant which enhanced self-confidence.

**The essence: ‘experience of a stronger and clearer perception of self’**

The PPs felt chosen. They experienced a continuous beneficial increase in knowledge that promoted personal development about bodily awareness and affirmed their femininity. It made them less vulnerable and reversed their approach to their own body; from being an object they became a subject. The growing ability to contribute to students’ learning and the feeling of being valuable enhanced the PPs self-esteem and well-being, and promoted independence in the learning situation. Being a PP was rewarding and contributed to the feeling of being empowered and growing as a woman in the examination chair.

## Study II

Missing values existed only occasionally. Interaction was confirmed to be non-significant in all tests, with two explanatory variables: the PP/CP model and gender.

### Fear at the prospect of performing a PE

The students' feelings of fear at the prospect of performing a PE were found to be low in both groups at the four moments of measurement, using the (GyExDQ) (Table 1). A significant difference was found only immediately after the LS, when the students in the PP model scored lower than the students in the CP model ( $p = .011$ ). Hypothesis I was thus partly confirmed.

Table 1. Students' perceived fear (GyExDQ) at four moments of measurement during the course in ob/gyn, according to the professional patient model or the clinical patient model.

Moment	Professional patient model		Clinical patient model		p-value
	median	min-max	median	min-max	
1. Before semester started	30	1-63	30	3-81	.482
2. Before learning session	22	6-74	21.5	0-138	.259
3. After learning session	6	0-22	15.5	0-57	.011
4. End of semester	7	0-32	16.5	0-122	.106

Minimum-maximum sumscores range (0-240)

### **Learning session**

There were significant differences in the experiences of the different aspects of the LS, confirming hypothesis II (Paper II, Figure 2). Following the LS, 91% of the PP students and 60 % of the CP students reported they had received enough guidance from the gynaecologist ( $p < .01$ ). Similarly, 91% of the PP students and 33% of the CP students had received enough guidance from the PP/CP ( $p < .005$ ). In the PP model 96 % of the students were certain they had palpated the uterus during the LS compared with 28% among the CP students ( $p < .001$ ). At least one ovary was palpated by 39% of the PP students, whereas none of the students in the CP-model reported being certain they had palpated an ovary ( $p < .002$ ).

### **Clinical clerkship period**

The clinical period was evaluated at the end of the semester, and hypothesis III was confirmed (Paper II, Table 2). A higher proportion of students in the PP model than in the CP model found the initial LS useful when performing PEs on clinic patients ( $p < .05$ ) during the clinical period.

There was a significant difference in palpation skills between the groups; students in the PP model performed a total of 18 (median) (min-max 7-80) speculum examinations compared with 8 (min-max 3-18) in the CP model ( $p < .001$ ). The PP students performed 18 (median) (min-max 5-80) bimanual palpations whereas the CP students performed 10 (medium) (min-max 3-26), ( $p < .01$ ). The PP students were certain they had palpated the uterus 17.5 times (medium) (min-max 3-70) and the CP students 5 times (medium) (min-max 2-15), ( $p < .001$ ). The PP students were certain they had palpated at least one ovary once (median) (min-max 0-10), whereas most of the CP students did not palpate an ovary (median) (min-max 0-5) ( $p < .05$ ).

### Study III

During the analysis two categories were constructed: “A didactic setting facilitates learning” and “Interactive support enables creative learning of interpersonal and palpation skills”. These categories were linked to form the core category “Transcending unspoken boundaries and taboos, a prerequisite for learning” which is the underlying meaning of the entire material (Figure 13).

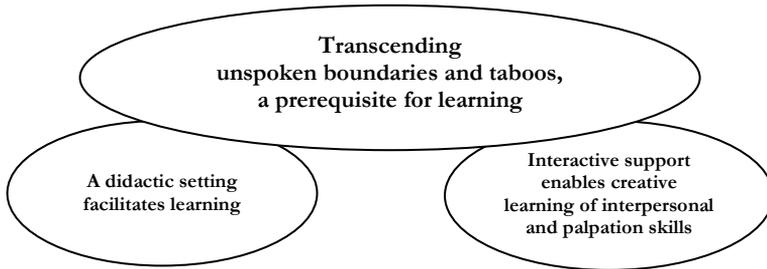


Figure 13. The core category and the categories identified from the analysis of the interviews.

### The categories

#### **A didactic setting facilitates learning**

The students considered the PE learning approach reassuring and anxiety reducing as it led them gradually through various learning environments to the more intimate setting of the examination room. The lecture promoted insight into the significance of acting professionally in a sensitive examination such as the PE. The incorporated knowledge about the female body initiated a reflective mental approach that positively affirmed the students’ perception of themselves as females. The PPs’ informal manner and capacity to take the lead relieved the students from pretending to be knowledgeable, thus releasing energy for learning. The students admired and respected the PPs for being involved and experienced them not “just” as patients, but also as mediating safety, confidence in being a woman, and a will to promote learning.

### **Interactive support enables creative learning of interpersonal and palpation skills**

The PPs' skilful interactive participation and constant immediate feedback enabled the students to stepwise learn how to use their fingers and hands favourably and to communicate properly. The opportunity to touch the organs from different angles promoted the students' understanding of the shape and helped them create a 3D picture in their minds. The awareness and security the PPs showed towards their genitals opened up a new dimension in the students about their organs as not only sexual but as integrated and very fundamental parts in a woman's life. The students appreciated the learning session as it facilitated an inner security as a future examiner and an increased natural approach to the PE situation and to their own genitals. It gave them at least as much as women as it did as future physicians.

### **The core category "Transcending unspoken boundaries and taboos, a prerequisite for learning".**

The female students' most obvious inherent feelings concerned looking and touching another woman's vulva. To be able to perform, the students turned this emotionally charged and intimate situation into a learning opportunity. The PPs' natural approach to their bodies and being naked enabled the students to overcome their feeling of intruding and gradually look at the exposed genitals. The supervisor's supportive and interactive behaviour promoted a feeling of being able to succeed. Being invited by the PPs to perform put the students at ease and reversed their previous intimidating feelings of not daring to touch. This reinforced the focus on learning. The PPs' relaxed attitudes and constant interactive performance was valued as the most important factor in facilitating the ability to transcend unspoken boundaries and taboos.

## Study IV

During the analysing process, three categories were identified and constructed; 'harmonising the bad with the good'; 'gaining self-confidence through awareness' and 'mental preparation enables bodily recapture'. The core category 'active involvement triggers empowerment' was linked from the themes to present the concept and not the persons (Figure 14).

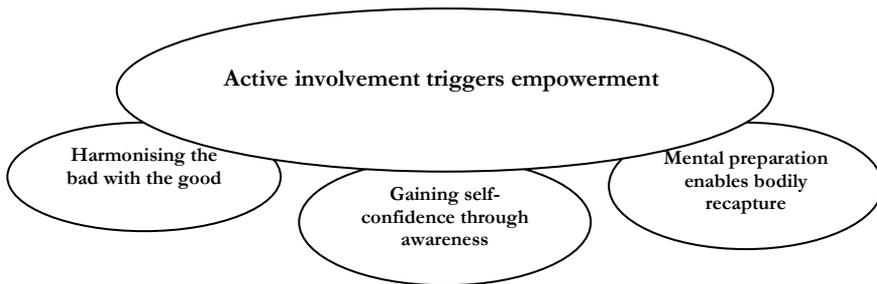


Figure 14. The core category and the categories identified from the analysis of the interviews.

## The categories

### Harmonising the bad with the good

The women's previous experiences of the PE were that it was a special and intimate examination where most of them had felt vulnerable and not in control. The reason for the visit had influenced their experience. Most women reported that they had not been informed about what was examined and why. The will to gain knowledge about their health had made them suppress any previous bad experiences and repress existing negative emotions as to undergo the examination.

### Gaining self-confidence through awareness.

The women said that holding the full-size model of the uterus and adnexa in their hands during the LS enhanced a realistic perception of the anatomy. The gynaecologist's performance of the PE on the uncovered E-Pelvis promoted a clearer perspective of the PE. The women's performance on the E-Pelvis was facilitated by the gynaecologist's constant and supportive interaction. This enabled the women to locate and palpate the internal genitals, which generated a feeling of finally having been informed, and promoted security and self-confidence.

### **Mental preparation enables bodily recapture**

The incorporated knowledge and new awareness strengthened the women and made them mentally more prepared and curious about the examination. This promoted a feeling of being less inferior and more present, and enabled active involvement during the examination. The self-confidence achieved contributed to security and a change in the women's behaviour from being anxious and exposed to taking part in what was being examined and discovered. Being knowledgeable lowered the barrier between them and the examiner and made the women feel more in charge of their body.

### **The core category**

#### **Active involvement triggers empowerment**

The women incorporated useful and realistic knowledge about their body and the PE during the learning session, which had a positive effect on the perception of their genitals. They felt sad about having been withheld that information earlier in life. The understanding was an asset, encouraged the women to actively participate in the session, and enhanced interaction with the supervisor. The increased knowledge strengthened the women's self-confidence and self-esteem and made them less vulnerable and subordinate when meeting the consultant. Being knowledgeable stimulated their interest and facilitated communication and fruitful participation in the PE procedure.

### Study V

During the analysis, using the constant comparative method, three categories were constructed: ‘a didactic design facilitates the entrance into an unfamiliar female world’; ‘an interactive setting challenges and enables learning’; and ‘gaining insight promotes personal growth and deepens understanding’. These categories were linked to form the core category ‘Mastering an intimate situation’, which is the essence of the entire material (Figure 15).

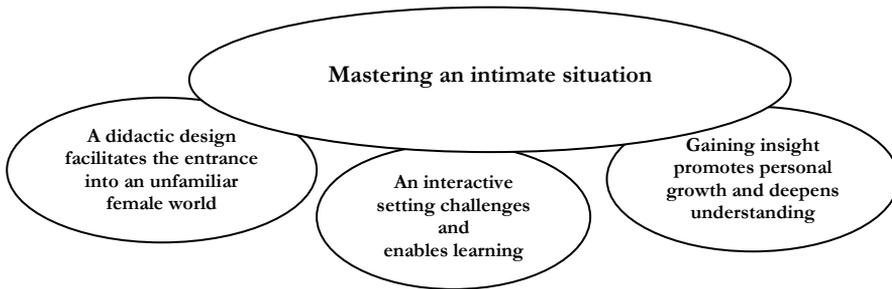


Figure 15. The core category and the categories identified from the analysis of the interviews.

### The categories

#### **A didactic design facilitates the entrance into an unknown female world**

The male students’ appreciated the application of the PE learning concept as it stepwise enhanced their knowledge, from basic anatomy to the art of behavioural and technical performance in an unfamiliar situation. The lecture contributed to new insight and awareness about potential connections between sexuality and the PE, and about the importance of a beneficial outcome of interaction with the patient. The information obtained initiated discussions among fellow students and friends, stimulating a reflective mental approach about the PE that promoted a deeper insight into their own values. The PPs’ professionalism comforted the students, reduced anxiety about their own subsequent reactions and facilitated a trust in their ability to perform.

### **An interactive setting challenges and enables learning**

The PPs' natural approach to their body and naked genitals reassured the students that the situation was created for them to learn in. The PPs' ability to take the lead and interact verbally and manually defused the tension inherent in the situation and promoted calmness and security. This enabled the students to act. The immediate supportive guidance and feedback from above all the PPs, but also the supervisor, was of significant value in the students' efforts to find and bimanually palpate the uterus. The students learnt from watching the gynaecologist and from the performances of fellow students. The relaxed atmosphere enabled the students to practise interpersonal skills and create a trusting relationship with a patient in an intimate situation, which is of particular value in future contacts with patients. The opportunity to get acquainted with a female body in a non-charged learning setting generated a sense of humility when facing naked bodies.

### **Gaining insight promotes personal growth and deepens understanding**

The male students considered the opportunity to get acquainted with what a woman goes through during an examination and what an examination room looks like as valuable insights into a "female world". It initiated a new awareness and understanding about a woman's vulnerability in the examination chair. They realized that women might find the situation unnatural, which generated a genuine, serious approach to a PE situation. The students stated that having been in the examiner's position once was a positive experience that promoted self-confidence and personal growth and was of benefit; both as a human being and as a future examiner.

### **The core category**

#### **Mastering an intimate situation**

The male students' most prominent concern was about how to approach and establish a natural contact with the PPs when placed in a completely new and intimate situation. The students' obvious will to learn was initially inhibited by feelings of intruding in someone's private sphere. The support from the gynaecologist and the trust and accurate guidance from the PPs eased the students' worries and enabled a valuable interaction that facilitated performance. The students were contented about the positive outcome of their ability to manage the situation. They understood that there were no shortcuts to learning without performing the PE and could not understand how this could be learnt without PPs.

## Study VI

### Part 1 Item analyses

Table 2 shows the item-total correlations of the F-PEXS items at Times 1 and 2. The item-total correlations for all items were  $>.50$  and  $>.40$  for Time 1 and 2 respectively, indicating that all items contributed to the measurement of the construct that the scale is intended to measure, i.e. the students' fear of performing a specific pelvic examination. Moreover, the item-total correlations show a similar pattern for the two moments of measurement, indicating that the items measure in a fairly constant way over different moments.

Table 2 also shows the variance per item at Times 1 and 2. It is clear that the scale's items give a greater variance at Time 1 than at Time 2. This was as expected, because many students felt more fear before the PE than after, when they were asked how they felt in view of a next PE, which was not scheduled. Therefore, logically the variance was smaller at Time 2, i.e. as the students did not feel as much fear at Time 2, the scale's items were not able to measure as much variance of fear as at Time 1. In general, the variance per item, i.e. the square standard deviation, is small. This is probably due to a low fear of the pelvic examination in these students.

Reliability of a test, as estimated by Cronbach's alpha, refers to the test's consistency and accuracy. This capacity depends on the amount of error variance in the test. The less error the test's measurement comprises, the greater the reliability of a test. "The square root of alpha is the estimated correlation of a test with errorless true scores" [154]. The oblique axis of Table X2 shows the Cronbach's alpha coefficients. For Time 1 this was  $.96$  and for Time 2  $.96$ . These coefficients are extremely high, which means that the test has a very good reliability in terms of intern coherence of the separate items.

### Part 2 Construct validity

The construct validity of the F-PEXS was tested by means of its correlation with the Spielberger State (SSAI) and Trait Anxiety Inventory (STAI), and Beck's Anxiety Inventory. We hypothesised that the F-PEXS would have the highest correlation with the SSAI, measuring general anxiety at the very moment, followed by its correlation with the BAI, measuring present anxiety symptoms, followed by its correlation with STAI, measuring anxiety tendency in general, i.e.  $(F-PEXS \times SSAI) > (F-PEXS \times BAI) > (F-PEXS \times STAI)$ .

Table 3 shows that our hypothesis was partly affirmed; the correlation between the F-PEXS and the SSAI was  $.69$ , and obviously higher than with the other two scales. Its correlation with the BAI and STAI was about the same,  $.39$  and  $.44$  respectively. These three correlations indicate that the F-PEXS clearly measures in the field of anxiety, but in such a way that its domain is different from e.g. situational anxiety as

a general anxiety reaction (SSAI), general tendency to react with anxiety (STAI) or having clinical anxiety symptoms (BAI). Interestingly, the correlations of the F-PEXS and the SSAI at Times 1 and 2 are almost the same, .64, indicating that both scales measured in a constant way over times, ordering the respondents on both scales in the same way at both moments of measurement. The constancy of measurement of the F-PEXS can also be seen in the correlation between Time 1 and 2 being .74, i.e. ordering the students for a good part in the same way at both moments of measurement.

### **Descriptive statistics**

Table 4 gives the descriptive data from the four scales. Neither at Time 1, nor at Time 2 did the means on the F-PEXS differ between female and male students. The mean scores on the F-PEXS for all students together from Time 1 ( $M=40.1$ ;  $SD=30.0$ ) to Time 2 ( $M=16.6$ ;  $SD=19.7$ ) decreased significantly ( $p < .0001$ ).

Findings

Table 2. Item-total correlations and Variance of the items of the F-PEXS at Time 1 and Time 2

	Time 1		Time 2	
	Item-total correlation	Variance	Item-total correlation	Variance
Situation 1 Inspecting external genitalia				
Fear in me as examiner	.80	2.21	.73	0.52
Impulse to avoid	.61	1.93	.74	0.41
Disturbing thoughts/associations	.62	1.99	.50	0.30
Discomfort	.77	2.07	.69	0.49
Stress to manage	.68	1.85	.82	0.93
Situation 2 Separating the labiae minora				
Fear in me as examiner	.86	2.50	.80	0.78
Impulse to avoid	.66	2.42	.68	0.50
Disturbing thoughts/associations	.66	2.35	.56	0.35
Discomfort	.83	2.73	.72	0.73
Stress to manage	.69	2.30	.78	0.93
Situation 3 Inserting fingers into vagina				
Fear in me as examiner	.81	2.60	.79	1.09
Impulse to avoid	.69	3.02	.70	0.33
Disturbing thoughts/associations	.63	2.80	.61	0.58
Discomfort	.78	3.02	.53	0.64
Stress to manage	.72	2.86	.78	0.99
Situation 4 Placing outer hand on lower abdomen				
Fear in me as examiner	.62	0.82	.49	0.21
Impulse to avoid	.52	0.27	.43	0.05
Disturbing thoughts/associations	.53	0.41	.66	0.17
Discomfort	.68	0.83	.40	0.13
Stress to manage	.57	1.08	.42	0.23
Situation 5 Pushing outer hand on lower abdomen				
Fear in me as examiner	.58	1.35	.64	1.62
Impulse to avoid	.55	0.85	.69	0.62
Disturbing thoughts/associations	.50	0.26	.70	0.42
Discomfort	.69	1.24	.65	1.36
Stress to manage	.50	1.45	.65	1.50
Situation 6 Bimanually palpating the uterus				
Fear in me as examiner	.69	2.12	.81	1.09
Impulse to avoid	.72	0.94	.82	0.51
Disturbing thoughts/associations	.60	0.39	.71	0.49
Discomfort	.77	1.42	.81	0.53
Stress to manage	.58	2.35	.70	1.64
Situation 7 Bimanually palpating the ovaries				
Fear in me as examiner	.71	2.25	.78	1.27
Impulse to avoid	.70	1.19	.76	0.64
Disturbing thoughts/associations	.59	0.40	.73	0.46
Discomfort	.76	1.51	.78	0.71
Stress to manage	.57	2.43	.65	1.93

Table 3. Correlations and Cronbach's alpha<sup>1</sup> of the questionnaires used in the validation study, as assessed at Time 1 and Time 2

Time 1	F-PEXS	SSAI	BAI	STAI
F-PEXS	.96			
SSAI	.69			
BAI	.39	.42		
STAI	.44	.50	.70	
Time 2	F-PEXS	SSAI	BAI	STAI
F-PEXS	.96			
SSAI	.64			

1: Cronbach's alpha displayed on the oblique axes of the table

Findings

Table 4. Descriptive statistics of the questionnaires used in the validation study

		Time 1		Statistical value		Time 2		Statistical value	
		Females n=	Males n=	t	p	Females n=	Males n=	t	p
F-PEXS	M	39.3	41.4	.35	.73	16.0	17.7	.42	.68
	SD	27.8	33.3			19.9	19.7		
	min	2	6			0	0		
	max	122	134			122	70		
SSAI	M	20.2	20.2			14.5	13.1		
	SD	4.1	3.4			3.8	2.7		
	min	12	15			10	10		
	max	31	29			24	19		
BAI	M	8.1	6.3						
	SD	5.3	5.7						
	min	0	0						
	max	24	26						
STAI	M	40.2	36.5						
	SD	8.6	8.2						
	min	27	27						
	max		64	65					

## Discussion

### Methodological considerations

As the interviews and transcripts in Studies I, III, IV and V were all in Swedish, great care had to be taken to produce the manuscripts and quotations with the support of a native English speaker.

In Studies I, III and V the interviewer (KS) was the coordinator of the educational programme and could have introduced a positive bias in the interviewees' response. By using exploratory and open-ended questions the informants had an opportunity to express their feelings freely, and the answers were not directed. There is always a risk that students (Study III and V) will answer according to what they believe is suitable [155].

In Studies III and V, the interviews took place in the interviewer's office (KS). To reduce bias, the lecture about the PE was held by another gynaecologist (BW), who also instructed during the learning session, and the analyses were undertaken individually by the interviewer (KS) and a third person (CB), who was not involved in the programme.

In Study IV, the interviews were performed by two gynaecologists (KS, BW) working at the clinic. To reduce bias the two gynaecologists did not teach and interview the same woman. The same analysing procedure as in Studies III and V was used.

In Studies I, III and IV, both the informants and instructor/interviewer were women which could have influenced the nature of the conversation. Another influencing factor is the individual interviewer's ability to establish rapport with the informant [136].

In Studies I, III, IV and V, reliability was ensured by the researchers' (KS, BW, CB) clinical, professional, educational and research expertise, which also assured adequate analysis of the data. This expertise further facilitated rapport [136] with the women/students. Credibility was established by using transparency through the audit trail, i.e a step-by-step record by which data can be traced to their source [143, 156]. Trustworthiness was sought by using the constant comparative method exactly as described and by taking a self-critical position throughout the inquiry process. For confirmability the data was analysed individually by two of the authors (KS, CB), where one person (CB) did not work at the clinic and was not at all involved in the programme/learning sessions. She could thus relate to the material in a neutral way, act as a catalyst and question findings from KS. The findings

(from Studies I, III, IV and V) cannot be generalised in a quantitative sense but may be transferable to similar contexts [139, 157].

In Study II, all questionnaires were distributed from, and returned to, the investigator at the other participating medical school to reduce bias. The students recalled retrospectively, at the end of the semester, the number of examinations they had performed during the clinical period. Recall bias might exist, but the same prerequisites existed for students at both locations, as no one was told to keep records by means of a log [52]. Logs could have been seen as interventions that might have enhanced students' effort in performing examinations. It is debatable which of the methods that would have given the most accurate numbers.

### **Study I**

The PPs reported that they were not made use of, but instead expressed a general benefit from being a PP, which had a positive impact on their lives in several ways. Prior to entering the programme, the PPs described that they lacked basic knowledge about the female anatomy and the PE procedure, which seems to be a common experience among women in general [3-5, 15, 21-23].

The PPs' gradually enhanced knowledge and body awareness helped them affirm their femininity and accept their bodies as fine and valuable, which promoted greater self-confidence. This knowledge facilitated a growing ability to instruct and interact with the students, and enabled the PPs to take the lead, reversing their prior feelings of being subordinate as a "patient" when meeting students. When the PP acts as patient and teacher, the latter role represents a significant shift in the power balance in the environment in which medical students and doctors usually learn to undertake examinations [13]. By using the incorporated knowledge and skills in a favourable and professional manner, the PPs showed that they were the instructors who enabled the students to be learners in action [52, 68]. This is in line with Ramsden, who explained good teaching as everything that has to do with helping students feel that a subject can be mastered, supporting them in trying out for themselves, and enabling them to succeed [94]. The PPs expressed pride at being able to teach in higher education and use their healthy body as a resource

Studies of women's experiences in the PE situation report that many feel uneasy, exposed and not in control [1, 4, 5, 43, 60, 65, 83] and placed in a subordinate position [43]. The PPs used the learning situation to enhance students' awareness of women's subordinate position during a PE. The PPs mediated a strategy to change this by treating the patient in a humble, empathetic manner and by letting her become involved [43, 60, 83]. By being relaxed and showing security, the PPs created a safe and permissive learning environment, which are factors that have

been shown to relieve students' anxiety [8, 47]. To promote a proper approach, the PPs purposefully used interactive verbal and bodily feedback to enhance the students' awareness of suitable behaviour and adequate attitudes.

Being a PP was never routine. Every evening presupposed a mental preparation. The PPs described the examination situation as special and different as they were both patient and instructor at the same time. As the situation was not natural, they had to redraw their private boundaries and mentally transform the examination into a learning situation to be able to perform.

Spencer and Dale emphasise the importance of meeting the needs of simulated patients and caring for their psychological and emotional well-being [70]. In our study, the PPs said that they felt that access to the coordinator made them feel confident about private and gynaecological matters whilst being a PP as did the possibility to discuss events during a session afterwards. The PPs were of great support to each other and experienced emotional security and trust within the group, often talking and debriefing after the session. The PPs said that their involvement in the programme did not negatively effect the relation with their partner.

The PPs were content about doing something meaningful that was of benefit both for the students and for themselves as it increased their self-confidence. Similar findings were shown in a study in which GTAs indicated that their participation resulted in a small but steady increase in self-esteem [64]. Kamemoto described that PPs in teaching the PE participated "because of a strong interest in women's health and a professional satisfaction being able to contribute to medical students' learning [10]. Involving patients as teachers is in line with Kelly and Wykurz suggestion that patients should become involved and be recognised as potential contributors to students' learning [158, 159].

The PPs felt chosen. Being qualified, capable and sought-after increased their wellbeing. The women were aware of the unique knowledge they possessed about their body and the unique competence they had acquired in how to mediate this. They experienced a continuous beneficial increase in knowledge that promoted personal development in different areas that. This led to a fundamental increase in trust in themselves and in their understanding of their self as a woman – a stronger and clearer self. The PPs could never have imagined at the start the positive outcome of participating. Being a PP was rewarding and contributed to the feeling of being empowered and growing as a woman in the examination chair [43], findings that correspond well to the concept of empowerment in other studies [4].

As one interviewee said:

*“in such a situation you get back as a woman. You are not deprived, you get increased knowledge, which makes something positive happen in the way I approach my body and myself, yes, from object to subject.....it is really like growing as a woman in the gynaecological examination chair”.*

## Study II

When discussing the results from this study, it is important to bear in mind that comparing different educational models in a scientifically correct way is almost “impossible”. The concepts vary as well as the clinicians’ approach to facilitate learning and differences in training or practice styles at the two institutions [47] and methods of assessments [50]. PP students attended the 10<sup>th</sup> semester and had one more year of clinical training than the CP students who attended their 8<sup>th</sup>.

The aim of an LS about the PE in the beginning of the course in ob/gyn is to prepare the students for how they are to interact with patients and perform PEs during their four weeks of clinical clerkship. During the clinical period every effort should be made to enable students to perform PEs, as “practice makes perfect” [160]. The outcome of the clinical period should thus be that every student feels confident in approaching a woman and performing a PE when required.

Our findings show that the students who learnt the PE with a PP model showed less fear after the LS and were more skilful in palpating the uterus and ovaries and performed twice as many PEs during the clinical period than did CP students. In this study we do not know exactly which elements in the two learning concepts cause the difference in the results, but possible factors of influence will be mentioned and discussed below.

As the PP students had met the PPs once before, 4<sup>th</sup> semester, we believed that they would report less fear at the prospect of performing a PE on the PP prior to the course in ob/gyn than would the students in the CP model, who had never performed a PE before. The results showed this was not the case, as students at both locations reported similar, low scores of fear. One possible explanation for why the PP students’ levels of fear were higher than expected could be that they had experienced the situation before, and therefore new what was expected of them in terms of interpersonal and technical skills. They also knew they would receive feedback until they managed, which could have increased their fear, even if it is also well known that such feedback is highly appreciated by students [8, 51, 54]. The PP students also had to perform in front of their fellow students, which is known to cause fear, whereas the CP students did not have any fellows present [6].

Another speculation is that the first learning session did not reach the aim of reducing the PP students' fear.

Immediately after the LS about the PE, students at both locations reported a decrease in fear, supporting the findings by Abraham [8]. The PP students showed a significantly lower level of fear than did the CP students. This might have been influenced by the different learning concepts and the PP students' one more year of clinical training in approaching patients although the PP students had not performed any PEs since 4<sup>th</sup> semester. The students' levels of fear remained low at the end of the semester at both locations. This might reflect that the students had positive experiences of performing PEs during their clinical period.

No gender differences were found concerning students' assessed fear at any of the four measurements. Abraham reported no gender differences in measured anxiety before and after students conducted their first PE with PPs [8]. Hendrickx found no significant differences in anxiety and nervousness between male and female students before an LS with PPs, which might have been due to the thorough discussions about the topic "anxiety" during pre-session preparations [44].

Following the LS, the PP students reported that they had received more guidance from the PPs than the CP students did from the CPs. This difference was expected as the settings are very dissimilar. The PPs are voluntary, healthy and easy to examine, and trained to guide students' learning efforts through interactive feedback [161] and by creating a supportive environment [94]. They also relieve the students from the pressure of acting like a knowledgeable physician and enable them to simply be learners. The CPs usually lack basic knowledge about the female organs and the PE procedure [3-5, 15, 21-23] and may feel vulnerable and not in control [1, 4, 5, 43, 60, 65, 83]. Furthermore, a CP is seeking help at the clinic and might be in pain or have symptoms that make her afraid of what will be found during the examination [4], phenomenon that might make it hard to relax. The PP students also reported that they received more guidance from the attending gynaecologist than the CP did from their supervisor during the LS. Further, more students in the PP model than in the CP model were certain that they had palpated the uterus and at least one ovary. Some strategies in the PP model might have contributed to these findings. The PP is the coach, giving feedback [54, 101], reassurance and enabling the student to be a learner-examiner, whereas the CP is not prepared to interact and give feedback during the consultation [10]. The LS in the PP model takes place after work, with no time limit, making it possible for the student to palpate until he/she and the PP are content. The supervising gynaecologists are interested in teaching and give constant informative feedback [54] and need not take into consideration the care of a worried/sick patient. This

allows all attention to be directed towards the students and their performance. Students have reported “that anxiety could be reduced by unhurried, supportive doctor-teachers who provided good role models when preliminary learning took place” [8]. This was further enhanced in a study by Paice, who reported that excellent role models had a positive attitude to teaching and emphasised the importance of the doctor-patient relationship [105].

The PP student considered their experiences from the LS to be more useful during the clinical period than the CP students did. As the PP students had palpated the uterus once before, their skills were probably positively reinforced during the LS. This presumably reflects the fact that the PP students performed twice as many (median 18) speculum examinations and more than twice as often (18 median) palpated the uterus as did students in the CP model. The PP students had one more year of clinical training, which could have made them less feared and facilitated rapport with patients [13].

The model with PP s as both instructors and patients takes into consideration the ethics of performing the PE for a learner. This has lately been extensively debated in different medical journals as there still exist learning concepts where students perform PEs on sedated and uninformed women [28-34, 162, 163]. Coldicott stated that “medical schools have a duty to deliver ethically informed training programmes that develop doctors’ skills and are acceptable to the patient volunteers who are a necessary part of medical education” [28].

### **Study III**

The female students said that the predominant source of uneasiness to be overcome was to look at and touch another woman’s external genitals, as this was not a natural thing for them to do. This might be due to that the anatomy of the female body is characterised by “hidden” genitals, existing but not naturally visible. This makes women unfamiliar with looking at other women’s genitals and unfamiliar with varieties in the external genital anatomy. The students experienced the same feelings both when they were examiners themselves and when they watched another student perform. Watching their fellows perform, promoted the transcendence of own taboos and enabled the students to gradually look at the PPs’ vulva and thus get acquainted with variations in anatomy [68].

The female students appreciated that information was received gradually as it stepwise enhanced their knowledge about appropriate behaviour, anatomy and the PE procedure, and finally brought them to the more intimate setting of the examination room. This is in accordance with the Deweyan perspective that

knowledge cannot be had in an instant; it takes time and is an achievement [92]. The lecture about the PE, promoted an understanding of prior lack of knowledge about the female organs and the PE procedure; making female medical students not exceptional from women in general [3-5, 15, 21-23]. The students' bodily awareness was enhanced and made them realise that these organs had not only a sexual function but were an integrated and interesting part of a woman's body. This facilitated a positive perception of self as a female, supporting earlier findings by Siwe [161]. The information obtained initiated a reflective approach within the students and was a starting point for discussions with family and friends. The conscious process of reflection on what has been experienced has been shown to enhance and develop the understanding of the phenomenon [54].

The students were grateful to the PPs who created a safe learning environment by being relaxed and comfortable with their bodies and inviting them to perform [161]. To be able to perform and concentrate on approaching the PP, the students let their emotions abate in the background. This is described by Leder as a prerequisite for learning and is most often an unconscious action that can be recalled afterwards [103]. Schön observed that students had to accept that the behaviour and advice of the coach would make sense in time and be fully understood only after a time of practising [68].

When first learning a skill, all concentration will be on the bodily performance that will later become tacit [68]. The students in our study described this as having a hard time paying attention to the PP and at the same time concentrating on performing with their hands. The students said that the experiential learning was promoted by the PPs' supportive and reassuring approach, which facilitated reaching the goal of bimanually palpating the uterus. This is in line with Kolb, who described that knowledge is created through transference of experience [97].

There is a distinction between ordinary experience and *an* experience, meaning that ordinary experience is something you do in everyday life, never comes to mean anything and does not affect you in any way. In contrast *an* experience, like the first performance of the PE, affects the person as thoughts, feelings and action are unified. This is why an educative experience cannot be presented or arranged for students; they must participate actively and become involved [93] and the role of the teacher is to be a facilitator of learning [88].

The students found the PPs' constant guidance and informative feedback the most valuable aspects in enabling them to transcend unspoken boundaries and taboos, and perform. The PPs' professionalism allowed and aided the students to concentrate on their bodily performance initially and act as learner-examiners in a

period of transition. Carr has described medical students in the same situation as “professionals in training” [52]. The students could not imagine how they would have learnt this skill without the PPs who voluntarily promoted learning and contributed with their healthy bodies. In a previous paper, a PP stated that she felt chosen and proud of her body and that it felt like a gift to be able to contribute to students’ learning [161].

Afterwards the students felt enhanced self-confidence, pride and joy over their accomplishment and the acquired knowledge. Similar results were showed when using real patients in problem-based learning where students expressed increased self-confidence and enhanced ability to interact with both patients and fellow students [164].

The students considered that the learning concept on the whole contributed to an increased, more realistic awareness about their female organs and the PE. It promoted not only an interest in performing PEs in the future, but also in their own next PE as the new understanding awakened a curiosity about their body and enhanced their ability to interact with the examiner. The learning concept had initiated empowerment, within the female medical students, something they had not had in mind beforehand. Similar results were reported from a qualitative study about women being professional patients in instructing the PE [161].

#### **Study IV**

During the constant comparative analysis process, three categories were identified and constructed; ‘harmonising the bad with the good’; ‘gaining self-confidence through awareness’ and ‘mental preparation enables bodily recapture’. The core category ‘active involvement triggers empowerment’ was linked from the themes to present the concept and not the persons.

The PE is often experienced as something unique and is reflected on both before and after the consultation [43]. Most women in Sweden have a positive attitude to PEs as such, but their experience of the examination itself is often negative [1]. Most of the women in our study described their previous experiences of PEs as something that needed to be done because they wanted to find out about their health. The degree of anxiousness was related to the reason for the consultation. It has been shown that life-coincidental stress, such as life changes, and the direct consequences of the gynaecological problem is predictive of such anxiety and distress[17] as well as previous experiences of PEs [3] and experiences of childhood sexual abuse [14, 18].

The PE is a procedure that reveals ambivalence in women due to its intimate relationship between sex, power and medical knowledge [4]. Our findings show that most women reported that they usually felt vulnerable and not in control of what was happening when lying in the examination chair. Several previous findings are in concordance with the loss of control the women expressed. [4, 14, 15] The participants in the study described a previous lack of knowledge about the PE procedure and the female body that had made it hard to interact and communicate with the examiner. If this reflects reality, examiners should consider acquiring an increased awareness of the emotional aspects of the PE and the non-verbal messages that are mutually exchanged in the examination situation to learn about the origin and implications of such messages [2]. Ragan emphasised the importance of the examiner's constant sensitivity to the patient's non-verbal discomfort cues [19].

The opportunity to first observe and then touch the model of the uterus and adnexa in full size was described as a special moment of understanding by the women as they finally felt being informed. When they were in the examiners position themselves, it was experienced as a valuable insight into the challenge of palpating internal genitals.

The opportunity to first palpate the organs on the E-pelvis, without the abdominal wall in place was of benefit as the women could then take advantage of vision and active touch simultaneously [165]. It is known that if an object is both observed and felt, more rapid observations can be made than if only the object was felt without the benefit of sight [125, 126]. Palpating with the abdominal wall in place was considered difficult, because of the stiff material. Some women said they looked at the screen for feedback during their efforts to find the organs. Others wanted to concentrate on finding the organs first and then look at the screen for confirmation.

The women stated that the LS promoted an enhanced self-confidence and enabled them to feel less vulnerable and exposed in the subsequent meeting with the consultant. The women reflected that their mind turned from previously being examined and worried to concentrating on each step of the examination performance and the findings. The incorporated knowledge and their new awareness encouraged inquisitiveness and enhanced their ability to interact with the gynaecologist. Several studies about the PE emphasise the interpersonal relationship between the examining doctor and the patient as being the most important aspect for women [20].

The women concluded that the experiential learning [95] was a prerequisite for enabling them to change their role from being a passive patient to becoming an

actor in the PE situation. It had initiated empowerment, in the sense of an increased ability to act.

### **Study V**

The male students considered the didactic design about learning the PE valuable and well-thought out as it gradually enhanced their knowledge and awareness about interpersonal and technical skills before finally being in the position of performing the intimate examination. They described the PP's way of interacting as reassuring, and the immediate, supportive feedback as a prerequisite for daring to perform. These findings are in accordance with the results from the study with the female medical students described above [166].

The male students said that the lecture about the PE made them aware of something they had not thought of before; a potential connection between sexual associations and the PE [43]. The lecture was given between one and four weeks before the actual LS and initiated a reflective mental approach. We don't know if thoughts about this subject would have appeared anyway as the students got closer to the LS:

The students were afraid of intruding into the PP's private sphere as they found it too intimate and not a natural thing to do, when not in a sexual encounter. The male students' most prominent concern was about how to approach and establish rapport with the PP in such an intimate and unfamiliar situation whereas female students' concerns were about looking and touching another woman's most intimate body part [166]. Males might have had intimate relations with women and/or looked at pictures of naked women, making male students more used to looking at a woman's vulva than the female students.

The enhanced awareness about the PE procedure enabled the male students to perceive what it was like to undergo a PE for a woman. This promoted a deeper understanding of females' potential worries expressed before a PE. The students' described that they now realized the important role they had, as an examiner, to create a good and inviting conversation as to establish rapport and make the woman feel less vulnerable.

The male students were pleased that they had mastered the situation with the help of the PP. They found it reassuring to have a gynaecologist present as they had not previously been in an intimate situation with a naked woman except during sexual encounters. The supervisor might then have acted as a neutralizer of the setting. This finding was not reported from the female students. The male students were contented that they had been in the situation once and managed to palpate the

uterus bimanually. This promoted self-confidence and a feeling of being more prepared to approach women in the PE situation.

### **Study VI**

In earlier studies, fear was measured by means of general fear scales not specifically designed for gynaecologic examination [8, 62]. Therefore, we developed the F-PEXS.

The questions of the F-PEXS are based on long experience of observing medical students in learning to perform the gynaecologic examination. In the test, we have tried to offer the respondents very concrete situations to react to so as to make the measurement easy and effortless to accomplish. This has probably contributed to the good internal consistency of the scale, i.e. being a reliable means of measuring the construct concerned.

The study on construct validity indicates that the F-PEXS measures in the domain of fear and anxiety. The F-PEXS is meant to measure a state anxiety in respect of the gynaecologic examination. This was affirmed by the validity study, which showed results in the hypothesised way, i.e. a higher correlation with SSAI than with the STAI and the BAI.

There is an indication that the students have participated in the study in a serious manner, and filled in the questionnaires with good compliance. Not only the F-PEXS, but also the other questionnaires have good alpha coefficients, comparable with results from clinical studies. Such alpha coefficients would not appear if the respondents did not take the measurements seriously and merely filled in the questionnaires by chance.

## General Discussion

Our findings show that a supportive learning environment was considered of great significance by the learners, to facilitate their learning. This is in accordance with earlier educational research showing that useful, sustained learning takes place in supportive environments where “good teaching” is practised. And with supervisors showing an empathetic understanding and a positive attitude and who always tries to make students feel that a subject can be mastered [94].

According to Knowles’ theories about adult learning, adults are motivated by internal facts, and learning experiences applicable to real-life situations are the most valuable ones [95]. This was consistent with the students and the clinical patients in our studies, who were motivated to learn the examination as they wanted to become examiners. The women explicitly expressed a curiosity to experience the feeling of “being on the other side of the table”.

Our findings reveal that when the women experienced enhanced knowledge and awareness about their body and the PE, they were affected. It started something positive within the women; a will to act and find out more about themselves. The LSs initiated empowerment in the sense that an empowered person has an increased capacity to act in goal-directed ways [77].

In clinical work it is impossible to offer individual learning sessions to women. The challenge is how to enhance women’s knowledge in everyday clinical practice. One way is to adopt the empowerment paradigm, which requires that examiners become aware of the existing way of approaching a patient, realise it is not the optimal way and have an inherent will to change this approach. Empowerment is largely accomplished by the individuals themselves, but the process can be facilitated by health care professionals [90]. The examiner has a unique possibility to catalyze women’s empowerment during a pelvic examination [84] by using the Empowering Pelvic Examination procedure [43]. To implement the use of EPE in everyday practice is not costly nor time-consuming; it only requires the examiner’s investment in effort.

We found no previous study where the PPs have been specially interviewed about “being a PP”. The PPs described having been empowered. This changed their previous role as “unaware” patients in the examination chair to knowledgeable women and from having been “used” as “educational material “to becoming instructors for students”. The PPs’ acquired security in the PE situation enabled them to invite the students to perform and be learners. As the PP gives all her attention to the examining student and acts as a personal coach, the student cannot

flee from the situation. The student has to take an active interest in the performance and act, which is a prerequisite for the learning to become “an experience” [92]. The exposure to a “fearful” situation is known to reduce situational related fear [167]. The PP model gives each student an opportunity to get individual support during the time needed to accomplish a PE. The PPs efforts to make each student succeed in palpating the uterus and an ovary might be one of the reasons why PP students experienced less fear after the LS and were more skilled in performing PEs after the LS as well as during the clinical period than CP students.

The results from Study II, by using the specially designed Fear of Pelvic Examination Scale (F-PEXS), showed that PP students had lower fear after their LS than students in the CP model at the prospect of performing their next PE. This scale was validated and shown to have very good reliability (e.g. Cronbach alpha is .96) and good construct validity. The F-PEXS is thus considered to be a new instrument to be used in future research within the same field.

During the LS with the PPs, the supervising gynaecologist has a powerful role to play in mediating an appropriate way of how to approach and communicate with a patient and showing trust in the PPs as instructors. Students learn from continuous observation of the ways their teachers, as role models, handle difficult and stressful situations, how they relate to their patients, and how they deal with ethical and moral issues [168-170]. Involving as many gynaecologists and residents as possible as supervisors in the learning programme increases the likelihood that students get appropriate feedback and meet conscious role models during their clinical clerkship [67, 105].

The most interesting findings from the interviews with the students after they performed their first PE were gender-based. The males said that the lecture made them aware of potential connections between sexual associations and the PE, whereas the females had not expected that the lecture and PE experience would affect them personally and open up a new, inquisitive awareness of being a woman. Both genders valued the interactive and supportive individual meeting with the PPs. It enabled them to overcome their previous concerns as soon as they were put in the position of examiner: the females about daring to look at and touch another woman’s naked vulva and the males about how to establish good rapport with the PP.

Aims	Conclusions
<p><b>Study I:</b> To identify and describe the experience of being a PP in teaching the PE. (Paper I)</p>	<p>Being a professional patient was rewarding. The women felt qualified, capable and sought-after. The incorporated knowledge and awareness about their body increased their self-esteem and enhanced their ability to act in everyday life and during LSs, which contributed to their feeling of being empowered.</p>
<p><b>Study II:</b> To compare two models of learning the PE for medical students, with PPs or with CPs, measuring perceived fear and learning outcome of skills. (Paper II)</p>	<p>The rated feelings of fear at each stage of measurement were low in both groups. After the LS the students in the PP model scored significantly lower fear than the students in the CP model. PP students were more skilful in palpating the uterus and ovaries both during the LS and the clinical clerkship.</p>
<p><b>Study III:</b> To gain a deeper understanding of what female medical experience when performing their first PE. (Paper III)</p>	<p>Through interactive guidance from the PPs, the students overcame affective obstacles and became examiners. The favourable learning experience heightened their awareness of their own bodies and promoted a deeper interest in PEs, both as examiners and as patients.</p>

<p><b>Study IV:</b>          To gain a deeper understanding of women’s perceptions of a LS about the female anatomy, the PE, and performing a PE on a mannequin prior to a subsequent own PE.          To find out how the LS affected the women during the PE. (Paper IV)</p>	<p>The women lacked knowledge about the female anatomy and the PE procedure.          Their active participation during the learning session generated increased self-confidence and knowledge, triggered empowerment, that promoted a creative ability to interact during the subsequent PE.</p>
<p><b>Study V:</b>          To gain a deeper understanding of what male medical students perceive and experience when performing their first PE. (Cover story)</p>	<p>The lecture about the PE promoted insight in the male students of a potential connection between sexual associations and the PE.          Interactive guidance from the PPs, made the students overcome their most prominent concern about how to establish rapport with the PP in such an intimate situation.</p>
<p><b>Study VI:</b>          To validate the questionnaire Fear of Pelvic Examination Scale (F-PEXS). (Cover story)</p>	<p>The F-PEXS has a very good reliability (Cronbach alpha .96) and good construct validity.</p>

## **Clinical Implications**

Maintain and further improve the learning model with the professional patients.

Involve additional women as professional patients.

Involve more residents/gynaecologists in the learning programme, to reinforce students learning from the learning session during their clinical period and also act as “conscious” role models.

Develop learning material about female anatomy and the PE procedure to be used in the clinic.

Keep a model of the uterus and adnexa in full size on the desk.

Implement the Empowering Pelvic Examination as the procedure to be used in clinical everyday work.

## Summary in Swedish

Inspirationskällan till denna avhandling har varit undervisningsmodellen som finns vid Hälsouniversitetet i Linköping, med professionella patienter som instruktörer för läkarstuderande när dessa skall genomföra sin första gynekologiska undersökning och lära sig såväl teknik som adekvat uppförande.

### Studie I

Studiens syfte var att identifiera och beskriva hur kvinnor upplever att fungera som professionella patienter, dvs att vara instruktörer för läkarstudenter från patientens position i den gynekologiska undersökningssituationen. Tretton professionella patienter intervjuades med kvalitativ teknik. Intervjuerna spelades in på band, skrevs ut ordagrant och analyserades med hjälp av tolkande fenomenologi. Fem teman uppstod i analysen:

1. Införlivad kunskap. 2. Befrämja lämpligt uppträdande. 3. Tänka om vad gäller privata gränser. 4. Känna sig trygg. 5. Att göra något meningsfullt.

Kärnan i själva upplevelsen att vara en PP kunde beskrivas som att kvinnorna hade fått ”en mer kraftfull och tydlig självuppfattning”.

Studien konkluderar att kvinnorna kände sig utvalda och att det var en fördel för dem att vara professionella patienter. De fick större kunskap både om sina kroppar och om den gynekologiska undersökningen, vilket de upplevde gav dem en ny medvetenhet om den egna kroppen. Kvinnornas tilltagande förmåga att bidra till studenternas lärande i en så intim och känslig undersökningssituation ökade såväl deras självständighet i lärosituationen som självkänsla i det dagliga livet. Allt detta bidrog till att kvinnorna kände sig ”empowered” och ”växte som kvinnor i gynstolen”.

### Studie II

Denna studie använder en kvantitativ forskningsansats och jämför de modeller med vilka studenter lär sig att genomföra en gynekologisk undersökning vid två olika medicinska fakulteter i Sverige; en modell där professionella patienter undervisar studenterna (PP studenter), och en modell där kliniska patienter används (CP studenter). Utfallsmått var studenternas upplevda oro/ängslan i samband med undersökningstillfällena och klinisk palpationsfärdighet. Studien har en prospektiv design, där studenterna skattade upplevd oro när de föreställde sig att de skulle genomföra en gynekologisk undersökning, vid fyra olika tillfällen under kursen. Palpationsfärdighet skattades av studenterna efter den första genomförda undersökningen och när den kliniska placeringen hade avslutats.

Direkt efter det första undervisningstillfället var fler professionella patienter studenter än CP studenter övertygade om att de hade känt livmodern och åtminstone en äggstock. PP studenterna upplevde då även mindre oro än CP

studenterna inför kommande gynekologiska undersökningar. Under den kliniska placeringen hade PP studenterna genomfört dubbelt så många gynekologiska undersökningar som CP studenterna och hade oftare varit säkra på att de känt livmodern och åtminstone en äggstock.

Sammanfattningsvis hade PP studenterna tillägnat sig bättre palpationsfärdigheter och hade gjort fler gynekologiska undersökningar under den kliniska placeringen än CP studenterna.

### **Studie III**

Målet med studie III var att förstå hur kvinnliga läkarstudenter upplever och tillgodogör sig att genomföra sin första gynekologiska undersökning. Tolv kvinnliga läkarstudenter intervjuades med kvalitativ teknik om sina upplevelser av föreläsning, film och att ha deltagit i ett undervisningstillfälle med professionella patienter. Intervjuerna spelades in på band, skrevs ut ordagrant och analyserades med hjälp av Constant Comparative Method. Den core kategori som uppstod ur data var: ”Att överskrida outtalade gränser och tabun; en förutsättning för lärandet” vilken baserades på kategorierna: ”en didaktisk design underlättar övergången till undersökare” och ”interaktiv handledning möjliggör kreativt lärande”.

Studien sammanfattar att de kvinnliga studenterna övervann känslomässiga hinder och nådde målet att bli undersökare genom den interaktiva handledning som de fått från de professionella patienterna. Detta lärotillfälle hade också en påverkan på deras individuella liv, eftersom det ökade deras medvetenhet om den egna kroppen och främjade ett djupare intresse för den gynekologiska undersökningen, både som undersökare och som patient.

### **Studie IV**

Syftet med Studie IV var att förstå hur ett undervisningstillfälle påverkar en kvinnas upplevelse av en efterföljande rutinundersökning vid ett inplanerat besök på en gynekologisk mottagning. Undervisningen bestod av information om den kvinnliga anatomin och om hur en gynekologisk undersökning går till och varför, varefter kvinnan själv fick utföra en gynekologisk undersökning på en modell.

Tolv kvinnor deltog i ett individuellt lärotillfälle med en gynekolog som handledare precis före deras inplanerade mottagningsbesök. Undervisningen skedde med hjälp av anatomiska bilder och en modell av en livmoder och äggstockar i normal storlek samt en modell som var utformad som en kvinna från midjan och ner till lären i naturlig storlek. Kvinnorna fick information om den kvinnliga bäckenanatomin och en demonstration av en gynekologisk undersökning på modellen, varefter de själva utförde en undersökning på modellen. Kvinnorna intervjuades med kvalitativ teknik efter mottagningsbesöket om sina upplevelser av lärotillfället och av den efterföljande gynekologiska undersökningen. Intervjuerna spelades in på band, skrevs ut ordagrant och analyserades med Constant Comparative Method. Tre

kategorier kunde identifieras: 1. att balansera det onda med det goda 2. medvetenhet ger ökat självförtroende och 3. mental förberedelse möjliggör kroppslig återerövring.

Core kategorin ”Kvinnors aktiva deltagande sätter igång empowerment” kunde konstrueras som representation av de begrepp som fanns i data. Denna beskriver hur det upplevelsebaserade lärotillfället väckte medvetenhet om en tidigare kunskapsbrist, en nyfikenhet att lära sig och vilken betydelse detta hade för kvinnorna. Den nya kunskapen gav kvinnorna ökad självkänsla, kompetens och förmåga att vara aktiva under deras kommande gynekologiska undersökning.

### **Studie V**

Målet med studie V var att förstå hur manliga läkarstudenter upplever att genomföra sin första gynekologiska undersökning. Tolv studenter deltog och proceduren var densamma som i studie III. Tre kategorier framkom vid analysen: 1. en didaktisk design underlättar inträdet i en okänd kvinnlig värld. 2. en interaktiv miljö utmanar och möjliggör lärande och 3. ökad insikt främjar personlig utveckling och fördjupar förståelse. Med utgång från kategorierna uppstod en core kategori: ”Att klara av en intim situation”

De manliga studenternas mest påfallande oro handlade om hur de skulle bemöta och skapa en naturlig kontakt med de professionella patienterna eftersom det var en helt ny, och i tillägg, intim situation. Studenternas vilja att lära sig, hämmades initialt av känslan att inkräkta i en kvinnas privata område. Gynekologens stöd och proffspatienternas tillit och noggranna guidning lugnade studenterna och möjliggjorde ett samarbete som underlättade undersökningen. Studenterna var nöjda och lyckliga över att ha klarat av situationen, och de insåg att det inte fanns några genvägar till lärandet utom att öva. De kunde inte förstå hur de skulle ha lärt sig detta moment utan de professionella patienterna.

### **Studie VI**

Målet med Studie VI var att utvärdera skalan i Studie II som mätte studenternas oro inför att utföra en gynekologisk undersökning (F-PEXS) och hade arbetsnamnet GyExDQ. Utvärderingen i Studie VI genomfördes med hjälp av frågeformulär till läkarstudenter före och efter deras första gynekologiska undersökning med professionella patienter. För studien användes olika välkända och validerade ”ångestskalor” (BAI, STAI och SSAI) i jämförelse med F-PEXS. Vid valideringen av F-PEXS studerades reliabilitet och begreppsvaliditet, där det senare avser hur väl ett psykologiskt test mäter ett abstrakt psykologiskt begrepp, i detta fall oro. Skalan fick efter detta sitt slutgiltiga namn Fear of Pelvic Examination Scale (F-PEXS).

Frågorna i F-PEXS är baserade på en lång klinisk erfarenhet av att observera studenter som lär sig att genomföra en gynekologisk undersökning. Resultatet visar att F-PEXS har en god reliabilitet och en god validitet.

### **Sammanfattning**

Undervisningsmodellen med de professionella patienterna visade att studenterna lärde sig att känna en livmoder och åtminstone en äggstock. I denna modell blir den professionella patienten lärare för studenten, och studenten får tillåtelse att vara nybörjare/lärling. Detta innebär en förändring av den roll som en student vanligtvis intar i mötet med en patient. Varje student får individuell guidning och feedback av den professionella patienten i ”uppförande” och i hur den tekniska undersökningen ska gå till så att den blir bra både för patienten och för studenten. Studenterna kunde genomföra sin första gynekologiska undersökning genom de professionella patienternas kunnighet och förmåga att skapa en trygg miljö. De professionella patienterna, de kvinnliga studenterna som intervjuades och kvinnorna som deltog vid ett lärotillfälle upplevde att de fick ökad kunskap om sin kropp och den gynekologiska undersökningen, vilket startade en positiv process. De professionella patienterna och kvinnorna som själva utfört en gynekologisk undersökning på en docka upplevde att deras roll i den gynekologiska undersökningssituationen därmed förändrades. De kände sig mindre utlämnade, kunde interagera mera med undersökaren och följa med i vad som hände. Processen kan sammanfattas som empowerment, i betydelsen att en ”empowered” person har en ökad förmåga att agera på ett målinriktat sätt [77].

### **Framtidsperspektiv**

Bibehålla och vidareutveckla undervisningsmodellen med de professionella patienterna.

Engagera fler gynekologer i undervisningsmodellen så att de under studenternas kliniska praktik kan ge återkoppling på och förstärka de färdigheter som studenterna lärt sig vid lärotillfället med proffspatienterna.

Utveckla läromedel för kvinnor i anatomi och gynekologisk undersökningsteknik för att användas i det vardagliga arbetet.

Ha en modell av en livmoder och äggstockar i naturlig storlek till hands på skrivbordet i undervisningssyfte.

Införa ”Empowering Pelvic Examination” som standard metod på kliniken.

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