



How to select reading for application of pedagogical bibliotherapy? Insights from prospective teachers' identification processes

Sonja Lutovac¹ · Raimo Kaasila¹

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Abstract

There is compelling evidence on the effectiveness of bibliotherapy for facilitating one's development. Arguably, in teacher education, bibliotherapy has been shown to facilitate prospective teachers' professional development. However, teacher educators may experience difficulties in finding relevant reading to stimulate prospective teachers' identification process, which is essential if the application of pedagogical bibliotherapy is to be successful. This study is situated in a mathematics education course for prospective elementary school teachers and explores the features of relevant pedagogical reading via analysis of four prospective elementary school teachers' identification processes with two case descriptions. The identification here relates to the reading of the so-called true stories; prospective teachers read stories of other prospective teachers from the same teacher education context. We outline the recommendations for the selection of reading material when applying pedagogical bibliotherapy in order to assist prospective teachers' professional development.

Keywords Identification · Pedagogical bibliotherapy · (Auto)biography · Prospective teacher education · Mathematics education

Introduction

In this paper, we discuss bibliotherapy, also known as the use of reading to promote affective change and personal development (Lenkowsky 1987). Therapeutic value of bibliotherapy occurs gradually in various phases, which allow for processing of one's own experiences and emotions via reading material. The research literature refers to two main

Sonja Lutovac and Raimo Kaasila have contributed equally to this work.

✉ Sonja Lutovac
sonja.lutovac@oulu.fi
Raimo Kaasila
raimo.kaasila@oulu.fi

¹ Department of Educational Sciences and Teacher Education, Faculty of Education, University of Oulu, P.O. Box 2000, 90014 Oulu, Finland

approaches to bibliotherapy, i.e. as a psychotherapeutic approach under the label of ‘clinical bibliotherapy’ and ‘developmental bibliotherapy’, used for facilitating one’s personal growth and development (Hynes and Hynes-Berry 1986). Both applications have found great success in a variety of contexts and for various purposes. Although the application of bibliotherapy has been far greater outside of educational context, it has also been used in school settings (see for review, McCulliss and Chamberlain 2013) in order to help students develop social skills (Lenkowsky 1987; Cartledge and Kiarie 2001) and reduce aggression (Shechtman and Tutian 2016) and cope with significant fears (Nicholson and Pearson 2003), for creating an inclusive classroom (Iaquinta and Hipsky 2006; Maich and Kean 2004) and for promoting the development of gifted students (Schlichter and Burke 1994). In all, bibliotherapy has been applied widely for addressing various socio-emotional challenges and promoting well-being in children and youth (see for review, Montgomery and Maunders 2015; Lewis et al. 2015; Vale Lucas and Soares 2013), and adults as well.

Bibliotherapy has also been acknowledged as important in teacher education (Morawski 1997). In a recent study by Shechtman and Tutian (2016), in-service teachers were trained to use bibliotherapy as intervention in order to reduce their students’ aggression. However, it appears that bibliotherapy has not been sufficiently applied with prospective teachers. Predominantly, its use with prospective teachers has been noted in the context of mathematics education (Kaasila 2002; Hannula et al. 2007; Kaasila et al. 2008; Wilson and Thornton 2005, 2008; Wilson 2009; Lutovac and Kaasila 2011, 2014). This is not surprising as the vast body of literature demonstrates that mathematics is a common least-favourite subject among future elementary teachers and that as a result of the struggles with it during their years at school, prospective teachers experience a variety of negative emotions and develop negative views of mathematics (DiMartino and Zan 2010; Kaasila 2007; Kaasila et al. 2012a, b; Lutovac and Kaasila 2014; Oliveira and Hannula 2008). The therapeutic nature of bibliotherapy has been useful in addressing the mentioned challenges (Hannula et al. 2007) and an overall fruitful pedagogical tool for both, i.e. dealing with past experiences and for projecting the future experiences. Based on its applications in mathematics education context, we see that bibliotherapy, when applied in teacher education, has the potential to stimulate prospective teachers’ professional development. We understand professional development in a wider sense, as one’s development of teaching and learning in terms of affect and cognition, and their teacher identity (see also Lutovac and Kaasila 2018a; Wilson 2007). We note here that not all reading produces the desired positive outcomes, which may be why bibliotherapy remains insufficiently used in teacher education.

Much has been written about the kind of reading which is needed for application of bibliotherapy with children. In this context, fictional stories have been used, and it has been suggested that the selected readings correspond with a child’s feelings, needs, interests and goals; must successfully resolve or cope with a fear; and should take into account the child’s gender and background (Nicholson and Pearson 2003; Maich and Kean 2004; Cartledge and Kiarie 2001). In addition, several booklists covering a variety of different topics (e.g. emotional issues, identity and self-esteem) have been recommended for the use of bibliotherapy with adolescents (see for review, McCulliss and Chamberlain 2013). Little knowledge, however, is available on what would be appropriate reading when applying bibliotherapy in teacher education, particularly for the purpose of encouraging prospective teachers’ professional development, including helping them develop their pedagogical beliefs and practices. Furthermore, while there is a large body of evidence demonstrating the usefulness of bibliotherapy, the features of the reading used for the purposes of bibliotherapy in mathematics education settings have not been discussed. What we thus far can infer about the selection of reading is that the reading material and prospective teachers’

experiences should match (e.g. Smith 1989), and this recommendation has been provided outside of mathematics education domain.

Moreover, the studies on the impact of text or media on individuals demonstrated the central role that identification plays in this process (e.g. Cohen 2001). Cohen (2001) defines identification as ‘a mechanism through which audience members experience reception and interpretation of the text from the inside, as if the events were happening to them’ (p. 245). Somewhat similarly, Mar et al. (2011) define the identification process as imagining ourselves in someone else’s position, which can evoke various emotions. Arguably, identification is crucial if the text is to have a desired power on the prospective teachers, and hence that the bibliotherapy is applied successfully. Marlowe and Maycock (2000), for example, noted that recognition of self is essential to the experience of therapeutic reading. All mentioned points to the need to more closely examine one of the phases in the process of bibliotherapy, i.e. the identification phase, and find out what kind of features of the reading material will promote the identification the most. From the perspective of teacher educators, the knowledge of this phase may help in selecting the reading that will result in prospective teachers’ successful engagement with the reading material and will assure that the reading addresses their needs the most.

This paper’s contribution is twofold. First and foremost, we want to provide an insight into what constitutes appropriate reading for the use of bibliotherapy as a pedagogical tool in teacher education. We build on the second author’s extensive experience in applying bibliotherapy in his teaching and analyse four prospective teachers’ identification processes with the reading material—two case descriptions. As opposed to earlier studies’ foci on the reading of fictional stories, the identification processes explored here relate to the reading of the so-called true stories that are particularly well contextualized: prospective teachers read stories of other prospective teachers from the same teacher education context. Thus far, we are not aware of the similar approach in the research literature, neither has special attention been placed on addressing the identification process. The main research question addressed is the following: *What are the characteristics of appropriate reading in the application of bibliotherapy for facilitating prospective teachers’ professional development in teacher education?* Second, in answering our research question, we synthesize the current knowledge regarding bibliotherapy in mathematics education context. This will bring greater awareness of the method, which we believe may further positively impact on its’ application.

Bibliotherapy in mathematics education for elementary school teachers

There is compelling evidence in mathematics education research on the effectiveness of bibliotherapy for encouraging prospective elementary school teachers’ professional development (Kaasila 2002; Hannula et al. 2007; Kaasila et al. 2008; Lutovac and Kaasila 2011, 2014; Wilson 2009; Wilson and Thornton 2005, 2008). These studies considered bibliotherapy as a potent reflective tool in teacher education and have demonstrated its usefulness, especially when trying to help anxious prospective teachers construct more favourable identities as mathematics learners and teachers (Wilson and Thornton 2005, 2008; Wilson 2009; Lutovac and Kaasila 2011, 2014). Hannula et al. (2007) analysed studies into therapeutic approaches in teacher education and found bibliotherapy as one of the pedagogical tools for reducing mathematics anxiety. Similarly, Wilson and Thornton (2005,

2008) and Wilson (2009) have produced extensive research on the use of bibliotherapy for helping anxious prospective teachers reconstruct their negative experiences and also learn how to minimize their pupils' math anxiety (see also Wilson and Thornton 2006). Kaasila and colleagues (2008) explored changes in 269 prospective elementary school teachers' views of mathematics. The study identified bibliotherapy as a means of helping them deal with past and present experiences with mathematics. Lutovac and Kaasila (2011) reported how the use of bibliotherapy in a mathematics education course enhanced one prospective teacher's reflective processes and her mathematical identity work. Later, Lutovac and Kaasila (2014) demonstrated that bibliotherapy may help prospective teachers who previously experienced mathematics negatively to engage in a 'decisive identity work', i.e. be more confident, self-development oriented and have overall more positive view of themselves as future teachers and of mathematics teaching.

In mathematics education context, various formats of reading have been used. For example, Wilson (2009) assigned prospective teachers research literature dealing with mathematics anxiety, how children learn and understand mathematics, on approaches to learning mathematics, and children's beliefs about mathematics. The author observed that these topics evoke emotional responses in prospective teachers. Kaasila (see Kaasila 2002; Lutovac and Kaasila 2011, 2014), on the other hand, has assigned to prospective teachers reading of mathematical biographies, i.e. biographical narratives that involve personally meaningful events, role models and overall the development of one's mathematical identity (Kaasila 2007). The author constructed these based on the interviews in which prospective teachers narrated their biographical experiences. None of these studies, however, discussed the detailed criteria for the selection of the reading material.

Phases of bibliotherapy and the process of identification

Bibliotherapy was initially described as involving three phases: identification, catharsis and insight (Lenkowsky 1987). Slavson (1950, as quoted in Hebert and Furner 1997) identified the fourth one—universalization—and to this list, Wilson and Thornton (2006) added a fifth phase—projection. When engaging with reading material, individuals therefore first go through identification phase, in which they identify with elements or situations in a narrative, and especially with the protagonist or characters. In this phase, a prospective teacher should feel, 'I can relate to this person', or if the identification is strong, prospective teachers can feel 'I am this person' (see also Cohen 2001). Hebert and Furner (1997) suggested that the more a prospective teacher has in common with people in his or her reading, the deeper the identification process will be. Similarly, when discussing role models, Gibson (2003) suggested that a sufficient degree of similarity is needed between the reader and a role model. This similarity could be actual, perceived, or even aspirational and could cover a number of attributes, such as similar background, style, or demographics (Sealy and Singh 2010). The identification phase engages prospective teachers emotionally, enabling them to experience feelings of hope and tension release (Lenkowsky 1987), leading to catharsis. This is followed by the phase of insight, in which individuals see their problem in a new light, understanding that their challenges could be solved. In universalization phase, they recognize that they are not alone in having and facing their problems (Hebert and Furner 1997), which allows for positive change in attitude and behaviour. Finally, the phase of projection follows, as individuals are able to envision for themselves a different kind of identity (Wilson and Thornton 2006).

Identification and teacher identity

Identification has been of central importance in discussions on the process of socialization, and one's individual and social identity development (Erikson 1968; Mead 1934). In teacher education and professional development contexts, where a heavy emphasis on the development of one's teacher identity has been placed (Skott 2018), the identification process via reading is then of particular importance (Lutovac and Kaasila 2011; see also Wilson and Thornton 2006; Mottart et al. 2009). We have previously shown that bibliotherapy enhances prospective teachers' identity development, or as we called it, identity work (Lutovac and Kaasila 2011, 2014; Lutovac 2014). Developing an identity requires actual work, both cognitive and emotional (Einwohner et al. 2008), and via bibliotherapy, prospective teachers take a more active role in the process of becoming aware of their identities and consciously work on them (Beijaard et al. 2004; Kaasila et al. 2012a; Lutovac and Kaasila 2014). For example, identifying with characters allows prospective teachers to see pedagogical views and practices from a different perspective. Cohen's theorizing on identification (2001) demonstrated that it is the opportunity for vicarious experience that makes identification so important. Through identification with characters in texts, prospective teachers therefore not only become aware of others' and one's own current perspectives, but also have the possibility to extend these perspectives, as well as envision experiences, emotions, goals, or thoughts they have not thus far. Such vicarious experiences embedded in identification may, building on Cohen (2001), lead to changes in prospective teachers' identities and actions. In addition, identification may evoke emotions, such as remembered, imagined and/or newly formed (see also, Braun and Cupchik 2001). As discussed earlier, it is precisely in the power to affect emotions that the application of bibliotherapy has been useful in mathematics education settings (Lutovac and Kaasila 2011; Wilson 2007, 2009). While identity has been largely explored in mathematics education research (Darragh 2016; Lutovac and Kaasila 2018a, b, c; Skott 2018), the process of identification with the relevant reading material in mathematics education context has received little attention. The insight into this process, however, may help teacher educators assist prospective teachers in their professional identity development.

Method

Data collection

In order to discuss the selection of relevant reading for the application of bibliotherapy in teacher education, we examined here prospective elementary school teachers' reflections upon the bibliotherapy—reading of the case descriptions in their portfolios ($N=87$). These portfolios were generated between the years 2002 and 2011 during the mathematics education course taught by the second author. Bibliotherapy was applied as a part of the course work in the following manner. Prospective teachers were asked to familiarize themselves with six mathematical biographies—case descriptions from Kaasila's (2000) dissertation,¹ choose among these the one that most closely resembles their own mathematical

¹ Kaasila's (2000) dissertation involved 60 elementary student teachers in their second year of studies. Based on a questionnaire and school-time memories, Kaasila selected 14 students for more detailed observation in their practice teaching. The research data included interviews (conducted in two phases) as well

background, and then reflect on their reading of these case descriptions in their portfolios. Prospective teachers read the case descriptions just before their first mathematics teaching practice.

Cohen (2001) noted that identification is generally difficult to measure; however, he suggests that asking participants to recall the process is a viable way of measuring identification. Due to a long-time span of the application of bibliotherapy and a large body of data we obtained in mathematics education course for prospective elementary school teachers, we re-examined the data in terms of what we could learn from those identification processes for the purposes of better selecting the reading for our prospective teachers. While some prospective teachers identified with multiple case descriptions they read, explaining in their portfolios the aspects of identification with each of them, we saw that by examining the process of identification of prospective teachers who identified with one case description only could yield the most beneficial information about the relevant reading. This is because it signalled to us that the identification was strong (see also Cohen 2001). Via 'search in document' function, we found 74 portfolios showing strong identification with a single case description. We noticed that many prospective teachers who have had negative or partially negative experiences from school tend to identify with one of the two case descriptions, Laura's or Leila's (see also Kaasila 2002), as both case descriptions portrayed negative experiences in school mathematics (with Leila serving as an extreme case).

In order to provide an example of the identification process, we then chose based on the intensity sampling (Patton 1990), two prospective teachers that identified with Laura's case description and two that identified with Leila's case. Here, we refer to these four prospective teachers as Heli, Suvi, Anna and Saara. Their reflections are information-rich and involve descriptions of intense personal experiences. However, in spite of their particular intensity, these reflections are not unusual and exemplify the process of identification. In all, the data set here consists of two case descriptions and four prospective teachers' portfolio reflections on the identification process with the case descriptions.

Data analysis

We applied a narrative content and form analysis (Lieblich et al. 1998; see also Kaasila 2007; Kaasila et al. 2012a, b) to analyse prospective teachers' identification process with the case descriptions. In our analysis, we aimed to recognize the features of the case descriptions that allowed prospective teachers to identify with them. We therefore looked at the ways prospective teachers reflect upon the emotions and perspectives expressed in case descriptions, and the ways they understand and/or share these emotions and perspectives. We adapted Cohen's (2001) suggestions for analysing identification and have looked for evidence of emotional, cognitive and/or motivational aspects of identification. We looked for the evidence of, for example, prospective teachers' linking their own experiences with that of the case and empathize or share the cases' feelings, for how they understood the cases and their actions and thus shared cases' perspective and finally for how prospective teachers internalized the aspects of cases' goals and/or decision-making. The signals for such evidence were usually the utterances such as 'While reading Laura's case,

Footnote 1 (continued)

as teaching portfolios that were prepared based on the mathematics lessons in teaching practice. After an initial analysis, Kaasila selected six elementary student teachers with different backgrounds and constructed their mathematical biographies – case descriptions.

I felt as if I was...' and 'I understood Leila's views when she...'. Arguably, examining rhetorical and linguistic aspects that form the way prospective teachers speak about the case descriptions conveys much of information also about themselves and the circumstances in which they were (Pennebaker et al. 2003). For example, what counted as evidence of identification process was the use of comparative language or expressing similarity via expressions, such as 'exactly the same', 'match exactly', 'like me', 'we are so similar' and the use of pronouns 'we' and 'our', which signifies that prospective teachers link themselves to similar others (Pennebaker et al. 2003). We also looked at how prospective teachers used the quotations from the case descriptions in order to support their claims and, finally, their different forms of reflection upon identification (e.g. Suvi reflects as if she would be writing a letter to Laura, whose case she identifies with).

Results

In this section, we first summarize Laura's case description and then present Heli's and Suvi's identification with Laura. Next, we summarize Leila's case description and present Anna's and Saara's identification with Leila. The original case descriptions were lengthy (see Kaasila 2000); hence, we present here only summaries of Laura's and Leila's case descriptions.

Summary of Laura's case description: 'Slow at calculating, able to put herself in the weaker pupil's place'

Laura recalled a key experience as a pupil in elementary school:

The teacher was teaching, and pupils were doing exercises (from a textbook). Then there were some very fast pupils, who had solved half of the exercises already during the teacher's teaching. They went to check their tasks at the teacher's desk. But I was so slow, and when I saw the extremely long row of pupils, that was getting longer and longer, I got a feeling of panic. And then I was no longer able to concentrate on the exercises. (Laura)

This experience is told in a vivid and authentic way, and it describes Laura's anxiety and 'feeling of panic'. Laura had many early negative learning experiences related to math teachers, teaching methods and content. Laura said: *'Math has been very difficult for me because I have felt that I have never been able to get into it.'* She felt like an outsider in the world of mathematics. Laura chose the general math curriculum in upper secondary school but did not do very well and had low self-confidence as a mathematics learner. Laura did not have the courage to ask her teacher about the contents she did not understand. She thought *'how stupid I must be, that I don't understand this'*.

During teaching practice, Laura's negative memories from school loomed large in the beginning of her mathematics lessons. A clear turning point happened for Laura when she learned to see her memories as positive and useful: *'I'm awfully glad, in a way that it's been hard for me. Maybe I can better understand how the pupils feel and take care of the weaker ones'*. She stressed the importance of creating a secure atmosphere and emphasized that each pupil should have his or her own goals so that the focus would be shifted away from comparing pupils with one another. Her self-confidence improved, and her fear of math disappeared. Laura's teaching was partly teacher-centred and partly pupil-centred.

One notable change was that she began to link the content to the pupils' diverse world of experiences.

Heli's and Suvi's identification with Laura's case description

I find Laura's experiences *familiar*. Laura felt that she is a slow learner, and a concrete example of it was the row of good pupils at teacher's desk (in order to check their results). My own memories *match* the event *exactly*. Laura told about her low self-confidence, and even about her anxious feelings toward math and its teaching. My feelings are *exactly the same*. Laura's memories about her teachers and their teaching methods were negative, *like mine*. [...] When I reflect on my teacher identity, *I find similarities* with Laura's narrative. *Like me, also* Laura emphasizes teacher's empathy skills, especially regarding slow learners. In my own work as a teacher, I try to encourage pupils to stop my teaching if they have not understood, or if I am going too fast. Laura emphasized in her teaching open and safe atmosphere, and pupils' own goals. *I feel that I can the closest relate to this aspect*. Because of *our own*, even traumatic experiences, *we want to hinder similar kinds of event to happen to our pupils*. (Heli)

The above data excerpt starts with Heli expressing the similarity between Laura's and her own experiences, showing how closely Heli felt she can relate to Laura's narrative. This is supported throughout her narrative with many words, such as 'familiar', 'match', 'exactly the same' and 'like me', expressing similarity in experiences, thoughts and/or emotions (see in-text emphasis). Based on Heli's recounts, she had almost exactly the same experiences from her school time as Laura: she experienced math teaching and learning negatively, was anxious and lacked confidence regarding mathematics. We can observe a strong focus on emotional aspect of identification process with Laura, as it is based greatly on the similarity of their challenges with mathematics learning. Additionally, Heli identified with Laura as a future teacher, emphasizing similar pedagogical thinking: the importance of empathy and safe learning environment in mathematics teaching. In the final sentence of her data excerpt, Heli talks about 'our' experiences and further uses the pronoun 'we'. This displays how strongly Heli identifies with Laura, promoting the motivational aspect of identification, leading to projecting similar kind of identity for herself as a future teacher.

Hello Laura! It is nice to write to you. Taking the role of a pupil and recalling and writing up my own experiences has been really interesting, like some kind of therapy. It is exciting to think that we are *so similar* as learners. *You also* wrote that school mathematics does not have much connections to everyday life. I think about my future teaching *similarly as you* do: I don't prefer that the fastest pupils are telling the solutions to the others. Laura, do you know any appropriate method to avoid this challenge? Can you help me as you have already done your teaching practicum? (Suvi)

Suvi's form of articulating her identification with Laura was particularly interesting; she was writing a letter to Laura. She related to many experiences described in Laura's case description and emphasized the therapeutic effects of bibliotherapy. On the other hand, most of the aspects of Suvi's identification with Laura narrated in above excerpt are cognitive in nature—Suvi verbalizes her pedagogical thinking by reflecting upon the link between school mathematics and daily life and competitiveness in

math classes. Based on the identification with Laura, Suvi also reflected on her future teaching and began to form some ideas for it. Surprisingly, Suvi also articulated the questions concerning the teaching practicum and designated them to Laura. This demonstrated the motivational aspect of the identification with Laura's case description. In all, Suvi's data excerpt displayed the value of the identification process for the reflection upon future teaching as well. It could be said that Suvi seeks out the vicarious experience of teaching practicum by directing questions to Laura.

Summary of Leila's case description: 'The word mathematics makes me powerless'

Leila's key experience from her school time was the following:

I recall an experience from the second grade. We had to learn to say three digits numbers, like 350. I had terrible difficulties saying the number. I really was disgusted with and loathed myself, and I was asking myself why I was not able to learn in what order I should say tens and hundreds. (Leila)

Leila recounted this experience in very authentic and emotional terms, the self-hatred she developed because she could not understand the place value system in three-digit numbers. This event had a dramatic effect on her self-confidence. Leila had very negative and traumatic memories of her own mathematics skills and teachers. She had math phobia: her memories are characterized by distress and fear. In Leila's memory, her mathematics teachers did not understand how difficult math learning was for her. As a result of these experiences, Leila believed the math teacher's most important ability was encouraging slow pupils.

Before the teaching practice, Leila's view of herself as a mathematics teacher was very uncertain, which appeared in her reference to Hamlet's conundrum: *'To teach mathematics? To be or not to be, that is the question.'* She questioned whether she could teach mathematics at all. During teaching practice, Leila gained many significant positive experiences of mathematics teaching. With the exception of her first lesson, her teaching was rather pupil- and problem-centred. She linked the topics to the pupils' *'real life'*. Her view of herself as a math teacher improved considerably. After teaching practice, her metaphor for a role of mathematics teacher was a *travel guide*. She views mathematics as a kind of journey, in which the task of the teacher is to guide the traveller. Leila emphasized pupil-centred teaching: *'It's important that pupils play the main role during the lesson'*. The supervising teacher and other students doing teaching practice in the same class were key to shifting her beliefs and improving her teaching. Leila finally overcame her fear of math and chose mathematics as one of the subjects she wanted to teach in the next teaching practice.

Anna's and Saara's identification with Leila's case description

In elementary school, *we both* had a fear of math, and in secondary school everything went in an even worse direction. In upper secondary school *we both* managed so-so. *Like me*, Leila also needed remedial education. Leila and I think *similarly* about the teacher's role: a teacher has to be encouraging, and he/she has to have similar attitudes toward every pupil ... My teachers were not supportive. [...] I overcame the fear because I bravely decided that I would succeed ... Leila and I also seemed to have *similar* experiences in teaching practice, more positive than negative ones. *We both* made small mistakes, but the overall feeling was positive. In the follow-

ing lesson, *we* learned through mistakes, and it went better. *Our* excitement about math improved lesson after lesson because of continuing development. In addition, the supervisor's encouragement helped *both of us* a lot. (Anna)

Anna had many negative experiences from school time similar to Leila's. Like Leila, Anna was afraid before her math lessons in teaching practice, and she said '*I even had nightmares because of it*'. Anna could strongly identify with Leila's case. We observed that all the aspects, i.e. emotional, cognitive and motivational, were present in her identification. Emotionally, both experienced strong negative emotions while learning mathematics in school; cognitively, Anna shared many views narrated by Leila. Anna's experiences were very similar to those of Leila, particularly in terms of how the teaching practice went, and had used the pronoun 'we' and the expression 'both of us' as a rhetorical device in order to emphasize this deep identification.

Leila has had *similar* kinds of experiences like I had. In elementary school, *we both* had a fear towards math, and in upper secondary school everything went into even worse direction. In upper secondary school, *we both* were near failing. Leila and I *think in the same way* about the role of teacher: she/he has to be encouraging and threat all pupils in the same way. [...] I see now that a teacher has to give pupils tools to solve problems. Pupils do not learn if teacher is talking in front of the board by using difficult terms. *Leila thinks in the same way* (as I), and empathises the active role of pupils. Leila and I had *similar experiences* regarding teaching practice, more positive than negative. *We progressed* whole time and eagerness/motivation towards math teaching increased after every lesson. (Saara)

As Anna, also Saara identifies with almost every aspect of Leila's case description. While many negative past experiences were emotional for Saara, in her identification with Leila, Saara highlights the cognitive and motivational aspects. For example, Saara explains her pedagogical thinking; she came to realizations about how to make future mathematics teaching better, more pupil-centred. Also, Saara could relate to Leila's teaching experiences and had experienced a similar change in her motivation to teach mathematics. As observed in the above-examined identification processes, Saara uses pronoun 'we' to emphasize the closeness to Leila.

Discussion

In this paper, we presented two case descriptions of prospective elementary school teachers and analysed four prospective teachers' identifications with them in order to infer the features of relevant reading for the application of bibliotherapy in teacher education. The experiences portrayed in Laura's and Leila's case descriptions resonate well with the wide body of literature on negative experiences with school mathematics reported by prospective elementary school teachers (e.g. Di Martino and Zan 2010; Jones et al. 2000; Kaasila et al. 2008; Lutovac and Kaasila 2011). This explains why many of our prospective teachers identified with these cases. The features of the two case descriptions resemble each other in the sense that they encapsulate not only the challenges but also the strengths of prospective teachers in question. Both cases portray how prospective teachers undergo the changes in their beliefs, emotions and/or practices regarding mathematics learning and teaching. The pedagogical message in case descriptions is clear: negative past and resulting

hindrances can be transformed into more positive practices and overall future as teachers, or at least while in preparation to become teachers. Both stories belong to the narrative genre called 'victory through hardship' (Kaasila et al. 2006), which portrays the character's struggles and coping, but ends happily with a resolution of challenges (see also, Maich and Kean 2004). We see that overall deep reflection and rich language, including metaphors and versatile emotional expression in these case descriptions, creates a situation in which a typical prospective elementary school teacher can easily identify with them, providing them with a feeling that the experiences could not have been better expressed. Overall, arguably, both case descriptions can be seen as accounts of professional development, subsuming the change in pedagogical thinking and practices.

Knowledge of the prospective teachers' identification phase is crucial to choosing appropriate reading material as it reveals the aspects prospective teachers grasp onto and are truly important to them. Based on the identification processes of four prospective teachers with the above-discussed two case descriptions, we can infer some suggestions about the type of experiences the reading should portray as well as the language used to describe them. First, the reading should trigger the emotional aspect of identification. Emotions have been considered as an important element in reading fiction, as well as involvement with media (Mar et al. 2011; Wirth 2006; Cohen 2001); however, it has been argued that they are not essential in reading non-fiction. Our findings show a different picture. Heli, Suvi, Anna and Saara, all identified with the key 'emotional' episodes in the case descriptions by remembering their own past experiences linked to the strong emotions that accompanied those experiences. Strong emotions in case descriptions were described in an authentic, detailed and vivid way which enabled awakening of empathy in prospective teachers and role taking and identifying. Arguably, due to the fact that all four prospective teachers were math anxious, the episodes they strongly related to also portrayed character's fears (Nicholson and Pearson 2003). Fears described in Laura's and Leila's cases concerned past learning experiences, and fears regarding future teaching too. We know that emotions help us remember meaningful past events, and that past will be embedded in our memory often because it is emotional (Uitto et al. 2018). Moreover, being emotionally involved while reading will have influence on how the particular reading is remembered and/or how the read information is further processed. Arguably, the choice of the reading material for prospective teachers should portray a wide range of emotions and thus a wide range of possibilities for identifying emotionally with the characters in the reading.

Second, while bibliotherapy has primarily been used for handling the affective dimension in one's life experiences, our analysis shows that the reading should also trigger the cognitive aspect of identification. All four prospective teachers shared the pedagogical perspectives presented in the case descriptions, for example, about the teacher's role in the classroom. Moreover, all four prospective teachers strongly identified with the experiences related to teaching practicum presented in case descriptions. Not only have they reported on how similar experiences they had, but identification also leads to some alterations in their cognitive processing (Mar et al. 2011), hence their pedagogical thinking. They better understood issues they were not able to understand earlier, or they simply became more aware of the current situations they were in. Third, arguably, the reading could include the episodes which would enable vicarious experiences (Cohen 2001). For example, in our study, while reading case descriptions, prospective teachers envisioned what may happen in teaching practicum, what could their possible pedagogical challenges be, how to cope with them, as well as the possibility for success. They had the possibility to walk in the character's shoes before the experience occurred, which provided them comfort and thus helped in overcoming their fears. And finally, if the bibliotherapy is to have a desired

outcome, such as prospective teachers' cognitive and/or affective change, as well as change in their future actions, the reading should enable the motivational aspect of identification. The readings should awaken motivation for change or trying out different possibilities. Our findings most often included examples of projecting a certain kind of identity for one self.

The identification processes considered here were more focused on the emotional aspects, as we wanted to provide our prospective teachers with opportunities to deal with their negative experiences with mathematics by broadening their views, which in turn helped them become less fixated on their hindrances and instead become more aware of their strengths for teaching. This is important not only because teachers need a healthy self-confidence, but also in order to help prospective teachers break the cycle of passing their negative views and fear of mathematics to their pupils (e.g. Gellert 2000; Trujillo and Hadfield 1999). Through bibliotherapy, prospective teachers in our study addressed their own biographies and brought to their awareness the aspects they have not reflected consciously upon beforehand. Identifying with case descriptions made them realize that others face similar problems (e.g. being afraid of teaching math) and gave them possibility to project more positive expectations of the practice teaching. Arguably, however, bibliotherapy can also be used if teacher educators want to stimulate more the pedagogical and motivational aspects of identification or offer the possibilities for vicarious pedagogical experiences. For example, prospective teachers who have had positive experiences with mathematics may not fully identify with the two case descriptions we presented here. However, reading such cases may still trigger the aspects of identification, such as the realization of different perspectives and/or wanting to do something about such new understandings. In addition, vicarious experiences triggered by reading may also alter cognitive and motivational process. For example, bibliotherapy can help prospective teachers with strong math background envision the possible pedagogical challenges (e.g. lack of sensitivity towards pupils' difficulties) they may face in teaching as a result of their one-sided experiences. It may help them recognize that positive experiences from their years at school do not directly translate to, for example, pupil-centred teaching in teaching practicum. This was, for example, observed in Vesa's case in Kaasila's (2000) dissertation (see also Kaasila 2002; Lutovac and Kaasila 2018b).

With respect to the format of reading, both research literature and students' biographies are useful and could be used interchangeably. We highlight that the vast research capturing narratives of prospective and in-service teachers' experiences and identities (e.g. Beattie 2000; Watson 2006; see also Beijaard et al. 2004) might serve as reading material as it addresses various important topics. Teacher educators' task then is to select such narratives that match some of the earlier recommended features, making sure that the reading material is sufficiently contextualized and reader appropriate: it must fit the prospective teachers' experiences, curricula of the teacher education unit, and as suggested by Cartledge and Kiarie (2001), it might also need to take into account the readers' gender. In many countries, the vast majority of prospective elementary school teachers are female; therefore, 'female' stories, such as those presented here, may be best for the successful identification. Alternatively, considering the availability of widely used portfolio in teacher education, teacher educators could collect a set of reading based on their students' portfolios and use them for the purpose of bibliotherapy in subsequent generations of students. Moreover, Schlichter and Burke (1994) noted that involving students in the reading selection process can enhance the positive meaning of the bibliotherapy. Biographies are in our view particularly useful as they are first-person narratives and particularly well contextualized. Prospective teachers read stories of other prospective teachers who have undergone very similar schooling in the same cultural context and had even undergone the same teacher education

program. Alongside of personal stories or biographies, prospective teachers' reflections on virtually any topic could be used as a reading material in application of bibliotherapy.

In terms of the features of reading that promote identification, our findings suggest that the appropriate reading material should: (1) be based on the first-person so-called true stories or documents of the common experiences of other (prospective) teachers and making reading as contextualized as possible, (2) portray coping and positive resolution, (3) include turning points portraying the changes in character's knowledge, beliefs, emotions and actions, which will encourage prospective teachers to reflect on their own changes and may even influence them, (4) have a clear pedagogical message that can benefit prospective teachers' future practices by promoting feelings of hope, raising (self) awareness, stimulating reflection and action-taking, and (5) not only enable relating to the past and present experiences, but also, if possible, enable projection of experiences to allow prospective teachers to reflect on what may happen, loose fears, provide comfort and confidence, or if needed, take preventive actions. Based on our findings, however, we highlight here the importance of selecting some reading that portrays character(s) dealing with negative experiences from school time mathematics to be used in mathematics education courses designated for prospective elementary school teachers. That said, we remind that the reading should also portray characters' various views and actions, which will have also cognitive, motivational and/or vicarious impact on prospective teachers.

Finally, due to the application of bibliotherapy in a wide range of disciplines, we were compelled to distinguish its application in educational context. We label the type discussed here as *pedagogical bibliotherapy*. With this new term, we wish to underline its importance as a pedagogical tool (see also Lutovac and Kaasila 2011) and foreground its place in teacher education. The aim of pedagogical bibliotherapy in teacher education is to help promote prospective teachers' professional development in a wider sense, including for example, assisting prospective teachers in addressing their possible affective barriers to teaching, in reflecting on their pedagogical knowledge and practices and nonetheless, assisting them in developing well-rounded teacher identity. The application of bibliotherapy as a pedagogical tool can also be extended by asking students to reflect on the bibliotherapy process, for example via group discussions or journaling (Lutovac and Kaasila 2011; see also Hebert and Furner 1997). The use of students' reflections on the process of bibliotherapy can further serve the research purposes, providing teacher educators with a fruitful data set on prospective teachers' identifications and identities, and can contribute to the collection of reading material.

While the focus here was on the pedagogical side of bibliotherapy, in Lutovac and Kaasila (2018b), we exemplified biography-stimulated recall method, which may be understood as bibliotherapy's counterpart—a research method. We showed how analysing one experienced teacher's reading of his own case description two decades after teacher education reveals important changes in his beliefs, actions, hence his identity. Arguably, there is more to be investigated in terms of the identification, as well as pedagogical bibliotherapy overall. While our study focused on identification of those prospective teachers who reported to have experienced mathematics learning as challenging, future research could focus on broader ranges of identification. Reading material in mathematics teacher education contexts could be addressed more, looking for example, at the type and/or features of reading that stimulate long-lasting changes in prospective teachers. Examination of reading material and the processes that occur during and after prospective teachers read also seems a viable and underused way of investigating emotions in the context of mathematics. In all, we are hopeful for the wider application of pedagogical bibliotherapy in teacher education,

which may subsequently importantly contribute to a comprehensive collection of reading material for the use in teacher education.

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