Finnish Model of Peer-Group Mentoring: Review of Research

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Abstract

This article reviews research on the Finnish model of Peer-Group Mentoring (PGM). Theoretical foundation of the model is based on the constructivist theory of learning, concept of autonomy in teaching profession, peer learning and narrative identity work. The model has been disseminated nationwide on the educational sector to promote professional development of teachers and educational staff mainly in primary and secondary education, but also in early childhood education and higher education. The thematic review is based on 46 peer-reviewed publications about PGM in Finland in 2009-19. Research has focused on the following main themes: 1) general aspects and characteristics of the implementation of the model, and 2) mentors' and mentees' experiences. Qualitative approach has been dominant in research. The studies show that both mentors and mentees find PGM a useful tool for individual professional learning and well-being. Indirect influences have been reported about the development of work communities. Main challenges in applying the model are lack of national agreement concerning the organization of PGM and allocation of mentors' and mentees' working time to PGM. It is concluded that PGM as well as teachers' professional development as a whole should be seen as an integral part of the education ecosystem.

Introduction

Mentoring has been globally used as a method of professional development in teaching as well as in other fields. Traditionally mentoring has taken place in pairs, with an idea of an experienced professional transmitting knowledge to a less experienced colleague.[1,2] Recently, along with the ideas of collaborative learning and professional learning communities, new group-based models called, for example, collaborative mentoring, group mentoring, peer-mentoring or peer-group mentoring have been developed.[3,4,5,6.] In this article we review research focusing on one of such group-based models, the Finnish model of Peer-Group Mentoring (PGM).

In the European context, the European Union provides recommendations and guiding documents for teachers' professional development. In order to tackle new teachers' attrition, EU has set the aim that beginning teachers are offered three types of support: professional, social and personal.[7] Mentoring can be seen as a method involving potential for all these three forms. It is also stated that the mentoring relationship should be collegial and professional, instead of hierarchical.[7,8] In Finland, young teacher attrition, a typical problem in many European countries and the USA, has been negligible. Qualification of teachers has required a master's degree in Finnish schools since 1979, and teacher education has been among the most popular choices for university applicants - with the consequence that only the best students get the study place.[9] Because of the research-based high level teacher education little attention has been paid to the induction phase support until recently. Current educational policy emphasizes the importance of seeing teachers' professional development as a seamless continuum throughout the teacher's

career from initial teacher education to retirement.[10] The Finnish model of PGM has been developed for serving this purpose. It provides a new model of mentoring, targeted not only for beginning teachers but teachers in any phase of their career.

The Finnish PGM model was originally developed and piloted through an action research project in 2007-09 by the Finnish Institute for Educational Research, in close collaboration with four education providers, and funded by the Finnish Work Environment Fund. The theoretical foundation of the model is based on the constructivist theory of learning, the concept of autonomy in teaching profession, peer learning, and narrative identity work. The leading pedagogical principle has been the model of integrative pedagogy, which aims at merging theoretical and practical knowledge with self-regulative and sociocultural knowledge[6].

Since 2010 the PGM model has been disseminated nationwide on the educational sector through several consecutive projects funded by the Finnish Ministry of Education and Culture to promote professional development of teachers and educational staff mainly in primary and secondary education, but also increasingly in early childhood education, higher education, and liberal adult education. Training of mentors is organized by the Finnish Network for Peer-group Mentoring. The network consists of all Finnish teacher education institutions, including both teacher education departments of universities and vocational teacher education in universities of applied sciences. The main goal of the network is to develop and disseminate the PGM model to support professionals in the educational field.[11]

In the development of the PGM model key stakeholders in the field, The Trade Union of Education in Finland and The Local Government Employers, have been involved through their participation in the Steering Group of Network for Peer-Group Mentoring. Both of the unions stress the importance of teachers' professional development and collaboration between the stakeholders in educational sector in order to maintain teaching profession appealing and valued choice for future candidates, and to support sustainable development in educational sector. They also regard peer-group mentoring aligning well in the bigger picture of future development plans.[12] In Finland, the education professionals, the wider community, and municipal and national education agencies are broadly agreed that mentoring as collaborative self-development is an appropriate form of mentoring.[13]

In practice, PGM is organized by education providers, usually municipalities. A peer-mentoring group typically has four to eight members who meet once a month during an academic year to discuss their everyday work and work-related challenges. The groups work autonomously, and the group members jointly agree on the topics they deal with, the schedule for the meetings, and the rules of the activity such as confidentiality of the discussions. The group meetings are facilitated by trained mentors who may use a variety of group work methods.[14]

In organising PGM, education providers have utilized a variety of models as regards the composition of groups. For example, participants of the groups may

- come from one school or different schools
- teach the same subject or different subjects
- be new teachers or teachers in different career phases

- be in-service teachers only or in-service and pre-service teachers mixed
- get together not only in face-to-face meetings but also by social media tools.

During the years 2017-2019 new PGM applications and practices were experimented and implemented by several projects addressed to different groups such as student teachers, educational leaders and managers, multidisciplinary groups of early childhood educators, basic education and youth work, liberal adult education, educators interested in multicultural education and teachers in higher education.[15] By 2019 approximately 900 mentors have been trained to 150 municipalities, and majority of the mentoring groups are from basic and secondary education. It is estimated that circa 2000 educational professionals are involved in PGM on yearly basis. However, the proportion of teachers participating to mentoring is still low. In the TALIS study (Teaching and Learning International Survey, p. 144-145) by OECD[16] more than 60 % of school leaders in Finland reported that they did not have a mentoring program for teachers in their school. Five per cent of teachers reported that they had an assigned mentor. Although the mentoring culture in Finnish education system is still quite young, the PGM model has attracted attention also in some other professional areas such as health care[17], and librarians' professional development.[18]

The Finnish model of PGM differs by certain features from some other international mentoring models. In contrast to typical international models, PGM is developed for serving all teachers and education professionals, not only new teachers. The core of the activity is sharing knowledge and experiences and learning from each other, rather than transmitting knowledge from more experienced colleague to less experienced one. While in some international models the participation into mentoring for new teachers is compulsory and involves assessment of the mentee, in the Finnish model participation is voluntary and no assessment is involved. In the following sections we review on national and international research on the Finnish PGM model.

Review Materials and Methods

In our literature review we addressed the following questions:

1) What have been the main characteristics of implementation and dissemination of the Finnish PGM model?
2) How have mentors and mentees experienced participation in PGM?
3) What is the role of PGM in administrative structures of education?

Literature search

The literature was collected in two phases. First, the participants of the Finnish Network for Peer-group Mentoring were asked to report all the publications they have produced on the topic. As an outcome, a list of 193 publications was compiled. The list included seven edited books, 21 articles in peer-reviewed journals, 25 chapters in peer-reviewed edited books (or peer-reviewed conference proceedings), 53 chapters in non-refereed edited books, 21 master's theses, three doctoral dissertations and 69 conference papers or posters. There was some overlap between the publications. For example, doctoral dissertations consisted of published articles, and some peer-reviewed articles were based on master's thesis. Many

non-refereed publications were also included into the list. In order to ensure the scientific quality of the material, we set the following criteria for the publications to be included in the review: 1) They had to be peer-reviewed, 2) They had to focus on peer-group mentoring instead of traditional one-to-one mentoring. However, studies comparing these mentoring models were included. 3) Studies had to be conducted in the Finnish context. Thus, we excluded master's theses and non-refereed articles, book chapters and conference papers. The final number of publications for the review consisted of 46 peer reviewed articles and book chapters. However, when clarifying practical information was needed, non-refereed publications were used as additional material. One of the journal articles was still in the review process when writing this article.

In the second phase, a systematic search of literature from ERIC database and the Finnish ARTO database was conducted to ensure that all relevant material was included into the review. The keywords "peer-group mentoring" in title and "Finland" in country field were used in the former database, and "vertaisryhmämentorointi" or "verme" (Finnish acronym for PGM) in the latter. The search from these databases did not produce any other peer-reviewed publications by the members of the Finnish Network for Peer-group Mentoring than those which were already listed. One publication by researchers outside the Network was found[17] but it focused on using the method in health care sector.

For the qualitative analysis, the studies were carefully read, and the following details of the studies were recorded into a spreadsheet: publication forum (international/national), the authors, the topic, educational level(s) and sector(s), research questions, data, analytic methods, main findings and notes (researchers' interpretation). In addition, the topics, analytic methods and findings were recorded. The main findings of the studies were summarized in short phrases such as "Mentees saw PGM as important tool for PD throughout the teaching career. Few significant differences between general and vocational teachers. New conceptualization of PD: development of skills and knowledge, strengthening professional identity, development of work community". In the next phase, the recorded data were carefully read to answer the research questions. In many cases the original studies were consulted.

Results

Features of the included studies

Of the final data of 46 publications 20 focused on PGM model in general education (including primary, secondary and general upper secondary education), five represented vocational education and training, and two higher education (including teacher education). In four studies the PGM was examined in more than one education level or sector. The rest 15 studies were theoretical or conceptual studies in nature. Methodologically, qualitative research approach was dominant, only in one study quantitative methods were used. The selected publications, their data collection and analytic methods, and participants are presented in Appendix 1. In the following sections we present the findings of the thematic review. First, we focus on research on the implementation and dissemination of the PGM model. Second, studies on experiences of mentees and mentors are reviewed, and third,

studies related to the role of PGM in administrative structures of education are presented. Finally, the findings of the review and future perspectives are discussed.

Characteristics of implementation and dissemination of the Finnish PGM model

As to our first research question about the main characteristics of the implementention of the PGM model, two thematic lines of research were identified: studies focusing on different models of organizing mentoring, and studies aiming at identifying prerequisites and characteristics of successful mentoring.

Different models of organizing mentoring

In the early phases of the development of the PGM model Heikkinen, Jokinen and Tynjälä[19] examined different options for organizing mentoring for teachers in Finland. The first mentoring experiments included three models: 1) traditional paired mentoring with one experienced mentor teacher and one novice teacher, 2) peer mentoring with an experienced teacher as a mentor and a group of beginning teachers, and 3) peer-group mentoring with an experienced mentor and a group consisting of both new teachers and experienced teachers. Thus, there were differences in goals and starting points of the models. The objective in the first two models was to support newly qualified teachers in the beginning of their careers, whereas the third model aimed to develop a new form of teachers' continuous professional development to benefit teachers at all stages of their careers.

The comparison of the three models found strengths and challenges in all models. Common to all models was that both the mentees and mentors found mentoring as a functional forum for professional dialogue and sharing experiences[19]. The one-to-one model made more personal discussions possible, whereas in the group models discussions brought about a bigger variety of different perspectives and new ideas on the topics dealt with. The study also showed that whatever model is used maintaining mentoring activities require well-defined structures, coordination and management from the local school administration. The lack of mentors was a problem in the paired mentoring model, while in the group models the required number of mentors is smaller. The lack of local or national agreements about organizing mentoring, compensations of mentors and allocation of working time of mentees proved to be problematic inasmuch as organizing the activities may then depend on individuals' motivation and are thus vulnerable when administrative officials change[19].

As the PGM model emphasizes the autonomy of the teaching profession, no strict directions (except the principles described in the Introduction) are given for education providers on how to organize activities. Consequently, a variety of practical applications have been developed, and the model has proved to be flexible enough to be successfully applied for supporting specific groups of educational professionals, for example school principals and school assistants[20], migrant teachers[21], and teachers in small and rural schools.[22] Furthermore, the model has been applied in some other professional areas such as health care.[17] A variety of practical group work methods, such as narrative and activating methods[23], dialogue cards[24] and externalizing discussion[25] have been developed to be used in parallel with conventional group discussions. According to Estola, Heikkinen and Syrjälä[26]

narrative methodology has proved to be a promising tool for mentoring, both for pre-service and in-service teachers.

The composition of groups may vary from quite homogenous to more heterogeneous ones. Several studies have focused on pros and cons of different solutions. In general, in heterogeneous groups sharing experiences and emergence of new ideas seem to be easier, whereas in homogeneous groups the development of sense of belonging takes less time. For example, in a study conducted in a multi-disciplinary mentoring group at a vocational school Ahokas[27] found out that the multi-disciplinary approach was welcomed by the participants as it made it possible for them to share experiences and views with colleagues whom they would not otherwise meet. When teachers from various fields were involved the attention was focused on pedagogy rather than teaching contents. The teachers felt that the dialog with colleagues coming from other domain than their own helped them broaden their perspectives into their work. According to findings, multi-disciplinary composition of the group enriches discussions, but it can also create intra-group tensions.[27]

Lahdenmaa and Heikkinen[28] examined PGM in homogenous and heterogeneous groups in terms of teachers' work communities (from the same school vs different schools), gender, and school level (elementary, primary, secondary). According to their analysis, the strength of a homogeneous group with teachers coming from the same work community was the communality that already existed due to the school's working culture. In contrast, the lack of communality was characteristic to the heterogeneous group whose members came from different schools and did not know each other. Thus, group formation took a considerable amount of time of group meetings. On the other hand, Ahokas[27] has observed that "If the group includes too many mentees who have previously known each other there is a risk that discussion among them becomes too dominant.". In a study by Kaunisto, Uitto, Estola and Syrjälä[29], the teachers found it important that the participants of the group came from different schools and that they did not know each other beforehand. This helped them in sharing their experiences of and emotions related to challenging situations.

In terms of teachers' experience, heterogeneous mentoring groups have also offered for in-service and pre-service teachers in mixed groups.[30-32] In these studies the participants have found the mixed group solution fruitful for their learning. On the basis of their analysis Lahdenmaa and Heikkinen[28] concluded that both homogeneous and heterogeneous groups have their strengths and weaknesses and that it is important to focus on goals when forming the groups. Similarly, in their study concerning new teachers' experiences, Estola, Syrjälä & Maunu[33] presented a hypothesis that "a suitable portion of similarity and diversity in group composition will bring additional value to the group".

Recently, different models of organizing PGM have been piloted for several professional groups in the education sector, and, in general, in these projects PGM has been regarded as a beneficial form for professional and organizational development. However, finding enough time for PGM in hectic working life is often a challenge that complicates commitment to the group's activities. Further issues to be resolved include the compensation of employees for their time in peer-group mentoring and finding financing models to establish the activity on a regular basis.[15.] It has been suggested that a national collective agreement about

organizing PGM is needed to secure its status as an officially recognized form of teacher development.[34]

Characteristics and prerequisites of successful mentoring

Altogether seven studies highligted the key factors for successful PGM. “Successful” here refers to positive experiences expressed by the participants, mentors and education providers and to the balance of equality and polyphony of experiences between group members.[35] In their study Teerikorpi and Heikkinen[36] asked mentors to write stories of successful and unsuccessful mentoring group. On the basis of their narrative analysis they identified several factors contributing to success or failure in PGM, and they could be divided into three main categories: 1) physical and administrative factors, 2) social factors and 3) methodological factors.

The physical factors include, for example, the space and time of PGM meetings. A cosy meeting room at school or outside with refreshments was seen important for creating a welcoming atmosphere. The administrative factors refer to organizational and municipal support for organizing PGM. In Finland, the education system is almost entirely public, and municipalities are education providers on primary and secondary levels. Thus, municipalities decide about financial support to mentoring, such as mentors’ fees and place offered for the meetings. Municipalities have autonomy, and there are no national regulations about organizing mentoring, from which it follows that there is variation between municipalities in how much financial support is allocated to this purpose. Very recently, municipalities have cut funding for PGM.[34] For this reason, calls for better recognition of peer learning as a form of professional development have been presented.[34]

The social factors contributing to successful group functioning are related to interaction in peer groups and attributes of the mentor and the group. For example, mentor’s and mentees’ motivation, mutual encouragement, and active listening of each other were regarded as making open and confidential environment for constructive discussions.[36] The methodological factors refer to how the group operates and what is done during PGM sessions. These factors encompass the principles of the PGM activities on one hand and methods on structuring and organizing the meetings on the other hand. As regards to principles, it was seen important that the group members together agree about the common rules, time management, and themes to be discussed. As to methods of structuring the meetings and ways of working it was found that the participants appreciated relaxing start with introduction round, alternation between free and guided discussion, and the use of different group work methods.[36] It is also notable that physical, administrative, social and methodological factors are intertwined. For example, engaging in a dialog about one’s personal work experiences may cause discomfort and therefore it is regarded important for the success of peer group meetings that clear agreement about confidentiality and shared working principles such as respect and trust is made in the group.[29,32]

Based on PGM participants’ perceptions, Pennanen, Heikkinen & Tynjälä[37] formed a conception of the preferred social interaction in peer-group mentoring meetings. In total sixteen characteristics were identified, which expressed proactive interaction, reactive and

responsive interaction, and personal presence. The findings showed that in PGM the mentor's role was seen about facilitating the meeting (preparation, practical arrangements) and the discussion (guiding, asking questions) and that mentor was recognised as an equal member in the group. In PGM, participants share their knowledge and experiences, and sharing is valuable as such without any formal titles to highlight or prefigure the expertise.[35]

A study by Heikkinen et al.[38] interrogated the forms of communication in mentoring practices. Study utilized a Habermasian notion of communicative action, which orientates towards mutual understanding (through free and reciprocal dialogue), and strategic action, which orientates towards pre-determined aims (through giving instructions or advices). The success in mentoring is about finding a balance of the communicative and strategic action and this twofold purpose and rationale highlights the complicated role of a mentor – the tensions between supporting versus judging, or being a mentor versus being an evaluator.[38] Mentor can succeed in the task of mentoring by cultivating different kinds of discussions in the group that were identified as *opening up, facilitating, counselling, guiding, and organizing*.

Mentors' and mentees' experiences of participation in PGM

As regards our second research question about the mentors' and mentees' experiences of PGM, most of the studies have focused on mentees. In the following sections we first review studies of mentees' experiences in general and then experiences of new teachers and student teachers in particular. After this, studies focusing on mentors are presented.

Mentees' experiences

In general, teachers, whether new or experienced in their profession, have found PGM important for their professional development and wellbeing.[29,33,39-40] For example, in a study by Geeraerts et al.[39] 96 % of the mentees participating in PGM found peer group mentoring important both at the beginning of teachers' working career and also in later stages of working life, and 84 % of the respondents perceived that the other members of the group supported their professional development. On a personal dimension of support, 84 % of the respondents felt that PGM had strengthened their professional identity. As to social dimension of professional development, 81 % of them agreed with the statement that PGM had improved their collaboration skills. This study also compared vocational teachers and their colleagues in general education, and some significant differences were found. About 55 % of vocational teachers reported that they had changed their working methods due to participating in PGM, whereas 35 % of the general education teachers agreed with this statement. While 38 % of vocational teachers reported that they had been contacted more often by their colleagues about their opinions and advice after participating the PGM, only 10 % of general education teachers had noticed this kind of effect of their PGM experience.

As to the outcomes of participating in PGM, the quantitative study by Geeraerts et al.[39] showed that the development of skills and knowledge was experienced as the strongest effect of the activities, and strengthening of professional identity was found the next

important outcome. The effects on the development of work community were the weakest, and here vocational teachers experienced significantly stronger effects than their colleagues in general education. According to qualitative studies, PGM has provided vocational teachers with a place where they have had time to discuss and analyze their changing teacher identities and working cultures in the mid of reforms and change processes going on in the field of vocational education.[27,41-42] This is experienced as a welcomed movement towards more collegial working in the environment traditionally characterized by strong individualistic working and learning culture.[43,44]

While the studies above mainly describe the outcomes of PGM activities, Kaunisto, Estola and Niemelä[45] examined the mentoring process, group dynamics and group development in particular. In their analysis they applied Tuckman's[46] classical description of stages of group development: *forming, storming, norming, performing, and adjourning.* They conclude that awareness of the group development is useful for mentors in order to find suitable methods in different situations. Research has also indicated that peer groups can contribute to the self-reflection process by supporting participants' self-understanding and offering more realistic views of one's professional options.[47]

The mentoring processes were in focus also in the study by Kaunisto, Uitto, Estola and Syrjälä[29] who examined PGM as a forum providing a place for sharing emotionally challenging experiences of teachers. For this purpose the participants appreciated that they did not know each other beforehand, which made it easier for them to share their experiences of challenging situations. The authors concluded that teachers need peer groups where they can mutually share their experiences and emotions related to their work. Other studies have supported these findings, showing that both beginning teachers and experienced teachers find PGM contributing to their well-being by reducing stress, helping them handle problem situations and creating personal networks.[48] Teachers have consistently reported that sharing experiences in a confidential group can be of crucial importance not only for well-being and copying with stress, but also for new perspectives and ideas to be applied to work.[32] Teachers experience that PGM provides them with time for discussion that is not available during busy working time, and that the dialog helps them broaden their perspectives into their work, especially when the group consists of participants coming from different work communities and different fields.[26,48] In higher education, teachers also have reported that through increasing collegiality the participation in PGM supports the development of educational programs.[49]

Some studies have examined participants' experiences of mixed PGM groups of pre-service and in-service teachers. In a study by Kiviniemi et al.[30] thematic analysis of interviews with in-service teachers revealed four main themes of experiences: 1) enjoying group activities, 2) personal professional development, 3) attaching to the professional community, and 4) developing the teacher profession. While in the first theme teachers emphasized relaxation and unwinding, the second theme raised professional reflection and empowerment as benefits of PGM activities. The third theme focused on strengthening the sense of community, and the fourth theme revealed teachers' tendency to serve as a kind of teacher educator while helping student teachers in their professional growth. The researchers conclude that the mixed or 'hybrid' model of PGM contributes to teacher learning in ways which benefit not only teachers themselves but also schools and teacher education

institutions. Similarly, Uitto et al.[33] found mixed groups as a powerful learning sites in which pre-service and in-service teachers are given an opportunity to share their professional experiences, and recommend utilizing this type of learning in teacher education.

Most of the studies on PGM have been conducted on primary and secondary level of education. Onnismaa, Tahkokallio, Lipponen and Merivirta[40] examined kindergarten teachers' experiences, and their findings are in line with the findings reported above. On the basis of the surveys it was found that the participants experienced peer group mentoring as a meaningful form of professional development. The study identified the following features of PGM as significant for the participants: peer support, confidentiality and openness, time and space for discussion, guidance and professional development, and strengthening of professional self-esteem and identity. The participants were also asked about possible missing things, and for this question many replied just "nothing was missing". Other comments referred to short duration of the mentoring, wishes of more structured working and stricter manner for the mentor, more positive manner, and more guidance and practical tips.

New teachers' and student teachers' perspective into peer-group mentoring

Although peer-group mentoring was developed to organize support for teachers in all stages of their career, a special attention has been paid to the induction phase. Therefore several studies investigate peer-group mentoring from new teachers' perspective. In their international review on beginning teachers' transition from education to working life Tynjälä and Heikkinen[50] identified several challenges new teachers meet, such as inadequate knowledge and skills, decreased self-efficacy and increased stress, early attrition, newcomers' role and position in a work community, and importance of learning at work. In PGM meetings new teachers have an opportunity to discuss these challenges with their colleagues, either by new teachers themselves or with more experienced ones. Generally, in Finland, newly graduated teachers are well prepared in the research based in-service teacher education.[9, 51] However, many of the challenges listed above are encountered by new teachers when entering working life, and these experiences seem to appear not only in the classroom arena but also in wider school arena.[52-53] Thus, several studies emphasize the importance of good social atmosphere with genuine concern and caring amongst the members of the school community, in order to support new teachers' induction.[52-54] New teachers face with the complexity of the work also outside the classroom. For example, relations with parents are often raised as a challenging issue in PGM meetings.[28,55]

As a response to the observed need of bridging teacher education, induction support, and continuous in-service professional development[10,56-57], peer-group mentoring has recently been also implemented in teacher education, in order to combine teacher students and in-service teachers in the same groups. In some cases, soon-to-graduate student teachers have participated in an optional PGM course lead by an experienced in-service teacher[29,58] whereas in some cases student teachers and in-service teachers as mentees have formed mixed peer groups[29-31] The results have been mainly positive and beneficial to both student teachers and teachers in working life. Main challenges are related to different expectations, commitment and obtained roles in the group activity.[31] Heikkinen[59] argues that in terms of teacher education in its pure sense, the aim of PGM is to support professional learning and

well-being at work by promoting teachers' autonomous professional agency, and thus promote education which presumes new teachers as active and autonomous subjects, instead of "schooling" which presumes new teachers as objects of mentoring.

Korhonen et al.[31] examined student teachers' experiences of participating in mixed peer mentoring groups of in-service and pre-service teachers. In their phenomenographical study they found that students' experiences were overall positive, but varied in terms of depth and the kind of learning it promoted. Four different categories were identified describing students considering PGM either as 1) a coffee break, 2) a forum of peer support, 3) place for identity construction or 4) a professional community. These categories varied in relation to meanings given to PGM meetings, topics of discussion, relationship between theory and practice, relationship between participants and what was learnt. For further development of the mixed groups model of in-service and pre-service teachers the researchers recommend paying more attention to fostering collegial relationships between participants and deeper integrating theoretical understanding with practical know-how.

It seems that the potential of PGM as a forum for sharing challenging and emotionally charged experiences varies between in-service and pre-service teachers' peer groups. While the study by Kaunisto et al.[29] showed that a facilitated peer-group was an important forum for in-service teachers to share their emotionally coloured experiences, another study by Lassila et al.[58] showed that student teachers might find it difficult to reveal their vulnerability and deeper emotions, and to respond constructively to peers' emotional outpouring in a group. Emotionally charged stories were often responded to with laughter and humor or by masking or silencing in student teachers' mentoring group. The researchers suggest that there may be a limit in the amount of vulnerability student teachers are willing to express, and that laughter, masking and silencing were used to hide emotional responses which might be seen as inappropriate for a 'proper' teacher. On the basis of their findings, the authors claim that teacher education should help students constructively reflect and cope with their emotions, and that PGM activities should be paired with other forms of reflection, such as storytelling, reading and writing. Uitto et al.[60] have found out that through storytelling, teachers can raise issues that might otherwise be difficult to discuss. They conclude that narrative ways of working offer teachers an opportunity to recognize different dimensions of their identity and in this way trigger change.

The experienced benefits of PGM seem to vary to some extent depending on the stage of career of teachers. While newly qualified teachers tend to emphasize the increased self-confidence, more experienced teachers value the creation of networks and broaden their perspectives. Teachers close to retirement age find PGM supporting their motivation. Common to all stages seems to be empowerment, strengthening identity and reduction of stress.[48]

Mentors' experiences

While many studies have shown the benefits of PGM activities for mentees in terms of professional and identity development there is less research on mentors' experiences. Aspfors and Fransson[61] see mentor training as necessary to promote prospective mentors'

competence and understanding about the role of the mentor. In particular, they highlight the understanding of mentors' mission, the importance of concepts and perspectives, and analytical ability as well as the development of relational skills and communication skills. They also stress that to be successful, mentor training needs the integration of theory and practice.[62] Jokinen, Markkanen, Teerikorpi and Heikkinen[63] have reported on mentors' feedback concerning mentor training and new mentors' experiences of PGM. According to this report, mentor training was successful in integrating theory and practice, and the mentors found training as necessary for acting as a mentor in PGM. It has also been suggested that PGM training, emphasizing peerness, can be applied for leaders' training especially when new orientation to leadership is needed in organizational change and when professionals need to collaborate in teams and networks for developing their work.[64]

Studies on mentors' experiences of PGM have shown that mentors' conceptions of mentoring vary.[65] For some, mentoring is about discussing and solving everyday problems, whereas some others emphasize collaborative reflection on more general issues related to work and professional identity. Shared understanding seems to prevail about mentors' main task, that is, supporting teachers' well-being at work. Acting as a mentor is also seen as a learning process[25]. Knowledge is shared and built together, rather than transformed from mentor to mentee. In addition to widened perspectives, mentors also have reported about feelings of collegial respect, sense of professional ethics, and personal positive disposition towards professional growth.[66] In its best participation in PGM has empowered both mentees and mentors.

Kukkonen, Ranne and Korko[25] emphasize dialogue as a central principle of mentoring encounter, and illustrate mentoring as an expedition with no defined destination. The interaction between the mentor and the other participants of the group is described as identity negotiation. In mentoring discussions 'the problems' are externalized, that is, separated from people, rather than internalized. In this way it is possible to avoid thoughts such as 'I am a bad teacher' or 'I am not able to join the work community'. As externalized the problems keep being separate from the identity of teacher, and the discussion about the problem is easier. In this kind of discussion the role of the mentor is not limited to being as a listener, questioner or supporter. The mentor is also a learner who builds his or her own teacher identity through externalized discussions with the group members. When encouraging and supporting the mentees the mentors start to see themselves and the problems of their own work communities in new light. In this way learning of the mentor may have indirect effects for the workplace development in the mentors work community.

Based on Erikson's[67] theory of psychosocial development Laes, Tenhunen and Hanhela[68] examined mentoring in terms of generativity. In Erikson's theory psychosocial development proceeds through eight stages, and in case of successful development an individual in middle adulthood achieves the state of generativity. Peculiar to this stage is that an individual strives to take care of other people, support younger generations and contribute to society. The authors found the concept of generativity describing well not only the teaching profession but also the role of mentor in peer groups. In PGM generativity manifests itself as concrete caring, attention and little gestures that get the members of the group feel welcomed, respected and appreciated.

Peer-group mentoring involves intergenerational learning[69-70] in which younger and older generations meet each other in dialogical conversations. Geeraerts et al.[70] examined what and how teachers learn from their older and younger colleagues. In this study the participants were 11 Finnish teachers who acted as mentors in PGM groups, and 16 Belgian teachers who participated in a study of intergenerational knowledge brokerage among teachers. The participants reported that from their younger colleagues they had learnt innovative teaching methods and ICT skills, whereas from their more experienced colleagues they had learnt classroom management, practical information, self-regulation and community building. Both from younger and older teachers the participants reported learning of attitudes and different ways of being a teacher. In other words, teacher identity seems to be constructed in interaction between colleagues in different phases in their career. As the most important sources of learning teachers reported to be informal activities and relationships, mentoring in its different forms, seminars and working in teams.

PGM in Administrative Structures of Education

Our third research question pertained to the role of PGM in wider context of administrative structures of education. Here, two thematic research lines could be recognized: studies pertaining to the potential of PGM in workplace development in schools and colleges, and international comparative studies on national policies and models of mentoring.

PGM as method for workplace development

Some studies have explored the potential of PGM not only as a method of teachers' individual professional development, but also as a strategic approach to develop the school community as a whole. In a study by Geeraerts et al.[39] it was found that majority of participants of PGM felt that it had generated ideas for developing a work community. The finding suggests that in addition to personal professional development, the influences of PGM may be reflected to the whole school community. This finding was significantly stronger in vocational schools.

Financial and functional support from the municipality as well as the principals' role have proven to be important in order to integrate mentoring into municipality's long-term continuing education strategy.[71] One example is the city of Kokkola where peer-group mentoring has been embedded in the human resource development (HRD) strategy of educational staff.[72] To contrast the individualistic working culture, PGM has been intentionally enacted as a form of professional learning community, which presupposes awareness of four conditions: understanding of (1) how the school functions, (2) what the prerequisites and conditions for developing school activities are, (3) how the developed operations and cultural characteristics are, and (4) how the tools and operations that are used to change school appear to the teacher. Johnson and Alamaa[72] argue that in Kokkola, peer-group mentoring has met these conditions and because of that, teachers have experienced the collegial sharing, trust and encouragement in everyday work. In some other cases, it has turned out that lack of support from the municipality due to financial reasons has caused challenges.[15.]

Hiltula et al.[48] describe also the indirect influences of mentoring to school community based on the individuals' development. Participants in peer-group mentoring have reported the experiences of empowerment and creating networks with colleagues from different schools. Empowerment may encourage teachers to be more interactive in their school community and, for example, encourage them to introduce new ideas. Networking in the individual level can promote the collaboration between schools. Similar findings about indirect influences of PGM has suggested a study by Kukkonen et al.[25]

The findings about the indirect influences of PGM into the wider school community development are supported by a holistic model of professional growth by Nissilä and Paaso.[73] The main idea is that professional growth starts from the individual's personal development and gradually moves towards collegial and organizational development. Essential parts of the model are versatile interaction, ethical reflections, awareness of various experiences, and theoretical scrutiny, and these can be manifested in peer-group mentoring.

International comparisons

International comparisons between different mentoring models may reveal the distinguishing features of the model, and some of such studies were available regarding the Finnish model of peer-group mentoring. In the comparison of the induction phase mentoring models of Estonia, Finland, and Sweden, Jokinen, Morberg, Poom-Valickis and Rohtma[74] noted that PGM was characterized by the decentralized educational system, in which local municipalities have the main responsibility to organize support for teachers. Mentoring was described as the main strategy for teacher induction in most countries referred and examples had similarities and differences in terms of the implementation of mentoring, mentor education and organizational support for mentoring. The key finding was that mentoring needs to be addressed, organized and developed in terms of the local conditions in order to be vital and meaningful.

In his analysis of the differences of Finnish and Swedish educational cultures and their impact on mentoring approaches Fransson[75] concluded that the Finnish model of PGM was developed through persevering pilot projects based on local circumstances and conditions (bottom-up approach), whereas in Sweden political decision makers have tended to directly adopt international models of mentoring which are being applied in a centrally directed way (top-down approach). One example was the aim to involve mentors participating in formal assessment of new teachers. In contrast, in Finland mentoring has been seen as a forum for learning without assessment. The emphasis on the autonomy of teaching profession has also been identified as a typical feature in the Finnish mentoring model.[8-9,13,.37,38,76,77,78]

Kemmis, Heikkinen, Fransson, Aspfors and Edwards-Groves[13] provided examination of the practices of new teachers' mentoring in Australia, Finland and Sweden. They identified three archetypes of mentoring, which demonstrate the differing projects constituted by the particular arrangements, referred as practice architectures, in these empirical cases:

- Supervision: assisting new teachers to pass through probation. (Swedish case)
- Support: traditional mentoring where a more experienced teacher assists a mentee. (Australian case)

• Collaborative self-development: professional growth through collegial mentoring. (Finnish case, PGM).

The important notion of the PGM was that collaborative self-development refers to both individual and collective professional growth, which is supported by the practice architectures in the Finnish education system. As an example of the Finnish policymaking, politicians and policy-makers have not expressed interests to increase the surveillance of teachers, or reduce the autonomy of teaching profession. Thus, the claim can be justified, that society does rely on teachers' professional ethics to develop their skills and competences, the school communities and teaching profession in Finland, and so the Finnish landscape for PGM can be described as high-trust environment and defined by the *autonomous professionalism.*[38] This applies also to newly graduated teachers, since there is not an accreditation process and new teachers are assumed to have the necessary requirements for working life based on the extensive initial teacher education.[77]

Discussion

This review has shown that research on the Finnish model of peer-group mentoring has covered a range of topics from individuals' experiences to organizational and administrative perspectives. The issues emerging from studies can be grouped into the following themes, modified and elaborated from Aspfors et al.[78]:

1. PGM in the continuum of teacher development
   - challenges of transition from teacher education to teaching profession
   - PGM as a tool to support newly qualified teachers
   - PGM as a tool to support teachers throughout career
2. PGM in practice
   - factors contributing to successful PGM
   - different mentoring and PGM models
   - experiences of mentees and mentees
   - group formation and group dynamics
   - role and dispositions of the mentor and mentees
3. Feasibility of PGM in terms of professional well-being
   - potential to develop well-being at work
   - influences into working community
4. PGM and the administrative structures of education
   -roles of the national administration, municipality and school principals

Table 1 summarizes the main results of PGM studies. The table is elaborated from our previous review on PGM in the early phase of the development of the model [78.] In he original version, the table presented two main themes of research: prerequisites of functional mentoring, and outcomes of PGM. As more recent studies have revealed also challenges in organizing PGM, we added this theme into the revised table. Furthermore, while the original table summarized the findings of early studies on the individual and organizational level, national level is added into the new version. Thus, the findings presented in Table 1 pertain to the following main themes: 1) prerequisites of functional mentoring activities, 2) outcomes, benefits and implications of PGM, and 3) challenges of

the model. As regards the tiers of analysis, the findings can be classified into the three categories: findings related to individual and groups, findings pertaining to community and organization, and findings concerning national issues.

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In addition to the significance of individual and group level social and methodological factors, the studies concerning prerequisites of functional mentoring have revealed the importance of administrative and organizational support for implementing PGM. The model has been developed as a bottom-up endeavor, and this may be the reason why it seems hard to achieve a sustainable position for it as a form of teacher development. Without legislation or national collective agreement about the principles and conditions of the activities PGM does not have an officially recognized status in the education system. This has made it possible for municipalities to cut spending on PGM in economically challenging times, which is reflected in low proportion of teachers participating in mentoring. Thus, conceptual change in terms of what is regarded as professional development is needed.

As to the individual and group level findings, the studies on mentors' and mentees' experiences of PGM have been highly positive from teachers' wellbeing as well as professional and identity development perspective. The challenges relate to managing group dynamics, time management and commitment.

Altogether, research on the Finnish model of peer-group mentoring has provided a rich knowledge base on the implementation of the model and on the experiences of participants and stakeholders. However, most of the studies have been conducted during or soon after the PGM period (usually one year long), whereas studies on long term effects are still called for. For example, it would be important to examine more the reported indirect influences of PGM on school development on the organizational level. An interesting question would be whether PGM practices contribute to change from individualistic working culture towards more collegial and networked culture.[79]

Methodologically, research on PGM has been dominantly qualitative, which can be explained by the fact that both the concept of PGM and the practices associated with it are still young. Therefore, it is important to develop understanding of the characteristics of the model. In the future, more quantitative studies are welcome to examine the extent of experiences and characteristics of the model. Furthermore, studies from the ecosystems or ecologies of practices perspective[80] are needed in order to understand the nature of the development of the PGM model in relation to wider educational policy context.

Based on the review of research, the Finnish model of PGM has been a successful innovation in the field of professional development. However, we stress that due to different socio-cultural contexts, mentoring models cannot be borrowed from one national context to another as such. The Finnish model is based on shared values of the Finnish society and education system, and the model as such may not function in a similar way in different

societies. It is concluded that PGM as well as teachers' professional development as a whole should be seen as an integral part of the education ecosystem.

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Competing interests

Hannu Heikkinen, Ilona Markkanen, and Matti Pennanen are the coordinators of the Finnish Network for Peer-group Mentoring, which has been developing the PGM model and training of mentors. Päivi Tynjälä used to be a member of the coordination group till 2016.

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Table 1. Summary of the findings of PGM studies (adapted from Ref. 78, p. 140)

Main themes	Individual/Group level	Community/ Organizational level	National level
Prerequisites of functional mentoring activities	• Social factors: open atmosphere, mutual trust • Methodological factors: rules, agreements	• Administrative factors: organizational support • Physical factors: time and place convenient	• Funding and agreements
Outcomes/benefits/ implications of PGM	• Time and space for reflecting and sharing experiences • Empowerment and increased self-confidence • Professional identity development • Conceptual change • Increased motivation and well-being	• Mainly indirect effects: empowered teachers act as agents of change • More direct effects when teachers come from the same school and when the groups are multidisciplinary. • One possible method for teacher induction	• National network for mentoring and teacher induction • Research-based practice
Challenges	• Group dynamics (e.g. dominant/withdrawing persons in group) • Time management and commitment	• Recognition of peer learning as professional development	• Lack of national agreement • Compensation for mentors • Allocation of working time for mentees

Appendix 1. Review data

Authors	Year	Title	Number of participants	Data	Methods
Ahokas, M.	2012	A multiprofessional mentoring group at a vocational school.	26 participants, 2 mentors and 24 mentees.	Thematic interviews,	Case study
Alanko-Turunen, M. & Pasanen, H.	2012	Verme ammatillisen opettajan tukena muutosten kentällä	22 mentors in vocational education	Participants' learning and research tasks	Thematic analysis
Aspfors, J., & Bondas, T.	2013	Caring about caring: Newly qualified teachers' experiences of their relationships within the school community.	88 newly qualified teachers	Online questionnaire, open ended questions, 88 respondents	Qualitative content analysis, inductive and explorative
Aspfors, J., & Eklund, G.	2017	Explicit and implicit perspectives on research-based teacher education – newly qualified teachers' experiences in Finland	10 newly qualified primary school teachers	Semi-structured interviews with	Qualitative content analysis
Aspfors, J., & Fransson, G.	2015	Att kvalificera sig till mentor – perspektiv på kompetensbehov och utbildning av mentorer för nya lärare	NA	Literature	Review
Aspfors, J., & Fransson, G.	2015	Research on mentor education for mentors of newly qualified teachers: A qualitative meta-synthesis.	NA	10 studies	Qualitative meta-synthesis
Aspfors, J., Bendtsen, M., & Hansén, S.-E.	2011	Nya lärare möter skola och klassrum.	2 teachers	Questionnaire / focus group	Narrative analysis
Aspfors, J., Bendtsen, M., Hansén, S.-E, & Sjöholm, K.	2011	Evolving views of the teaching profession: Voices from student teachers and newly qualified teachers.	76 teachers	Questionnaire and focus group interviews	Qualitative content analysis
Aspfors, J., Fransson, G.,	2012	Mentoring as dialogue, collaboration and/or assessment?	118 (questionnaire)	Interviews; questionnaire,	Content analysis

& Heikkinen, H.			+ 5 (interviews)	national policy documents	
Aspfors, J., Hansén, S.-E., Tynjälä, P., Heikkinen, H., & Jokinen, H.	2012	Lessons learnt from peer-group mentoring experiments.	NA	Literature	Review
Estola, E., Heikkinen, H., & Syrjälä, L.	2014	Narrative pedagogies for peer groups.	NA	Literature	Theoretical review of narrative identity work
Estola, E., Syrjälä, L., & Maunu, T.	2012	The first years as a teacher.	7 participants	Participatory observation, notes, writing assignments, essays	Inductive, thematical analysis
Fransson, G.	2014	A culture of trust or an ideology of distrust: A comparison of the impact of Finnish and Swedish educational cultures	NA	Literature, policy documents	Review and macro-level comparative analysis
Geeraerts, K., Tynjälä, P., & Heikkinen, H.	2018	Inter-generational learning of teachers: what and how do teachers learn from older and younger colleagues?	16 Belgian teachers, 11 Finnish teachers, altogether n=27	FI: written accounts, BE: interviews	Thematic analysis
Geeraerts, K., Tynjälä, P., Heikkinen, H., Markkanen, I., Pennanen, M., & Gijbels, D.	2015	Peer-group mentoring as a tool for teacher development.	69 general education, 47 vocational edu teachers, altogether n=116	Quantitative online survey	Quantitative methods: CFA + EFA, descriptive statistics, group comparison with t-test
Heikkinen, H.	2016	Bridging informal and formal learning in professional development.	NA	Philosophical literature	Review
Heikkinen, H.	2017	Mentoring of newly qualified teachers in the educational sense.	NA	Literature	Philosophical review
Heikkinen, H., Jokinen, H., & Tynjälä, P.	2012	Teacher education and development as lifelong and lifewide learning.	NA	Literature	Review

Heikkinen, H., Wilkinson, J., Aspfors, J., & Bristol, L.	2018	Understanding mentoring of new teachers: Communicative and strategic practices in Australia and Finland.	8 teachers	Audio recorded interviews in Australia and in Finland	Abductive content analysis
Hiltula, A., Isosomppi, L., Jokinen, H., & Oksakari, A.	2012	Individual and social meanings of mentoring.	NA	Literature	Review, based on a master thesis
Johnson, P., & Alamaa, S.	2012	Mentoring as sustainable school development.	NA	Literature	Review
Jokikokko, K., Uitto, M., Deketelaere, A., & Estola, E.	2017	A beginning teacher in emotionally intensive micropolitical situations.	1 teacher	3 semi-structured interviews	Narrative analysis, holistic-content approach
Jokinen, H., Heikkinen, H., & Morberg, Å.	2012	The induction phase as a critical transition for newly qualified teachers.	29 mentees, 18 mentors	Questionnaires, interviews, reflective journals	Thematic analysis
Kaunisto, S.-L., Estola, E., & Leiman, M.	2013	”I’ve Let Myself Get Tired” – one teacher’s self-reflection process in a peer group.	11 teachers	Observations and transcripts of video recordings of 16 meetings, 70 pages in total.	Dialogical Sequence Analysis (DSA)
Kaunisto, S.-L., Estola, E., & Niemistö, R.	2012	The group as a context for peer-group mentoring.	NA	Literature	Conceptual analysis of Tuckman's group development model in relation to PGM
Kaunisto, S.-L., Uitto, M., Estola, E., & Syrjälä, L.	2009	Ohjattu vertaisryhmä haavoittuvuudesta kertomisen paikkana.	11 teachers	Case study of one mentoring group	Narrative analysis
Kemmis, S., & Heikkinen, H.	2012	Future perspectives: Peer-group mentoring and international practices for teacher development.	NA	Literature	Conceptual analysis: Application of the theory of ecologies of practices to mentoring

Kemmis, S., Heikkinen, H., Fransson, G., Aspfors, J., & Edwards-Groves, C.	2014	Mentoring of new teachers as a contested practice: Supervision, support and collaborative self-development	NA	3 empirical cases. Field notes, transcripts of interviews (including focus groups) and written, audio and video records of observations of mentoring sessions. Documents collected in each country: policy documents, reviews of national research literature, teachers' reflections and other texts.	Multiple case study approach
Kiviniemi, U., Heikkinen, H., Tynjälä, P., & Martin, A.	In review	Running a hybrid: Mingling in-service and pre-service teachers in peer-mentoring groups	8 teachers	88 pages of transcripts based on interviews	Thematic analysis
Korhonen, H., Heikkinen, H., Kiviniemi, U., & Tynjälä, P.	2017	Student teachers' experiences of participating in mixed peer mentoring groups of in-service and pre-service teachers in Finland.	19 student teachers	Written reflective reports	Phenomenographic analysis
Lahdenmaa, M., & Heikkinen, H.	2012	Experiences of peer-group mentoring in homogenous and heterogenous groups.	2 groups, 13 participants	Focus group interviews	Comparative qualitative analysis
Lassila, E. T., Jokikokko, K., Uitto, M., & Estola, E.	2017	The challenges to discussing emotionally loaded stories in Finnish teacher education.	10 participants	6 video-recorded sessions, diaries of 10 participants, 1 later written reflections	Narrative analysis
Mäki, P.	2012	Diverse landscapes of mentoring	8 school leaders, 5	Interviews	Content analysis

			school assistants		
Nissilä, S.-P.	2015	Designing and testing an educational program for professional development in work places: Sharing expertise in teachers´ peer group mentoring.	10 mentors	Questionnaire, structured and open-ended questions, and free writing	Qualitative content analysis
Nissilä, S.-P.	2013	The vocational teacher´s changing role and identity in changing contexts.	NA	5 studies	Conceptual analysis based on five empirical studies
Pasanen, H., & Alanko-Turunen, M.	2019	Vertaisuuden tunnustaminen esimiesorientaationa Verme-koulutus jaettua johtajuutta kehittämässä	13 participants	Observations, essays and material produced in mentor training by the participants	Critical close reading (Griselda Pollock)
Pennanen, M., Bristol, L., Wilkinson, J., & Heikkinen, H.	2016	What is 'good'mentoring? Understanding mentoring practices of teacher induction through case studies of Finland and Australia.	30 participants	5 focus group interviews (16 participants) and fictional stories from 14 mentors	Two order analysis, inductive and abductive approach
Pennanen, M., Heikkinen, H. & Tynjälä, P.	2018	Virtues of mentors and mentees in the Finnish model of teachers' peer-group mentoring.	30 participants	5 focus group interviews (16 participants) and fictional stories from 14 mentors	Philosophical-empirical inquiry, thematical content analysis and post-modernist, constructivist narrative approach
Rajakaltio, H., & Syrjäläinen, E.	2012	Peer-group mentoring in the context of transforming local administration.	6 mentors	Questionnaires and focus group interviews	Case study
Syrjälä, L., & Estola, E.	2012	Diversity of mentoring.	21 participants	Narratives	Plotted dialogues
Teerikorpi, S., & Heikkinen, H.	2012	Keys to success.	25 participants	Written fictional stories	Content analysis, narrative approach
Tynjälä, P., & Heikkinen, H.	2011	Beginning teachers' transition from pre-service education to working life: Theoretical	NA	Literature	Review

		perspectives and best practices.			
Uitto, M., Kaunisto, S-L., Syrjälä, L. & Estola, E.	2015	Silenced truths: relational and emotional dimensions of a beginning teacher's identity as part of the micropolitical context of school.	11 teachers	Transcribed data based on video-recordings of the group meetings	Narrative approach
Uitto, M., Kaunisto, S.-L., Kelchtermans, G., & Estola, E.	2016	Peer group as a meeting place: reconstructions of teachers' self-understanding and the presence of vulnerability.	11 teachers	Teachers' stories	Narrative analysis, Spector-Mersel model
Välijärvi, J., & Heikkinen, H.	2012	Peer-group mentoring and the culture of education in Finland.	NA	Literature	Review
Wittek, D., Ruohotie-Lyhty, M., & Heikkinen, H.	2017	Mentoring im Berufseinstieg von Lehrpersonen – ein bilateraler Vergleich zwischen Deutschland und Finnland	NA	Literature	Review