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FINAL DRAFT

**Students' Experiences of Reflective Writing as a Tool for Learning
in Physiotherapy Education**

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Introduction

The level of autonomy typical in the field of physiotherapy brings with it the need for accountability and responsibility, requiring professional skills in clinical reasoning, independent decision making, and documentation (see Black, Jensen, & Mostrom, 2010; Constantinou & Kuys, 2013; Larin, Wessel, & Al-Shamlan, 2005; Lindquist, Engardt, Garnham, Poland, & Richardson, 2006; Wainwright, Shepard, Harman, & Stephens, 2011). Moreover, in our complicated information-based and technological culture, health professionals need increasingly critical reflection skills. In critical reflection processes, professionals use higher-order thinking to analyse and evaluate their experiences. In such processes, theory is connected to practice, ideally leading to new understandings of dealing with patients. (Delany & Watkin, 2009; Gustafsson & Fagerberg, 2004; Mann, Gordon, & MacLeod, 2009)

In modern health care systems, reflective processes are increasingly related to writing activities. Health and social care legislation, as well as laws on data protection, require that all patient data are based on critical professional reasoning and procedures (e.g., medical treatment plans, rehabilitation, physiotherapy) must be documented and registered (Erickson, McKnight, & Utzman, 2008; Stucki, 2005). Such documentation requires autonomous thought processes, that is, profound consideration and integration of knowledge gained in practice, in order to make appropriate clinical judgements regarding patient treatment. Professionals need the ability to synthesise data and to analytically and reflectively write concise and faithful reports on patient conditions and treatments in a straightforward narrative style (e.g., Jensen, Gwyer, Shepard, & Hack, 2000; Wainwright et al., 2011).

For years, scholars in the field of writing research have regarded writing not only as a means of communication but also as a tool for developing thinking and deepening understanding; in other words, they have seen writing as a tool for learning (e.g., Bereiter & Scardamalia, 1987; Langer & Applebee, 2007; Schön, 1987; Tynjälä, Mason, & Lonka, 2001). It has been suggested that writing can serve as a mediating tool when integrating theory and practice, as a means to explicate and conceptualise professionals' practical knowledge, and as an approach to solve problems and promote the synthesis of different forms of knowledge in clinical settings (see Langer & Applebee, 2007; Tynjälä, 1998, 2001). During the writing process, content knowledge and discourse knowledge interact, which requires and therefore develops higher-order thinking and knowledge transformation through problem solving (Bereiter & Scardamalia, 1987).

Extensive research on writing in clinical settings and its effects on physiotherapy students' learning has indicated that writing facilitates reflection and meta-cognitive processes such as analytic thinking, problem solving, and decision-making (see Donaghy & Morss, 2007; Hayward, Black, Mostrom, Jensen, Ritzline, & Perkins, 2013; Jensen & Paschal, 2000; Kuisma, 2007; Maloney, Hong-Meng Tai, Lo, Molloy, & Ilic, 2013a). Writing skills are thus regarded as an important tool in the expertise development of health professionals and students, and it has been suggested that reflective practice, including complex writing tasks such as journal writing and critical essay writing, should be utilised systematically during studies from the beginning (Constantinou & Kuys, 2013; Donaghy & Morss, 2007; Plack & Greenberg, 2005; Tryssenaar & Perkins, 2001; Williams & Wessel, 2004; Williams, Wessel, Gemus, & Foster-Sargeant, 2002). This is supported by a systematic review of reflective practice in health professionals' education (Mann et al., 2009), which revealed that different forms of writing and writing tasks seemed to be the most useful learning strategy for success.

In this chapter, we describe a study in which reflective writing and video recordings of students' practical experiences were used in physiotherapy education. In previous studies, self-documentary videos have helped to stimulate physiotherapy students' reflections in both oral form (Laitinen-Väänänen, Talvitie, & Luukka, 2007; Lähteenmäki, 2005; Maloney, Storr, Morgan, & Ilic, 2013b) and written form (Maloney et al., 2013a; Maloney, Storr, Paynter, Morgan, & Ilic, 2013c). However, there are no systematic analyses of the different ways in which students may experience reflective writing based on video recordings of their practices. Therefore, the aim of the present study was to describe the variation in students' writing experiences as a tool for learning in physiotherapy education.

Reflective Writing and Professional Development

Definitions of reflection date back to the 1930s. Dewey (1933) characterised reflection as active, perseverant, and accurate deliberation that presupposes knowledge about the issue being clarified and leads to summaries and conclusions. When defined this way, reflection has clear connections to critical thinking (see Langer & Applebee, 2007; Mann et al., 2009; and Tynjälä, 2001). According to Schön (1983, 1987), reflection means understanding and thinking about one's self-awareness, learning from one's experiences, and wanting to improve one's actions and behave in a new and different way. Reflection is a mental process aimed at solving complex and unclear issues, less clear thoughts and ideas for which there are no obvious solutions.

According to Schön (1987), an essential goal of professional competence development is enhancing students' ability to reflect, which occurs best in uncertain and complex situations of clinical practice. Mezirow (1991, 1998, 2003) has suggested that critical self-reflection enables transformative learning, that is, learning that leads to changes in learners' beliefs, attitudes, and other "meaning schemes" (see also Bourner, 2003). Similarly, accounts concerning the development of professional expertise have regarded reflection as a means to develop self-regulative knowledge, a main component of expertise (Bereiter, 2002; Heikkinen, Jokinen, & Tynjälä, 2012; Tynjälä, 2008; Tynjälä & Gijbels, 2012). As a result of the widely acknowledged significance of reflection in professional learning several models of reflective practice have been presented. The most cited, to mention a few, include Kolb's (1984) *experiential learning model* and Schön's (1987) concepts of *reflection-in-action* and *reflection-on-action*.

In the field of social and health care, reflection is widely recognised as a prerequisite for lifelong learning and the development of practices. Even during their education, students often encounter unpredictable challenges while working with clients and patients (see Jensen et al., 2000; Lindquist et al., 2006). To manage in those circumstances and to develop as reflective professionals, students need practice in critical reflection. Therefore, critical reflection is included in many health care curricula, such as those in physiotherapy and nursing (see, for example, Delany & Watkin, 2009; Gustafsson & Fagerberg, 2004; Piirainen, 2007; Piirainen, Julin, & Immonen-Orpana, 2007).

The role of writing in reflection is often emphasised. As an activity of "making thinking visible" (Flower, Wallace, Norris, & Burnett, 1994), writing makes it possible to explicate tacit knowledge and conceptualise experiences (Eraut, 2004; Nonaka & Konno, 1998; Tynjälä, 1998, 2001, 2008).

Bereiter and Scardamalia (1993) have recommended that, in order to develop their expertise, professionals should constantly read and write about their domains. In considering writing as a learning process, Bereiter and Scardamalia (1987) have recognised two models of writing: the *knowledge-telling model* and the *knowledge-transforming model*. The latter represents a reflective problem-solving process that enhances both writing ability and content understanding.

Classical studies of writing as a learning tool have shown that any kind of writing combined with reading leads to better outcomes than reading without writing, but that, of different writing activities critical reflection produces the best learning results (Langer & Applebee, 2007). However, certain prerequisites to functional writing assignments in professional domains can be identified. For example, Tynjälä (2001) has summarised the following prerequisites for functioning writing-to-learn assignments: tasks should promote *knowledge-transforming* (rather than *knowledge-telling*) processes; they should encourage students to reflect on and theorise their experiences, conceptions, and new knowledge; and they should enable the connection between theories and practical problems and the conceptualisation of personal experiences in the professional field.

Critical essays and reflective journal writing are examples of writing tasks that make it possible to fulfil these demands. Moreover, effective and explicit guidelines for students are needed. Langer and Applebee (2007) underlined five important components of instructional scaffolding necessary to reflect critically: students should express their own ideas, the context should be familiar, teachers should support students with commentary and plan and initiate learning activities, the relationship between students and teachers should be collaborative, and instruction should take place in a context where both the students and the teacher have an active role. Furthermore, it has been stated that assignments should be complex enough to challenge learning and reflection (Bereiter & Scardamalia, 1987; Schön, 1987, 1991; Tynjälä, 1998, 2001). For instance, complex patient case study examples can provide proper challenges to encourage critical reflection (Donaghy & Morss, 2007). In summary, the integration of reading, writing, and domain-specific practice is important to developing professional and expert knowledge (for example, see Langer & Applebee, 2007; Tynjälä, 2001; Tynjälä & Gijbels, 2012).

In the field of physiotherapy education, reflective writing has been investigated mostly with regard to written assignments during practical training. Previous research has demonstrated the effectiveness of journal writing as a tool for developing physiotherapy students' reflective skills and practice (e.g., Chirema, 2007; Constantinou & Kuys, 2013; Larin et al., 2005; Musolino & Mustrom, 2005; Tryssenaar & Perkins, 2001; Williams et al., 2002; Williams & Wessel, 2004).

There is evidence that reflective journals facilitate physiotherapy students' reflective thinking and help them to analyse their feelings and consider how they will handle different patient situations in the future (Larin et al., 2005; Williams et al., 2002; Williams & Wessel, 2004). Chirema (2007) suggested that writing journals are a valuable tool for stimulating thinking and developing new perspectives. Guided journal writing in particular seems to help students to think critically and avoid uncritical modelling in clinical placements (Constantinou & Kuys, 2013). On the other hand, it has been observed that the subjectivity of reflection and difficulties in improving related skills can confuse both students and tutors in their self-evaluations. This creates a need to focus evaluations on the reflection process itself, rather than on an individual's personal actions or on actions on a general level (Koole et al., 2012).

Methods

The purpose of this study was to examine physiotherapy students' experiences of reflective writing. In more detail, the following research question was addressed: How do physiotherapy students experience reflective writing as a tool for learning in their education?

Data collection

The participants in our study were physiotherapy students ($n=32$) at the bachelor's degree level who started their studies in 2009 at a Finnish University of Applied Sciences (traditionally referred to as polytechnics). During their studies (which lasted approximately three-and-a-half years), the students were tasked with video recording their own activities at school and, after their first year of university, also at practical training sites. Students chose their video-recorded situations, in which they had active and responsible roles at school and in practical training settings covering hospitals, health care centres, rehabilitation institutions, clinics, and projects. For example, they selected situations in which they practised core skills in evaluating patients, training skills, therapeutic exercise skills and counselling skills. Reflective writing was utilized to enhance students' awareness of different aspects of learning various skills. No specific genre of writing was required; instead, each student's task was to contemplate, reflect and write in his or her own way.

The study data were collected by interviewing the students on their experiences with reflective writing within the last months of their studies. The open interview question was meant for students to talk about their video-based reflective writing that had taken place throughout their university education. The individual interviews were audio-recorded and transcribed verbatim. The data were analysed phenomenographically.

Of the students participating in the study, seven were male and 25 were female. All the students were between 19 and 35 years old and had passed a matriculation examination in upper secondary school. Five had already gained a higher education degree or a vocational degree, and three had dropped out from earlier higher education studies.

Data Analysis

The data were analysed using a phenomenographic approach. Phenomenography is the study of how people experience and understand different phenomena. The outcome of phenomenographic research is a compilation of *categories of description* that illustrates the variation of conceptions and experiences in the population under investigation (Marton, 1981; Marton & Pong, 2005; Uljens, 1996; Åkerlind, 2005a). In the present study, we examined how physiotherapy students experienced reflective writing as a learning tool in their education.

The analysis of the present research was carried out by its three authors in two main phases. The first phase of our analysis focused on identifying and describing the participants' experiences of reflective writing in general terms. First, the interviews were listened to and transcribed text read as a whole several times by the first author to look for similarities and differences in the students' experiences. Next, the conceptions expressed in the interviews were grouped into meaningful clusters, tentatively, according to differences and similarities. After that, the first author formed the first draft of qualitatively different categories. A preliminary category was formed whenever there was enough evidence for an overall expression of meaning to be distinguished (Marton & Pong, 2005). Thereafter, all three authors collaborated to examine and elaborate categories, based on the original quotations, until they agreed on the descriptive categories.

The second phase of the analysis was also done in collaboration between the three researchers. It focused on examining the structural relationships between the descriptive categories. In other words, the purpose of this phase was to identify the aspects that distinguished the various ways of experiencing reflective writing. We refer to these aspects as *themes of variation*. In this phase, some last modifications were made to the categories. Finally, the descriptions of the categories were developed and agreed on by the three researchers. As in phenomenographic literature, the phases of analysis described above were necessary to ensure the trustworthiness of our findings (see Green, 2005).

According to phenomenographic principles, the categories formed must be in a structural and logical relationship with one another and form a hierarchical whole (Marton & Booth, 2009, pp. 124–28; Marton & Pong, 2005; Åkerlind, 2008). Due to the phenomenographically hierarchical nature of the categories, categories higher in the hierarchy may include aspects of categories lower in hierarchy, but not vice versa; furthermore, categories higher in the hierarchy represent more complete or complex understandings or experiences than those lower in hierarchy (see Åkerlind, 2005a).

Recent phenomenographic studies have identified pedagogically critical aspects in students' conceptions and experiences. These aspects are usually some of the themes of variation identified in the study, and they are critical in regard to changing conceptions and moving from a less developed understanding to a more developed understanding. In the present study, the critical aspects refer to things that are important when aiming to help students experience reflective writing in a deeper and complex way (cf., Marton & Booth, 2007, p. 111). Åkerlind (2005b) pointed out that the critical aspects of categories and themes have to occur in all categories and transcribed data to be considered "critical". It should be mentioned that the categories do not directly represent individual students' conceptions of reflective writing, rather than they represent students' conceptions collectively (see Marton & Booth, 2009, pp. 124–128).

Findings

Physiotherapy students' experiences of reflective writing can be divided into four descriptive categories: 1) *writing as a useless task*; 2) *writing as a tool for deepening understanding*; 3) *writing as a tool for self-reflection*; and 4) *writing as a tool for professional development*. The aspects distinguishing the categories, that is, the *themes of variation*, were named as follows: *function of writing*, *focus of reflection*, *contribution to professional learning*, *emotions*, *main attribute of writing*, and *importance for learning* (Table 1). Each of the four categories is described in more detail below. The themes of variation are shown in italics. Excerpts from relevant interviews are included to illustrate the key aspects of the four categories, citing expressions from students with fake names.

Category I: Writing as a Useless Task

In the first category, reflective writing was seen as useless in physiotherapy education. The students expressing this view did not see any *function* in writing, but regarded it as an extra task. Since

writing was regarded as unnecessary work, the *focus of reflection* was not discussed, nor was the *contribution to professional learning* recognised.

Emotions expressed in this category were negative because the students felt that they were forced to write. They described reflective writing as irritating, displeasing, unnatural and fake. They also felt that writing caused extra pressure.

One theme of variation in this category was *main attribute of writing*, that is, the overall impression about writing as an everyday activity. In this category, writing was characterised as difficult and obligatory. The students were aware of high expectations regarding their writing relating to their physiotherapy studies, also in terms of legibility, and thus experienced writing as a strain and found it easier to explain thoughts verbally.

The students did not recognise writing to have any *importance for learning*, nor as *contributing to their professional development*. Overall, they regarded writing as useless. Instead of seeing writing as a useful form of reflection, the students in this category stated that they prefer feedback from their physiotherapy instructor. They saw any personal reflection as useless and did not recognise that writing could further their studies.

Writing is, I mean... some kind of nuisance... At first, it's quite uncomfortable to look at yourself. It's a bit disturbing, this unnatural situation; it's a fake situation... Generally, I find all reports and learning diaries and so on really painstaking... When I have to write it does not flow, my language is really rigid; so, it's uncomfortable when my text should be smart and legible. (Marja)

From my personal experience, I feel that I get the best feedback from the tutor. I think that it's a more natural way [of learning than watching the videos. (Mikko)

Perhaps I can go deeper when I explain something verbally..., when I have to give someone... an explanation of what I have learned. (Saaga)

As the quotations above show, it was typical of this category that reflective writing was experienced as a useless and unnecessary task in physiotherapy education. Writing was also seen difficult, and these students seemed to feel increased pressure. Instead of self-reflection, students called for feedback from their physiotherapy instructor.

Category II: Writing as a Tool for Deepening Understanding

In line with phenomenographic research, students' understanding and experiences expanded from one category to the next. Accordingly, in the second category, students did not experience reflective writing as a superfluous task, but as a tool for deepening their understanding and developing their thinking. Unlike in the first category, students in this category discussed the *focus*

of reflection, and it concerned their own actions. *Emotionally*, students' experience of writing shifted from negative to positive from the first to the second category, as the students in the latter category came to see writing as pleasant. The perception of the *importance of writing* thus changed from seeing reflective writing as useless to seeing it as useful for learning physiotherapy.

In physiotherapy students' views, in this category, *the function of writing* was clear: the students felt that reflective writing clarified thinking and brought new and widening perspectives. They felt that writing helped connect theory with practice and join different approaches in their thinking.

This writing in order to strengthen one's theoretical knowledge is quite good...Perhaps it will lead to resolving unclear issues. I mean that in this way, we can really focus on those things. (Seppo)

Writing always clarifies your thinking ...Yes, I do think it helps, because when you read it afterward it clarifies your thoughts. It's not just an excessive flow of information that you quickly put down on paper but something that you have to think about. (Sirpa)

With regards to the *focus of reflection*, the responding students referred to their own actions. The students felt that writing helped them become more aware of their own doings, and as a result, deepened their understanding. Thus, unlike in the previous category in which *contribution of writing to professional learning* was not recognised at all, in this category reflective writing was seen as a way of developing one's thinking.

Well, you have to think on a much deeper level... about how you act and why you have done something..., and you need to ponder whether you could have done this and that in some other way, or what was good [in your practice] and that sort of things..., and explain why you have done everything the way you did...and consider what was good. (Riitta)

In regard to *emotions*, the respondents indicated that, at the onset, they were not very excited about reflective writing and did not enjoy it. However, the students' understanding of writing as a challenging and distressing experience eventually changed to a positive one, and writing became easier toward the end of their studies. Students still found writing to be a strain, but the strain was experienced as encouraging. Consequently, emotional charges shifted from negative to positive. While the students described reflective writing as oppressive and agonising at the beginning of their physiotherapy studies, by the end of their studies they described it as being a pleasant activity. Thus, the *main attribute* given to writing was "pleasant". Unlike students in the previous category, who saw writing as difficult and obligatory, the students soon had their own personal goals and enjoyed reflecting and writing.

Well, at least for me, it has been rather easy to write. You just sit down and open your computer and start to write..., and the words flow –just like that. (Susanna)

As for the *importance for learning*, these respondents regarded writing as useful. They felt that it helped them to think about and analyse their own actions and experiences in a more diverse way than they would have done otherwise.

If you do the written analysis, you have to contemplate the issue more compared to only watching the video... You really have to think about the situation, how you act, and what you could improve and do in some other way and you know – it's very good for your learning. (Minna)

Altogether, the excerpts belonging to the second category show how reflective writing was experienced as a tool for deepening understanding and developing thinking. Students felt that writing helped them analyse their own action and experiences. It was seen as pleasant and helped connect theory with practice.

Category III: Writing as a Tool for Self-Reflection

In the third category, reflective writing has turned into a more profound of self-reflection. The students felt that the writing task required personal insight and caused their focus to expand from their own actions to their interactions with others. In this category, students felt that in addition to developing their thinking, writing contributed to their wider personal growth. Compared to the previous categories, in which negative attitudes toward writing were expressed at least at the onset, the respondents in this category expressed positive feelings with respect to reflective writing from the very beginning. Writing was experienced as an enlightening activity and increasingly useful for learning.

The *function of writing* expanded from the general development of thinking to deepening self-reflection. The experiences reported by students were characterised by ideas of reflective writing as enhancing self-evaluation and self-understanding.

It [practical training] would be kind of insufficient without the written reflection. In the video, you can actually see what's going on, but your own thoughts are left out of the situation; so, for a proper self-evaluation, I do believe that it's really important to do the written part. (Seppo)

The *focus of reflection* expanded from students' own actions to including interactions with patients and clients. For example, the students felt that writing enabled them to reflect on their communication, guidance behaviours, and other interactions with patients at the hospital.

Well, you sort of analyse what you have learned more accurately, including how and how clearly you explain things to the clients. Yes, this method has been very good. (Niina)

The *contribution of reflective writing to professional learning* was seen as physiotherapy students personal growth both during their studies and for when they would become practitioners in the future (unlike in Category I, in which the contribution to professional learning was not recognised at

all; or in Category II, in which professional learning was mostly seen as the development of thinking). Here, the students had personal development targets and appreciated the usefulness of self-documentary videos and reflective writing in professional growth.

I feel more complete through that evaluation. I remember when I wrote the first video analysis of a therapeutic exercise in the course, where I was practising a KELA coordination test. I only evaluated how the test should have done, small faults and deficiencies and so on. But now, I notice that I have started to think when I described the client doing this circuit training gym programme that I planned... So now [in planning], I mainly think about how certain movements would suit a specific client, as well as what alternative movements may be good...I think about this from the patient's point of view...I think about whether we have the right equipment, are using the best movements, and so forth. (Juho)

Regarding *emotions*, positive experiences dominated in this category and students expressed that they were interested in writing. Since the students experienced writing as useful for their learning and professional development, the *main attribute describing writing* was “enlightening”; that is, students found writing about their own experiences informative and interesting, and they also expressed their personal readiness and positive attitudes in regard to reflective writing. Students had their own personal targets for self-evaluation and writing. Unlike in Category I, in which writing was seen as obligatory, or in Category II, in which writing was mostly seen as pleasant, students in this third category had better experiences of self-reflection through writing and saw writing as illustrative. The respondents were more aware of their learning processes, and they assessed their own reflective writing critically.

It really opened my eyes... You can see for yourself whether or not you have done something the way it should be done. (Maija)

When you write it done thoroughly, you can analyse it thoroughly... Writing focuses your attention on the activity and you remember it clearer and understand what you have to develop. You get a better, more detailed and precise conception of it. (Roosa)

In sum, in this category, the physiotherapy students described that it was useful and interesting to open up and analyse their work with patients and clients. Writing was seen as a tool for self-reflection and the students felt that it deepened their self-understanding. Writing was experienced as pleasant as well useful for learning and the development of critical thinking.

Category IV: Writing as a Tool for Professional Development

In the final category, the role of reflective writing in students’ learning widened further from being a tool for self-reflection to one for choosing one’s professional direction. The fourth category addresses students’ experiences of writing as developing their professional competence, know-how and identity. The focus of reflection expanded from the students’ actions and interactions with patients to their interaction with the professional community. The students’ understanding of and

collaborations with clients, colleges and multi-professional workplaces widened. The perceived usefulness of writing thus expanded from improving one's personal development to enhancing one's own social growth as a member of a community. The emotions related to reflective writing were positive and broadened even to the point of students feeling inspired and motivated. As a result, the role of writing in physiotherapy studies widened to one of empowering activity. Overall, the meaning and significance of writing developed to such a degree that it was seen as necessary for learning.

The *function of writing* in professional development was seen not only as a tool for self-evaluation, but also as an activity strengthening professional competence and identity in physiotherapy. The students felt that reflective writing tasks enhanced the development of their professional competence.

It is important that you grow as a professional and also as a human being, and that you can evaluate yourself realistically and see your action from an outside perspective. (Juho)

The *focus of reflection* in reflective writing widened from the students' own actions and interactions to their collaboration with others in the professional community. For example, students imagined themselves as members of professional communities in hospitals and health care centres, as team members in inter-professional groups, and as partners in cooperative project work.

At the clinic...even the actions of the different physiotherapists diverged a lot. One doctor might find one thing and you another. But anyway, we physiotherapists examine patients' functioning more, whereas doctors conduct other kinds of examinations. (Sanna)

While in the previous category, the *contribution of writing to professional learning* was related to the students' own growth, in this category the experiences reported by the students expressed efforts to contribute not only to their personal but also to their social development, such as their ability to work together with clients and physiotherapists in a professional community.

One of my physiotherapy tutors has been working in this particular department at the hospital for only a short time. He said that he has solicited the other physiotherapists' assistance quite often, such as when he has noticed... that muscle and therapeutic training does not help a patient and he does not know why. Even he does not have enough knowledge or experience...; so, together, we have both asked for help and recommendations as to what shall we do since some of the other physiotherapists have more experience. (Leena)

Well, you sort of analyse what you have learned more accurately ..., including how and how clearly you explained things to clients, and so on. Yes, this method of reflective writing has been extremely good. (Niina)

Students' *emotions* developed from positive to flowing experiences. Physiotherapy students expressed, for example, excitement and feelings of empowerment due to personal reflective writing.

They [reflective writing tasks] are incredibly good for your professional growth. (Maija)

Video recordings were considered important as a basis for reflection.

Well, in the video you can see very well what you are really like in those situations. For example, regarding the latest video that was shot during my advanced practice: somehow, you think of yourself so differently. It's kind of exciting to watch it, even my voice sounds so different; but somehow, I have quite a positive view of it. (Niina)

The *main attribute given to writing* varied throughout the categories. While in Category I writing was seen as difficult, in Category II it became pleasant. Further, in Category III, in which the students began to see writing as useful for their personal development, reflection through writing was seen as an enlightening experience. Finally, in Category IV, writing was experienced even more as an empowering activity. Some students described writing in terms of knowledge transformation (cf., Bereiter & Scardamalia, 1993).

When you have time to write things down, you get a lot of it... When you first write them down and then read them, you realise that otherwise you wouldn't have thought about these things in the first place, but now you are sort of processing them. I mean, you can take it further when you can go through it again compared to when you first thought about it and put it on paper... Yes, I think it's better to write things down properly. (Juho)

Due to the very positive experiences of reflective writing, the *importance of writing for learning* was clear in this category. Writing was given an extended meaning, and was thus seen as important to students' professional development as physiotherapists and as necessary for *professional learning*.

It's absolutely necessary if you want to develop and look at yourself. (Eino)

In sum, in the fourth category, the role of reflective writing extended to a tool for social development, professional competence and identity. The focus of reflection was on interaction with the professional community. Writing was experienced as positive and it was regarded necessary for learning.

The structures of the categories

The formed categories and their distinctive features, that is, the *themes of variation*, are summarised in Table 1. As mentioned earlier, the themes of variation were named as follows: *function of writing*, *focus of reflection*, *contribution to professional learning*, *emotions*, *main attribute of writing*, and *importance for learning*. The categories are hierarchically structured, so that the categories on the right side of Table 1 represent a more diverse experience of reflective writing than the categories on the left side of that table. For this reason, Categories II, III and IV may include some aspects from the categories on their left, but not vice versa. In other words, Category II may include the same experiences and aspects as Category I, Category III may include the same aspects

as Categories I and II, and Category IV experiences from Categories I, II and III. For example, in Category IV, the first-mentioned theme of variation, *function of writing*, is “strengthening professional competence and identity”. This identified function includes the function identified in Category III, “deepens self-reflection and self-understanding”, as well as the function identified in Category II, “develops thinking”. In contrast the function of writing in category II does not include the functions “deepens self-reflection and self-understanding” and “strengthening professional competence and identity”.

Table 1 *Physiotherapy Students’ Experiences of Reflective Writing*

THEMES OF VARIATION	CATEGORIES			
	I. Writing as a useless task	II. Writing as a tool for deepening understanding	III. Writing as a tool for self-reflection	IV. Writing as a tool for professional development
Function of writing	Extra task	Develops thinking	Deepens self- reflection and self- understanding	Strengthens professional competence and identity
Focus of reflection	Not discussed	Own action	Own action and interaction	Professional community
Contribution to professional learning	Not recognised	Development of thinking	Personal growth	Personal and social development
Emotions	Negative	Shift from negative to positive	Positive	Positive, flow
Main attribute of writing	Difficult, obligatory	Pleasant	Enlightening	Empowering
Importance for learning	Useless	Useful	Useful	Necessary

Discussion

Although writing skills have been regarded as an important tool in health professionals' and students' expertise development, little attention has been paid to the variation in students' experiences of writing. This study reveals that students have wide-ranging experiences and conceptions of reflective writing. While a few students do not see any value in writing as part of their education, others see reflective writing as a useful or even necessary tool for professional development. These findings have important implications for educational and pedagogical planning and practices in the field of physiotherapy.

The findings of our study revealed four qualitatively different ways of experiencing reflective writing as a tool for learning in physiotherapy education. The first category, the identification of writing as being a useless task, represents the simplest experience, while the fourth and most advanced category, the recognition of writing as a tool for strengthening professional competence, represents the most complex and developed experience. The categories were delimited from each other and organised hierarchically on the basis of six themes of variation: *function of writing*, *focus of reflection*, *contribution to professional learning*, *emotions*, *main attribute of writing*, and *importance for learning*. In relation to these themes, three pedagogically critical aspects can be discerned: *function of writing*, *emotions*, and *focus of reflection*. These aspects are critical from the viewpoint of moving from one way of experiencing reflective writing to another, more complicated way (Figure 1).

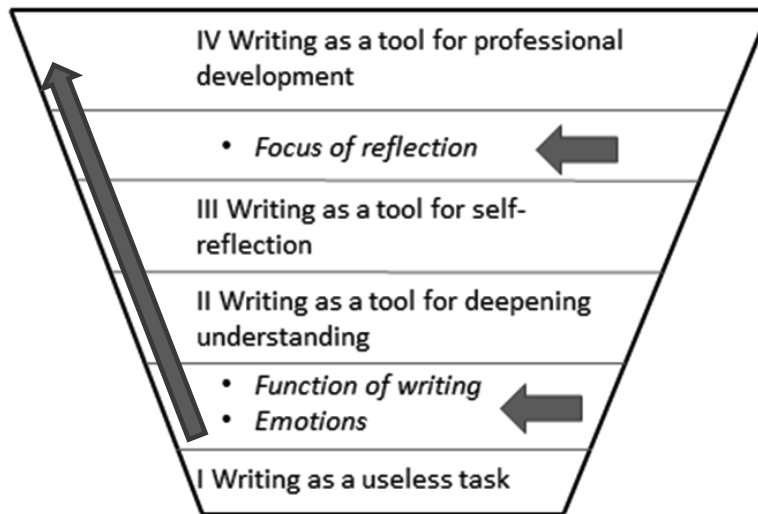


Figure 1. *The descriptive categories of physiotherapy students' experiences of reflective writing and the pedagogically critical aspects from the viewpoint of moving from the lowest to the highest category in the phenomenographic hierarchy.*

The first significant turning point in students' experiences seemed to be between the descriptive Categories I and II, where the students' way of experiencing reflective writing changed from regarding writing as a useless, superfluous, difficult, and obligatory task to experiencing writing as a tool for deepening understanding. Here, the *function of writing* radically changed from something seen to be useless to something that was experienced as being conducive to learning. Therefore, from a pedagogical point of view, it is important to convince students of the value of writing from the very beginning of their studies. This could be done, for example, by presenting them with quotations from more advanced students who had positive experiences, emotions and attitudes, such as those reported here.

Another pedagogically critical aspect was that of *emotions*, and it also appeared strongest between the Categories I and II. This is in line with several recent studies that have stressed the role of emotions in learning (e.g., Arpiainen, Lackéus, Täks, & Tynjälä, 2013; Järvenoja & Järvelä, 2005; Pekrun, Frenzel, Goetz, & Perry, 2007). The findings of our study showed that for many students the feelings related to writing shifted from negative to positive during studies, whereas for others either negative or positive emotions remained as such throughout their education. For effective learning results, it is important to give support in writing-to-learn activities, especially for those students who experience negative feelings. We suggest that in order to decrease anxiety, especially

at the beginning of studies, students should be encouraged to practise free-style writing, that is, writing without regard for grammar, spelling or other formalities, so that they can gain experiences of writing without fear of linguistic mistakes or failure. Some students (e.g., dyslexic students and students with writing problems) need more individual tutoring and guidance, and possibly flexible deadlines to allow them sufficient time to think about tasks and write (see Kerr, 2010). At the same time, there are other students who require more challenging and complex writing assignments. In general, previous studies suggest that all students benefit from the combination of various learning methods, such as reading, writing, group exams, and discussions (e.g., Kuisma, 2007).

Writing not only raises emotions but can also be used to deal with emotions. In some studies, reflective writing has been shown to be an effective channel for a variety of emotional expressions and their handling (Nevalainen, Mäntyranta, & Pitkälä, 2010). This was evident in the present study as well. Given that emotions play an important role in learning processes, it is important that there are tools for expressing and dealing with them. In this respect, reflective writing seems to function well.

The third critical aspect, *focus of reflection*, appeared strongest at the crossover point between Categories III and IV, in which the emphasis of *writing to learn* shifted from self-reflection to a wider perspective of professional competence. In Category III, students found that writing deepened their self-reflection, self-understanding, and personal growth, a finding that confirms previous research studies' results (cf., Donaghy and Morss, 2007; Larin et al., 2005; Maloney et al., 2013a; Williams et al., 2002). In Category IV, the focus of reflection further widened to social development and professional communities in the students' training places. Thus, using reflective writing as a learning tool in physiotherapy education supports the idea that teachers should guide students to reflect more from the point of view of developing their social competence and improving their interaction with the professional community, especially toward the end of the education. Becoming a physiotherapist is a process of cultural learning, with the aim of growing as a member of a community of practice (see Lindquist et al., 2006; Piirainen & Viitanen, 2010; Roessger, 2013; Wenger, 1999).

To summarise, in this study, we examined how physiotherapy students experienced reflective writing based on self-documentary videos of their school lessons and clinical placement practices. The findings revealed a variety of experiences ranging from seeing writing as a useless task to regarding it as necessary for professional development. The various experiences raise pedagogical challenges and suggest the need for support especially those students who do not see the value of

writing in their studies. For most students, however, the combination of video recording and reflective writing proved to be a valuable and effective learning tool (cf., Maloney et al., 2013c). On the basis of our findings, we recommend that reflective writing be used more systematically and frequently in a variety of ways in the field of health education.

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