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Title

The Phenomenon of Movement Quality - A Phenomenographic Study of Physiotherapy Students' Movement Experiences

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Abstract

Background

This study aimed to explore how students in a physiotherapy bachelor program acquire awareness of their own movement quality and form conceptions of movement quality.

Methods

The study was designed as an elective course, implementing Basic Body Awareness Therapy principles. The participants were six PT students. Two data sets - students' diaries and reflective group interviews - were collected, one a week before the course ended, and one on its completion. Phenomenographic research methodology was used to transcribe and analyze the data.

Results

Three descriptive categories emerged reflecting the PT students' conceptions of movement quality phenomenon as a widening process: I: *Coming into contact with movement experiences*, II: *Variety of movement qualities*, and III: *Movement quality as professional development*. Within these, two critical aspects, *Acceptance of own movement quality* and *Reflective reasoning based on own experiences of being in movement to gain quality*, were identified, indicating aspects of pedagogical importance in deepening PT students' understanding of the movement quality phenomenon.

Conclusion

The three categories reflect the PT students' variety, widening views on movement quality. The findings elucidate movement awareness learning, by being *in* movement, indicating a direction for future research on students' learning of movement quality conceptions within physiotherapy education.

Keywords: Movement quality; phenomenographic; higher education; bachelor program; physiotherapy student

Introduction

In society, there is an increase in the number of people suffering multifactorial musculoskeletal and mental health problems (1), revealing difficulties as a lack of contact with oneself, one's own body or relationship to others and environment with a consequence for movement quality, daily function and participation in society (2 - 5). The physiotherapist's own experience and communication by being *in* movement is

central when promoting movement quality through a movement awareness therapy program that aims towards these problems (2 - 5).

Human movement is the principal component in physiotherapy and an essential element of health and wellbeing, and physiotherapy is directed towards the movement needs and potentials of persons (6). According to the World Confederation for Physical Therapy (WCPT) body, mind and spirit contribute to people's views of themselves and enable them to develop an awareness of their own movement needs and goals (6). Human movement can be described related to mobility, function, balance, occupation or communication within physiotherapy (7). The use of movement as treatment to promote health, independence, empowerment, meaning of life and to alleviate suffering are described and presented as the core of physiotherapy (8).

The personal experiences of own movements are an important part of human movement (2). To change the beliefs, attitudes or emotional reactions that constitute a person's sets of related meaning schemes, involves transformative learning (9, 10). Self-experience in basic movement principles and implementation in the learning process of the physiotherapy student may add understanding insight. Experiential learning involves the confirmation, addition or transformation of ways of interpreting experience (9, 10). But so far this has not significantly been the focus in teaching of human movement and function in the bachelor program.

Communicating professional concepts and knowledge through 1) being *in* movement, 2) describing one's own experiences, conceptualizing experiences and 3) reflecting upon the conceptions, are, together, essential for physiotherapy learning (2). Desire for

experiencing basic concepts, as movement quality, in physiotherapy, and at the same time mutually sharing knowledge, with students and teachers, offers a unique opportunity to develop significant insight into human movement and function. Such a learning environment for movement awareness learning, empowers the students to implement movement resources available in a varying context.

Conceptualization and reflection is the process of more conscious of the content, process, and premises of person's efforts to add meaning to an experience (9, 10).

Reflective learning becomes transformative when assumptions are found to be distorting or unjustified (9, 10). Reflective relationship is an important critical aspect for physiotherapy students in learning (11). Reflectivity is important in learning processes of human movement (12-14).

Arnold identified three ways of movement learning: Learning about movement, learning through movement and learning in movement (2, 15). Learning about movement is accomplished by teaching human movement as an academic subject from multiple perspectives, as anatomical, physiological, sociological or philosophical ways (15, 16). Learning through movement is accomplished by teaching physical activities. It uses movement in learning as a way of achieving a goal, as learning a skill (15, 16). Learning while being *in* movement emphasizes movement development as a process to be experienced by and integrated in the person (2, 15-17). Arnold emphasizes the connection between learning being in movement and its purpose within education (15).

According to Arnold, learning by being *in* movement focuses on the view of the moving agent, where movement's intrinsic worth and qualities can be experienced (15, 16).

Movement quality is a phenomenon frequently used in physiotherapy in oral language,

written text and clinical practice, and physiotherapists are involved in promoting the patients movement quality (3). According to phenomenological research (2, 3, 18-20) movement quality is an umbrella term embracing physical, physiological, psycho-socio-cultural and existential perspectives on human movement. Such a broad scope of perspectives, and thus overviewing important elements and aspects within the phenomenon, provides developmental challenges for teaching and learning to observe, describe, analyze, promote and assess movement quality in physiotherapy (2, 3, 18-20).

Physiotherapists are mostly educated to focus on physical training and sports, and they are mostly trained to attend to certain bodily aspects (2, 21). Movement awareness is a core, but often found to be a tacit ingredient in physiotherapy education (2, 21). This type of learning by being *in* movement is a part of physiotherapy described as the movement awareness domain (20). One reason for the lack of its value in education is the difficulty of making it explicit (2, 21).

Sensitivity and perception to bodily sensations, signals, being aware of bodily states and identifying subtle bodily reactions to internal and environmental conditions can be seen as awareness of bodily processes (22). Movements that are performed without listening or being aware may have a mechanical appearance (23). A health and coping perspective may lead the human being to discover potentials and resources from within themselves and their environment in a wider extent than a disease-perspective (24). An ability to listen to bodily signals, especially how the movements are done and experienced, as meaningful information (25, 26) is the core aspect of the salutogenic perspective (24).

The physiotherapist's own movement awareness, embodied presence, was described to be a precondition for promoting movement quality in clinical practice (2, 4, 25).

Embodied presence can be described as a bodily felt sense, a form of personal knowing that evokes understanding and fosters meaning, which brings a closeness and familiarity between mind and body (27). The ability to be attentive, being bodily present when moving, was considered to be the basis for professional communication and sensitivity to nuances in the movement quality and can be promoted by developing the physiotherapy student's own sense of being in movement when arranging for this in teaching (2, 19).

Recognizing and understanding your own movement experience means becoming aware of what is going on at the very moment. Presence in the moment may be experienced as a peaceful state, change in the sense of time or profound silence (28-30). The physiotherapist's sensitive accompaniment is fundamental to the patient's process of being in contact with their own movement quality in daily life, where the therapist's own state of presence and the client's presence are closely involved (28). If the physiotherapist lacks sensitivity to the own movement quality, it is difficult to recognize such movement nuances in others (3).

A physiotherapy movement awareness modality, Basic Body Awareness Therapy (BBAT), is very well known for its focus on promoting movement quality through the movement awareness approach and how the movements are performed and experienced according to space, time and energy (2, 3, 18-20). BBAT was developed by the French movement educator and psychotherapist Dropsy (5), brought into physiotherapy by Roxendal (31) and has been further developed in Scandinavia, including by researchers and through the International Association of Teachers in Basic Body Awareness

Therapy (IATBBAT). In BBAT the clinical working-hypothesis is based on the human being's lack of contact with the physical body, the inner physiological and mental processes and with the environment, including their relationship with other people (32). This movement awareness modality brings the whole moving person into focus, and gives an opportunity for experiencing of how the dynamic interplay between breathing, postural balance and mental awareness influences human movements (20). These three are the core elements of free, economic and functional movement co-ordinations (3). The physiotherapeutic factors promoting movement quality in BBAT are three in numbers: the physiotherapist's own movement awareness as a precondition and orientation for promoting movement quality, the creating of a platform for promoting movement quality and, thirdly, action strategies, like the Movement Awareness Learning Cycle (2). To enhance the contact with the self and one's own movement quality, the physiotherapy student designs for situations that focus on promoting the patient's movement quality in health promotion and clinical practice.

The physiotherapy movement awareness modality, BBAT, represents as movement awareness learning including being *in* movement focusing on the quality of the movement experienced from a personal view. This Arnold's third way of movement learning (15), being *in* movement, has been marginalized in a vulnerable position (16). Although the physiotherapist's experience of their own movement quality was found to be a precondition for learning to observe, describe, analyze, assess and promote movement quality in physiotherapy (2-4, 18-20, 25).

The student's ability to recognize and reflect, to explicate tacit experiences, is a crucial goal of professional competence development (10, 33-36) and it strengthens the physiotherapy student's own professional development (11, 37, 38). Exploring the

different ways PT students experience their own movement quality is one starting point for learning to be a professional physiotherapist. The aim of this study was to explore PT students' conceptions of movement quality within bachelor program.

Method

Understanding the phenomenon of movement quality from the physiotherapy students' point of view demands a research design and method to reveal descriptions of PT students' conceptions. The phenomenographic research method is intended to reveal information on variation in human understanding, and conceptions, recently described as awareness or ways of experiencing a particular phenomenon (39-42). The study is not directed at the phenomenon as such but aims at describing the different ways physiotherapy students experience the given phenomenon in this specific context (versus 42, 43).

Phenomenography differs from phenomenology. In phenomenology the focus is on the first-order perspective describing the essence of a phenomenon itself (44). A person's way of seeing and experiencing the world could be compared to lenses through which a person reads and makes assumptions about the world (39, 45, 46). In phenomenography the focus is on individuals' conceptions of a phenomenon called the second-order perspective (41, 47). In phenomenographic research the participants' conceptions illustrate the variation in how a group of participants can understand and express their experiences of the phenomenon. The phenomenon can be hierarchical in nature when the conceptions form themes, which have variations so that each theme has a hierarchical structure. The differences in variation of themes form the descriptive

categories of the phenomenon (41, 47). Accordingly, the less complex descriptions of experiences are understood as categories lower in the hierarchy and the more complex descriptions are seen as categories higher in the hierarchy (41, 47). Furthermore, “so-called” critical aspects are identified in the differences among the descriptive categories (39).

Participants

Six physiotherapy students volunteered to participate in an elective course focusing on their own movement quality (Table 1). The participants ranged from 22 to 33 years of age and they started their bachelor degree studies during the years 2009 - 2010. Five students were female and one was male, two from the second and four from the third year of the bachelor program. They were all born and educated in Finland.

Table 1. Background of participants.

Participants	Gender	Age	Education phase in physiotherapy (years)	Bachelor degree program
Katri	female	33	Third year	student
Anne	female	27	Second year	student
Tommi	male	28	Third year	student
Maria	female	29	Third year	student
Jenni	female	22	Second year	student
Eeva	female	22	Third year	student

The committee for educational research ethics approved the study (20 March 2013).

Permission for the research study was requested from both the educational institution as well as the students themselves when the researcher met the students in person. The

participants were given written information about the study. They signed an informed consent form. The students' anonymity was safeguarded and their real names were not used in this study.

Design of the study

The study was designed as an elective course, of three hours, once a week, during a period of nine weeks, in total 27 hours, providing an extract from the movement awareness principles from Basic Body Awareness Therapy (BBAT) (2, 3, 18-20). The program included lying, sitting, standing, walking and relational movements. As part of the elective course, the students were invited to write in and use a diary, describing and reflecting their own experiences of movement quality during the nine-week course.

The course was structured to promote the students' movement quality through the movement awareness learning program in BBAT, aiming at healthy and functional movement co-ordinations and habits for use in daily life. The corresponding author was the teacher in all movement sessions in the elective course in BBAT. In each movement session, the PT students were invited to explore, experience, integrate, become familiar with and reflect upon their experience their own movement quality (2). After each session, a reflective talk was arranged for the students to share movement experience within the group. At the end of each session, time was offered for the students to make notes in their diary, describing their own movement experiences.

Data collection

Two sets of qualitative data were collected (Figure 1): (1) Students' personal diaries, in which participants described their own movement experiences during the elective course, (2) the first reflective group interview was completed one week before the end of the course, and a second reflective group interview was completed at the very end of the course (Figure 1). Accordingly, two reflective group interviews (48) were used to allow the participants to describe and reflect upon as much as possible the experience of being in their own movement.

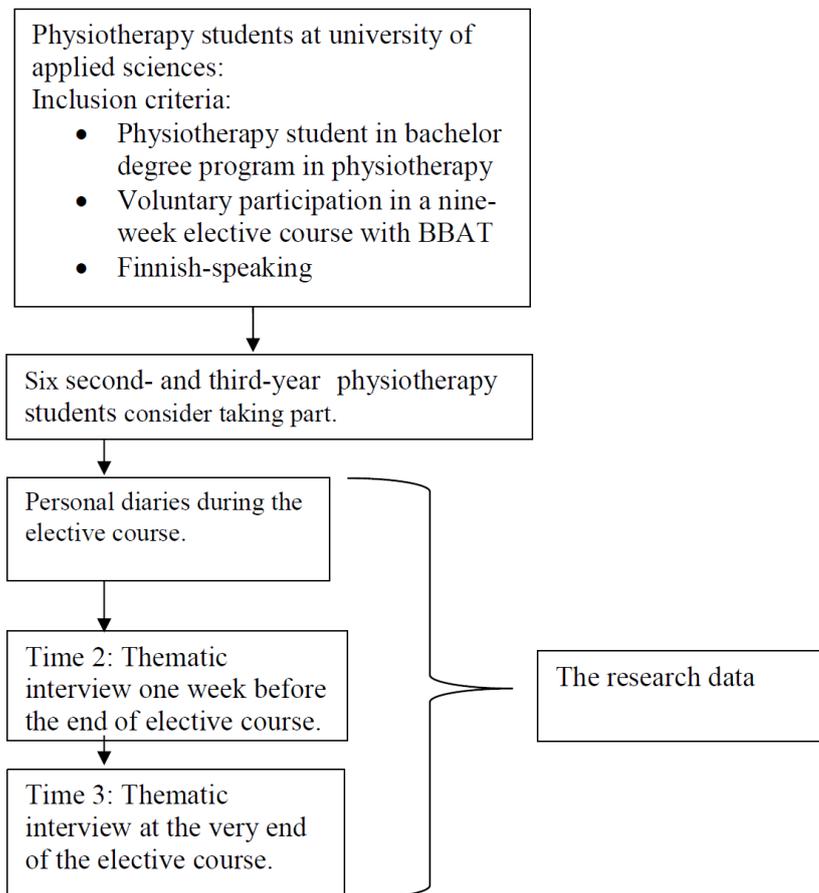


Figure 1. Study design and sampling flow chart.

The interviews were carried out by the corresponding author. The interview guide was constructed before the elective course. It consisted of open, semi-structured questions. The opening question in the interviews was: *“How were your experiences of being in experiencing the movements? Can you describe?”* The interviewer had prepared follow-up questions, like *“How was this for you? Have you other words or other associations, describing the experiences?”* In the interviews the participants were given time to reflect, and encouraged to describe freely in their own words or to give additional concrete examples of their own movement experiences.

The interviewer aimed to create a permissive, open atmosphere and to listen to descriptions of experiences. The interview was conducted in the same room where the movement session took place, so that the familiar room and the familiar interviewer would support participants in their descriptions. All students participated in the discussion, although some of the participants clearly expressed themselves more clearly and at greater length. The participants listened with interest to each other, sharing their experiences, reflecting, and asking each other further questions and expressing their own ideas.

Data analysis

The interviews were audiotaped and transcribed. The first data set included the diaries written by the six participants and delivered to the corresponding author at the end of the course. The transcription ran to six A4 pages (font = Times New Roman 12, spacing = 1.5). The first interview lasted for 50 minutes and the second for 40 minutes. When

transcribed the first interview was eleven A4 pages and the second interview ten A4 pages. The extent of the whole data was 27 pages (8100 words, font = Times New Roman 12, spacing = 1.5).

The entire data was analyzed using the phenomenographic approach (40, 42, 47, 49). In a phenomenographic analysis there is constant iteration in the process within the phases, see Figure 2 (41, 42, 49).

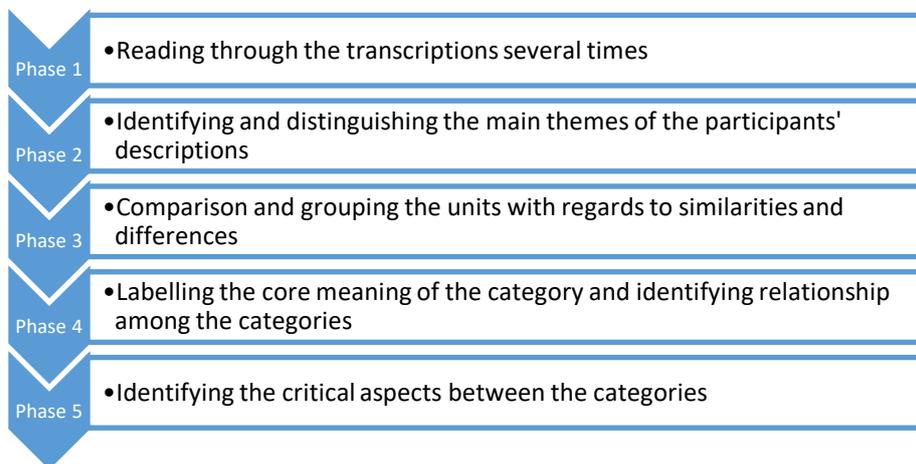


Figure 2. Phases in the phenomenographic analysis used in this study.

The phenomenographic analysis (Figure 2) was carried out by the corresponding author. The other two authors were as co-researchers. The phases were as follows: Phase 1: The transcription of the data was carefully read several times as a whole by the corresponding author to reveal as much from the text as possible, namely each student's experience of movement quality. This analytic step consisted of a search for similarities and differences in the descriptions of movement experiences. Phase 2: This step of the

analytic process (Figure 2) aimed to group the data into themes emerging from PT students' conceptions according to the similarities and differences in their descriptions of experiences. Phase 3: This step of the analysis aimed to identify variation of the themes that distinguished the different ways of experiencing movement quality. Each of the themes varied within the hierarchical structure of conceptions (41, 42). Due to the hierarchical nature of the categories, some conceptions in students' descriptions of movement quality were regarded as more developed and complex than others. Phase 4: The descriptive categories of the phenomenon of movement quality were named (Figure 2).

In phenomenographic studies critical aspects can be identified within categories which can also be pedagogically important (50). In analysis, the phase 5 in this study, the critical aspects refer to the points that may be important in supporting physiotherapy students as they learn to deepen their understanding of the phenomenon of movement quality (Figure 2).

The corresponding author developed the first draft findings and all three authors collaborated to re-read and further elaborate the first draft result, searching for the clearest and most original quote illustrating the results.

Students' diaries and reflective group interviews were carried out in Finnish and the quotations that authors have selected were translated into English. The first translation was undertaken by the corresponding author and discussed with the co-authors, and finally proof-read by a professional language consultant.

Results

Here we present three qualitatively different descriptive categories describing PT students' conceptions of movement quality. Second we describe each of the descriptive categories and the variation of themes in detail and quotes from participants' descriptions considered to be relevant.

Physiotherapy students' conceptions of their own movement quality was illustrated by the three descriptive categories (Table 2): I: *Coming into contact with movement experiences*, II: *Variety of movement qualities*, and III: *Movement quality as professional development*. The themes distinguishing the descriptive categories were named as follows (Table 2): *Perspective on movement*, *Presence in movement*, *Awareness of movement aspects*, and *Awareness of external environment*.

Excerpts from the data are included to illustrate the key aspects of the three descriptive categories, citing expressions used by physiotherapy students with fictive names. The number after the name indicates if the quotation is taken from a diary (1), the first interview (2) or the second interview (3) (Figure 1).

Table 2. Descriptive categories (I-III) and variation of themes, representing the PT students' conceptions of their own movement quality.

Themes: (variation of themes in horizontal)	Descriptive categories:		
	I: Coming into contact with movement experiences	II: Variety of movement qualities	III: Movement quality as professional development
Perspective on movement	Being in movement	Diversity in movement quality	Therapeutic meaning of movement quality
Presence in movement	Focused towards movement	Acceptance of movement quality	Allowing to be myself in movements
Awareness of movement aspects	Rhythm in movement	Monitoring movement sensations	Meaningfulness in movement quality
Awareness of external environment	Boundaries of movement	Movement atmosphere	Professional choice for movement quality

Descriptive category I: Coming into contact with movement experiences

In the first descriptive category, the students described their experience of listening to their movements and coming into contact with a variety of movement nuances, offering a new *perspective in movement*. They emphasized that the sensation of being in an effortless movement was a different experience from what they were used to. They described how they searched to explore the movement in a permissive way. Their first encounter with the soft and slow movements was a somewhat confusing experience

since they found it to be too easy or too simple. They also reported that they considered the experience to be personal. At the same time they described some experiences as interesting although they said it was difficult to find the precise vocabulary to describe the experience (Table 2).

In the movement guidance the teacher's emphasis was on my personal experience, how I sensed the movement myself. This was a little confusing at first...if you are used to focusing on physical training, it is difficult to change your focus on being aware as a way of training,...into a different approach and to be permissive, but you tend to think that this kind of approach is not enough, that there it has no effect, that it is too easy, too simple or too personal, but then you come to see something else. (Jenni, 2)

The students described how challenging it was to be fully attentive and *present in the movements*. They experienced that exploring movement in silence caused some extra effort, because they were used to having plenty of stimuli like noises around them, but now they had an abundance of time to explore movement in silence and their own personal space. The students described how the experience of staying focused was easily disturbed and fragile (Table 2).

It was difficult to stay focused...but it was interesting to realize that moments of being present are so extremely different. (Tommi, 2)

The students described also their experience of coming into more direct contact with their breathing. They recognized *changes in their breathing pattern* and this rhythm had consequences for the way the movements were done and experienced. The students

described how breathing became different and how the movement quality changed after repeating the same movements, being *in*, over about 10-15 times. Freer breathing sensations were described as adding a relaxing calmness to the movements.

I allow my breathing to be as free as possible, today I recognized how my breath became lighter and after a while I noticed how my breathing was becoming deeper and I gave a deep sigh, and I felt more relaxed, I think that through allowing my breathing to be free when I am into the movements, I can become more relaxed and then suddenly the breathing is deeper. (Katri, 2)

The students became aware not only of themselves, but also of the *external environment* around them and how they related to other persons through being in movement. In the relational movement they reported experiencing mutual respect when doing this (Table 2).

We come to listen to each other...I sensed that my body and movement boundaries were respected and I respected the other persons' boundaries in relation to the body. (Eeva, 3)

Descriptive category II: Variety of movement qualities

In the second descriptive category, *Variety of movement qualities*, movement quality was described as a possibility to become aware of a richness in movement experiences and expressed movement aspects. This was based on an attitude of being more open to

exploring and being curious. Then gradually, a variety and more nuanced range of movement sensations come to the fore. This was described as being recognized with increased clarity and acceptance by the student during the process of the elective course.

In this descriptive category, the descriptions expanded to a more multiple *perspective on movement* sensations, such as nuances to do with firmer stability and use of energy in the movements. The students reported more acceptance of their different movement experiences, *being present in movement*. They described movement aspects as pleasant permissive experiences without any necessity to perform.

Being present in the movements has made me being more mentally awake, I did not worry about anything, I just focused on the free movement, in that moment, I experienced that I got calmer thoughts. (Katri, 2)

The students described how they were *aware of movement aspects* that they experienced and that the approach to movement, which involved them in soft, effortless movements, was clearly different than the physical training which they described as promoting more of a heavy, stiff and staccato movement quality. They reported that their use of space became more varied, e.g. exploring how the form in the movement and its quality changed when lying. Thus they described that they became gradually more curious to continue their exploration of the diversity in their movement quality, when they redirected their focus towards how the movements were done and how this change of focus was experienced (Table 2).

We are so used to physical training being heavy. This movement awareness training was unfamiliar at first, the movements were so effortless, in all situations, in lying on the floor, sitting on the chair, we were invited to move in a very light way. Then the experience of movement become different. And when being present in the movements, this was sensed in the body in a different and effortless way. (Maria, 2)

The students described also how *awareness was directed towards the external environment* and their personal sphere. Students had increased their awareness of accepting their movement signals, recognizing how to move in a more harmonious way (Table 2).

I have noticed how a negative mood can have negative effect on my movements. If I become aware of that and start implementing healthy aspects into the training and changing my focus on it, my movement quality will change, then the negative sensation won't get worse and the movement changes its character to be more positive. (Anne, 2)

Descriptive category III: Movement quality as professional development

In the third descriptive category, the experiences of movement quality in students' descriptions further expanded. They told this was important and saw it as a tool for their own professional development. The students' own movement experiences were described as a source of joy. Descriptions of the richness of movement nuances that came to the surface were experienced as increasingly meaningful and as being a way to

professional development and an important way to learn human movement through this kind of movement guidance. They described it as a useful for clinical practice.

The students' *perspective on movement* further expanded from experiencing differentiation in movement quality to professional implementation of movement quality. The students described that learning to be, presently, *in* movement gave them personal insight and to explore themselves more in their own movements. Being more *present in the movements* was experienced as a unique learning situation and the students described how they got a sense of becoming more free which allowed them to trust and thus follow their own sensations so as to gain a more functional movement quality when guiding others. The physiotherapy students described, that exploring their own movement quality in silence was as a rare and an empowering experience (Table 2).

It is wonderful that the emphasis is on acceptance, in relation to what is my own state - just here and now -, what kind of movement rhythm I have today and I was allowed to explore and to follow my own sensations.

(Anne, 3)

In this third descriptive category, the physiotherapy students described, that *awareness of movement aspects* was seen as a tool not only for learning to listen to one's own movement with consent in their own daily life, but also as a tool for strengthening the development of their professional competence (Table 2). The students reported that realizing their own resources as well as the limitations in their movements increased their ability to meet clients. It provide a learning to gain insight into client's situation and descriptions. The students described that learning to become aware of their own

movement quality could help them in clinical guidance so that their clients could listen to and explore their own movements' co-ordinations (Table 2).

It is important for me as physiotherapist to develop my senses and to learn to listen to my own movements so to really understand the patient. In this way I also learn how I can guide the patient to promote health through adjusting the sitting if the back is painful. Through this I have learned how I can be creative in the therapeutic situation, which is important in clinical physiotherapy when I meet, for example, a client with lower back pain. (Katri, 2)

Summing up Results

This phenomenographic study focused on describing how the conceptions of PT students' own movement quality, by being *in* movement, varied. The most important findings shows that the PT students' conceptions of own movement quality, through coming in contact with movement experiences, generated a recognition of a variety of movement qualities, bridging their experiences to own professional development,

everyday life situations and clinical implementation.

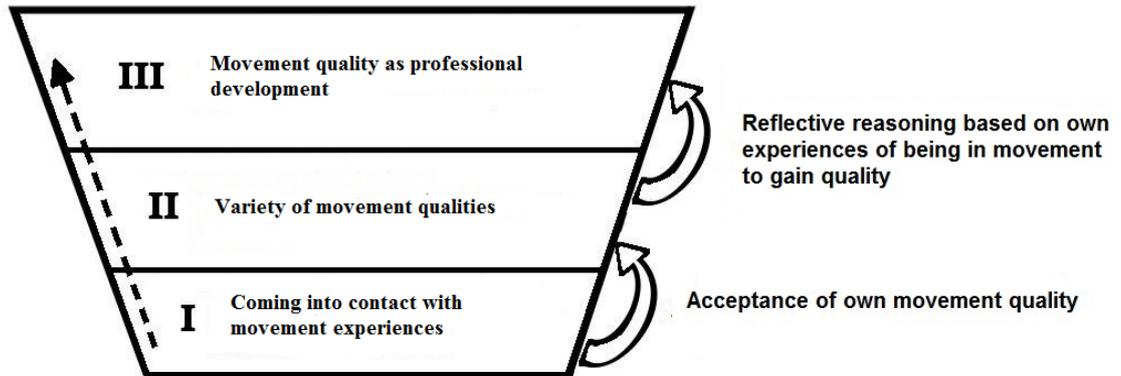


Figure 3. Synthesis of findings, representing bachelor program PT students' conceptions of their own movement quality and the critical aspects within descriptive categories I - III.

The data developed from the study are synthesized, see Figure 3, illustrating the interaction within the descriptive categories and the critical aspects arising from the students descriptions of being *in* movement. The first critical aspect, *Acceptance of own movement quality*, was within descriptive categories I - II (Figure 3). The students learning point of view in the first critical aspect reveals acceptance of the students' different movement experiences in learning situations. In the second descriptive category II (*Variety of movement qualities*, Figure 3) reveals the students' more widening varied movement sensations.

In the third descriptive category III (*Movement quality as professional development*, Figure 3) the students can describe therapeutic meaning and professional choice of

movement quality. The second critical aspect, *Reflective reasoning based on own experiences of being in movement to gain quality*, was within descriptive categories II - III (Figure 3). The second critical aspect reveals the students' reflective words with relation to therapeutic situations and professional choice.

The model, Figure 3, is a summing of the findings from this phenomenographic study directed towards a group of bachelor degree program students' movement awareness learning, being *in* movement, directed towards promoting functional movement quality. The model shows the PT students' conceptions of movement quality and the two important, critical aspects. The model indicates a direction to concentrate the movement awareness guiding on for the teacher of a bachelor degree program.

Discussion

The aim of this study was to explore bachelor program PT students' conceptions of movement quality. The results of this study revealed three descriptive categories of the phenomenon of movement quality: I: *Coming into contact with movement experiences*, II: *Variety of movement qualities*, and III: *Movement quality as professional development* (Table 2). Due to the hierarchical nature of the descriptive categories within phenomenography, some conceptions of the students' own description of movement quality can be regarded through the analytic process as more developed and complex than others. These study results seem similar to other phenomenographic research findings in that they illuminate differences in the conceptions of the given

phenomenon, and how these different conceptions are related to one another (40, 42, 44, 49).

The phenomenon of movement quality is often referred to or used as a term in physiotherapy, but little attention has been paid to physiotherapy students' descriptions of the phenomenon of movement quality (3, 51) concerning how the movements are done in relation to space, time and energy, and how this is experienced when being in movements. The signals that arise from the senses, when being in the movements, tend to lead the student into being more present and remaining present by identifying their own movement sensations (22, 28). This is often a challenging process for those who are not used to being in contact with their inner bodily movement sensations (28). According to Yalom (30), presence is the hidden agent for learning. Presence is a shared tool of the therapy that is being practiced in synchrony by both persons, in the relationship of the therapist and the patient (28). The question is how teachers in physiotherapy bachelor program invite and guide this movement awareness learning process and what kind of structure, what perspectives, elements and aspects is integrated into the curriculum of human movement and function.

Three types of movement learning are described: Learning about movement (theory), learning through movement (skills) and learning by being *in* movement (2, 17). In learning to be attentive, being present in movement, the emphasis is on movement awareness learning, aiming towards taking contact, in order to explore development as a process to be experienced by and integrated in the person and reflected upon (2).

This study showed how PT students' conceptions of movement quality expanded in three descriptive categories. The widening conceptions of movement quality in this study can be seen similarities to the Movement Awareness Learning cycle (2).

Physiotherapeutic (2, 4), pedagogical (12, 17, 35, 52) and psychological research (53) has contributed to developing knowledge about the connection between learning outcome and experiences of one's own movement, security and unconditioned acceptance. To come into contact with how one's own movement are done and thus, experienced, is also important in traumatic experiences (54). There is a broad consensus that construction of learning environment, experiencing meaning and communication, are highly important for movement awareness learning.

In the present study the two critical aspects, *Acceptance of own movement quality* and *Reflective reasoning based on own experiences of being in movement to gain quality*, showed that from a pedagogical point of view it is important in the movement awareness learning sessions to concentrate on the teacher's guiding. Guidance is clearly directed towards the process of gaining more healthy movements coordination, less focusing on "right and wrong movement". The PT teacher's own movement awareness, the ability to be mentally and physically attentive when guiding the movements for the students, here and now, is considered to be a precondition for observing, understanding and promoting movement quality (2). This is considered the same for the relationship between the physiotherapist and patient.

The first critical aspect, *Acceptance of own movement quality*, was identified within descriptive category I and descriptive category II (Figure 3), which refer to the pedagogically important point of increasing acceptance of students' own contact with

and trust into their own movement and listening to students' experiences in an open, accepting manner. According to Antonovsky, in the sense of coherence, it is important aspect to enhance the adaptive capacity of human beings (24). There are, of course, situations as well as students that will react on such a closeness. The stay in contact with one's own body movement lead student to meet and see different sides as a human being, some of health and some of unhealthy points or even pain or sadness. There must be given room for the teacher to choose and change the learning situations optimal according to the personal as well as professional need.

According to our study the second critical aspect, *Reflective reasoning based on own experiences of being in movement to gain quality*, was expanded towards PT students' professional learning. Learning to be a physiotherapist can be described as empowering people in their life (2, 36). A personal process of movement awareness learning for therapists was found to be important for promoting and stimulating the patient's curiosity and involvement in learning (2). It is critical when PT educators create unconditioned acceptance in situations for the students to be silent with themselves, directing focus inwards for a while and listening to what comes up as experiences, and then for the educator to invite students to describe and to reflect.

In the second critical aspect, the students' focus was on the whole moving person instead of focusing on separate parts of the body at professional level. The same kind of results are also found in Greenfield and Jensen (38) and Mezirow (10). According to the results, self-reflection enables to explication and understanding of tacit experiences, which enables transformative learning in professional education (10, 38). Exploration of

the patient's lived experience is a core component in clinical practice and the reflective inquiry skill needs nurturing in professional education with a focus on the self (38).

In learning by being *in* movement, it is necessary according to our results to support students to stay present in their body and movements and verbalize bodily sensations of their own movement. The PT's own depth of communication through movement is central when seeing, observing and guiding movement quality of the whole moving patient and being a genuine listener to what a patient is experiencing and how (5). In phenomenographic research, a recognition of different conceptions in which a phenomenon is experienced has an important impact on education (49). Educators will benefit from developing a better understanding of how their students see and experience the phenomenon that they teach (49, 55). Teachers should pay more attention to learning situations in order to arrange learning situations that invite students to take contact with their own movement experiences. According to Brookfield (2013) the experiential learning approach is essential for promoting the learning of movement experiences (56). The teacher is a key person in creating an atmosphere of acceptance in learning situations (56). In supporting students' reflection of their own experiences the teacher's responsibility is to invite student to discuss afterwards what they experienced (56). According to the findings of our study, the teacher can bring the students to a more abstract, but still very concrete, level to talk about movement quality and so widening the movement quality to a professional level. Understanding patients' bodily and movement signals and qualities has been one objective in European PT professional competencies (57, 58).

Trustworthiness of results

The qualitative study has its limitations. The material reflects Finnish higher education culture in a bachelor program in physiotherapy. The main limitation of the present study is typical of qualitative research; there is a small sample. The study comprised six physiotherapy students who were writing diaries and were interviewed twice so the advantage is that such data make it possible to deepen in a material and qualitative way in order to explore a phenomenon in-depth. Some phenomenographic studies have found that the saturation point can be as small a number of participants as was used in this study (59, 60).

In this study, phenomenography was chosen as the research method in order obtain varying data on physiotherapy students' conceptions of the phenomenon of movement quality. In phenomenographic research, the outcome focus is on the variation in experiences of a given phenomenon and how these ways of experiencing the phenomenon are logically related to one another (40, 42). According to the nature of phenomenographic research, reasonable restrictions on the number of interviews can be made in phenomenographic analysis, in order to handle data and identify the logical structure within the context of different meanings (42). The experiences of the six physiotherapy students contributed to rich and sufficient material, which gave the possibility to maintain focus on the collective experience so as to explore the range of understanding within a particular group (42).

In most phenomenographic studies, the data on participants' conceptions are collected via interviews. In this study, both interviews and writing diaries were used. Such data added to each other to be large enough to ensure the sufficient variation. It was also

important to recognize this so as to describe experiences of one's own movement sensations, which is often challenging. Writing, using diaries as a basis for data collection and analysis, has been shown to be a functional tool for reflection (61, 62).

The data analysis was carried out by the corresponding author in collaboration together with the two co-authors. According to the phenomenographic analysis the relevant research community is regarded as a source of communicative validity (40, 42).

According to the results of this study pedagogical critical aspects emerged from the data. The results can be applied in similar situations to this study. Further studies are needed to explore more about the phenomenon of movement quality, for example in different cultures. The results of this study revealed that physiotherapy students understand their own movement quality in variety ways. In further studies both the physiotherapy students' understanding their own movement quality and developing competences to observe, assess and promote movement quality in physiotherapy is needed.

Conclusion

Three descriptive categories of PT students' conceptions of their own movement quality were found: I: *Coming into contact with movement experiences*, II: *Variety of movement qualities*, and III: *Movement quality as professional development*. The three descriptive categories reflect differing, widening understanding views on movement quality.

According to the findings of this study, the descriptive categories showed that being *in* contact with one's own movement is the precondition for connecting and understanding the movement quality at a more professional level.

In the present study two critical aspects, *Acceptance of own movement quality* and *Reflective reasoning based on own experiences of being in movement to gain quality*, were identified within the descriptive categories, which refer aspects to be pedagogically important in supporting physiotherapy students' learning to deepen and widen their understanding of the phenomenon of movement quality.

The findings indicated the need for more optimal movement awareness learning for bachelor program students in physiotherapy when the focus is on learning by being *in* movement. It is important for PT educators to create accepting situations for the PT students listening to what comes up as movement experiences, and then to invite students to describe and reflect on their own experiences in connecting understanding and insight into professional usefulness.

The findings elucidate movement awareness learning, by being *in* movement, indicating a direction for future research on students' learning of movement quality conceptions within physiotherapy education. There is a need for further research how clinical physiotherapists developing their own conceptions of movement quality.

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