Inter-generational learning of teachers: what and how do teachers learn from older and younger colleagues? — Source link ⧉

Kendra Geeraerts, Päivi Tynjälä, Hannu L. T. Heikkinen

Institutions: University of Antwerp, University of Jyväskylä

Related papers:

- Teachers' professional learning : perspectives and reflections of practising teachers

- The day-to-day work of primary school teachers: a source of professional learning

- New teacher learning: substantive knowledge and contextual factors

- The passion of teaching: learning from an older generation of teachers

- Teacher learning matters: The interrelationship between the personal and professional lives of rural teachers

Inter-generational learning of teachers : what and how do teachers learn from older and younger colleagues?

Inter-generational Learning of Teachers: What and how do teachers learn from older and younger colleagues?

Authors: Kendra Geeraerts (University of Antwerp), Päivi Tynjälä (University of Jyväskylä),

Hannu L.T. Heikkinen (University of Jyväskylä)

This paper examines how and what teachers learn from their older and younger colleagues. Data were gathered from interviews and written reports from 27 Belgian and Finnish teachers. Thematic qualitative analysis was used. The results revealed differences in what teachers learn from older and younger colleagues. Teachers reported learning innovative teaching methods and ICT skills from younger colleagues, whereas practical information, classroom management skills, self-regulation and community building were learned mainly from older colleagues. Attitudes regarding teaching and different ways of being a teacher were learned from both younger and older colleagues alike. Similarities were also found in how teachers learned from their older and younger colleagues. Informal activities and relationships, different forms of mentoring, and working in subject teams or seminars were important sources of learning. An intergenerational learning perspective is important with respect to demographic changes in school staff and in preventing knowledge loss and teacher dropout.

Keywords: intergenerational learning; teacher development; school teams

Introduction

The purpose of the study is to examine intergenerational learning (IGL) among teachers; in other words, how and what teachers learn from their older or younger colleagues. Reciprocal IGL has been considered a missed opportunity in organization development (Baily, 2009), but is now a subject of growing interest in business and management studies, and there is a growing body of literature on IGL in the workplace (e.g. Loch, Sting, Bauer, & Mauermann, 2010; Ropes, 2013). For example, within the field of knowledge management, interest in intergenerational relationships and knowledge sharing across generations is emerging (Bjursell, 2015). However, there seems to be a gap in current knowledge of teachers' IGL. Also, research on teachers' everyday learning is limited (Kyndt, Gijbels, Grosemans, & Donche, 2016).

Learning taking place in the interaction between teachers of different generations may provide opportunities to promote professional development of both younger and older teachers. On one hand, amid the growing concern regarding new teacher attrition (e.g. AUTHOR, 2015; Ingersoll & Strong, 2011) we need effective strategies to retain teachers in the profession. Various practices of teacher induction and mentoring have been globally developed for this purpose, and these provide promising forums for IGL. On the other hand, new teachers may have a lot to offer to experienced teachers. The potential of younger generations may open new opportunities for developing learning environments. For example, it has been suggested that new generations may engage in 'reverse mentoring' of older generations concerning the use of modern ICT technologies (Chaudhuri & Ghosh, 2012; Marron, 2015). Another possible advantage of young teachers is their closer contact with the lifestyle and mindset of younger generations, offering them a more direct line of communication with their students.

We therefore believe that research into IGL among teachers is of urgent interest. In this study, the following research questions are addressed:

(1) What do teachers learn from their younger and older colleagues?

(2)   How do they learn from their younger and older colleagues?

The study is descriptive in nature. In other words, it is based on teachers' subjective descriptions of their learning rather than on the detailed observations on their learning processes and outcomes.

Intergenerational Learning

Intergenerational learning has been described as a valuable process for competence building and knowledge retention in different disciplines such as sociology, education and organizational learning (Ropes, 2011). IGL is conceptualized as an interactive process between groups of people from different generations, through which one or both parties learn (Novotný & Brücknerová, 2014; Ropes, 2011). This kind of learning is a 'process which takes place between different generations resulting in the acquisition of new knowledge, skills and values' (Ropes, 2013, p. 714). Intergenerational relationships and interactions therefore support IGL.

Generations are defined by Mannheim (1952) as groups of individuals with shared social experiences and mutual historical events through their life course. Therefore, members of a generational cohort understand their environment in a similar way. When we apply this definition to the context of teachers, we might comprehend generational cohorts as teachers who have experienced similar waves of educational reforms and educational changes within the school and on the policy level. This conceptualization highlights a rather chronological dimension of generation.

The existence of different generational cohorts at the workplace can lead to awareness and opportunities for intergenerational interactions and IGL. These interactions are closely related to the concept of intergenerational knowledge brokerage. This concept has in turn been associated with the context of teacher teams as facilitators of knowledge sharing between knowledge demands and knowledge supplies across different generations of teachers

(AUTHOR, 2016). Within this, the socio-constructive nature of intergenerational knowledge sharing has been emphasized. For example, Bjursell (2015) states that an IGL approach contains a shift from 'succession of knowledge' to 'co-creation of knowledge'. In a similar vein, the bidirectional character of intergenerational teacher learning has been emphasized (Brücknerova & Novotny 2017, Novotny & Brücknerova 2014). In other words, knowledge sharing as a process in which the young teacher learns from the older teacher is not sufficient. Accordingly, it is emphasized that teachers of all ages have experiences and skills that might be a resource for an organization (Bjursell, 2015). Recent work on intergenerational teacher relationships has revealed that especially young teachers are more likely to interact with colleagues of their own generational cohort instead of crossing generational boundaries (AUTHOR 2017). From the viewpoint of intergenerational learning this is a worrying finding which underlines the need for intergenerational teacher interactions. Both interactions, learning from older and younger colleagues, contribute to IGL within school context and, consequently, support a culture of lifelong learning (Schmidt_Hertha, Jelenc Krasovec, & Formosa, 2014).

Darling-Hammond, Hammerness, Grossman, Rust, and Shulman (2005) suggest that research on teacher learning needs to focus mutually on *what* teachers learn and *how* teachers learn. In this paper, we address these two important questions by using an intergenerational lens. In the following sections we review, from an intergenerational learning perspective, previous literature on teachers' learning.

.

How and what teachers learn?

AUTHORS (2011) state that learning and professional development of teachers should be seen as a continuing process combining formal, non-formal and informal learning throughout different stages of the teaching career. Recent studies on *how* teachers learn have mainly

focussed on the informal type of learning. For example, in their review study, Kyndt et al. (2016) used the following typology of informal learning activities connected to teachers' everyday professional development: interacting and discussing with others, doing/experiencing, experimenting, learning from others (no interaction), consulting information sources, reflecting in/on action, engaging in extracurricular activities, and encountering difficulties. They investigated potential differences in informal learning between beginning and more experienced teachers and concluded that the literature shows some disagreement regarding which group of teachers is more related to certain learning activities. While Van Daal, Donche, and De Maeyer (2014) found a lower degree of participation in workplace learning by experienced teachers, Richter, Kunter, Klusmann, Lüdtke, and Baumert (2011) concluded that the level of time investment is similar, but the preference for learning activities differs (Kyndt et al., 2016). Richter et al. (2011) found that experienced teachers were more likely to read professional literature as compared to beginning teachers. In addition, teachers with more experience were less likely to engage in learning through experimenting and collaboration (Van Daal et al., 2014). Novices were found to learn more by observing colleagues and by interacting with a mentor (Flores, 2005; Kyndt et al., 2016; Patrick, Elliot, Hulme, & McPhee, 2010). Since not all of these learning activities refer specifically to intergenerational learning interaction, in our study we are interested in investigating which learning activities occur as a result of a relationship with older or younger colleagues.

In recent times, there has been a tendency towards informalization of formal learning and formalization of informal learning, also within the context of teacher learning (AUTHOR, 2015). Consequently, it is no longer easy to make a clear distinction between formal and informal learning, since these forms of learning are often merged. For this reason, in the present study we do not specifically make a distinction or relation between formal and informal learning

but rather focus on through which activities teachers learn from their younger and older colleagues.

The question of how teachers learn has also been answered by describing their expertise development. Here the model of Berliner (2001) is informative. This model is based on general studies of differences between experts and novices in different fields (Dreyfus & Dreyfus, 1986) and asserts that the strategies and habits of expert teachers differ from those of less developed teachers. According to the model, in the positive case, a teacher develops from 'novice' via 'advanced beginner' to 'competent' and reaches even higher levels of expertise in the latter part of their career, developing a holistic perception of teaching situations at the level of a 'proficient' teacher. The final stage of teacher development is the level of an 'expert', where the teacher masters strategies to solve problems with maximum efficiency and minimal error with an extensive and sophisticated knowledge of the subject matter to be taught. This routinized knowledge, which is often described as tacit or implicit knowledge, can be obtained by processes of internalization and socialization (AUTHOR., 2016; Nonaka & Takeuchi, 1995).

Tempest (2003) has questioned the concept of 'expert' in management learning literature, since it suggests that experienced workers are more knowledgeable and in that way more valuable to organizational learning than novice workers. However, in the fast-changing world newcomers or novice workers often have had access to the newest knowledge during their education. Tempest (2003) also suggests that employees' varying levels of expertise is related to the variety of knowledge within teams. These varieties may affect the nature of interactions at the workplace and therefore also learning relationships. Accordingly, Berliner's model may also be critically viewed in the light of the terms and conditions of the contemporary world.

The outcomes of professional learning, that is, *what* is learnt, is often described in the form of different types of knowledge and skills. In the context of teacher learning the classical

model introduced by Shulman (1987) is often used. According to Shulman, teacher knowledge can be divided into the following categories: (1) content knowledge, (2) general pedagogical knowledge, (3) curriculum knowledge, (4) pedagogical content knowledge, (5) knowledge of learners, (6) knowledge of educational contexts, communities and cultures, and (7) knowledge about educational ends and values. These categories were formed some three decades ago, and so in the contemporary (educational) world we may have a reason to take a critical look at this model. Recently, Kyndt et al. (2016) recognized three main teacher learning outcomes: subject knowledge, pedagogical knowledge and skills, and professional attitudes and identity. Mirroring these outcomes with Shulmans' model, we notice that both categorizations include subject knowledge and pedagogical knowledge and skills, but professional attitudes and identity were missing in Shulman's categorization.

Methodology

The data were collected in Belgium (Flanders) and Finland in 2014-2015. These countries have both similarities and differences related to teachers' learning and professional development. For example, in TALIS 2013 Finland and Belgium (Flanders) showed similarities with regard to teacher professionalism in terms of teachers' knowledge base, autonomy and peer networks (Schleicher, 2016). In contrast, young teacher attrition, a typical problem in many countries, is rather high in Flanders, but negligible in Finland. In Finland, IGL has been supported within a system of peer-group mentoring in schools that offer this new form of mentoring (AUTHOR., 2016; AUTHORS, 2012). In contrast, due to budget cuts and other policy priorities Belgium no longer has a formally organized mentoring system.

The study participants included 16 Belgian and 11 Finnish teachers. We anticipated that teachers may learn something relevant in terms of their professional development both from their elder and younger colleagues. This is why both senior and junior teachers were asked

about their experiences of learning from younger and older colleagues. The data consisted of semi-structured interviews with the Belgian teachers and written accounts by Finnish teachers, followed by a focus group interview in which 10 of the 11 Finnish teachers participated. The Belgian data was collected in connection with a larger study of knowledge brokerage among teachers in secondary education (AUTHOR., 2016), whereas the Finnish data was gathered during peer group mentor training. The fundamental idea of Peer-Group Mentoring is that of reciprocal and dialogical learning from elder and younger colleagues. Teachers were recruited to mentor education on a voluntary basis, and the participants of the mentor education program signed a permission to use their written assignments as material of this study. The teachers were asked to write about their experiences of learning something important in terms of their professional development from their older and younger colleagues. These writings were written before the mentor education seminar, and they were shared and discussed in small groups with other participants in the seminar. For the Belgian teachers, the school principal provided us with the contact details of teachers. Afterwards, invitation emails for interviews were sent. Interview questions included questions such as 'What could you learn from younger and older teachers within your school team? For what matters have you already relied on the knowledge of a younger and older colleague? In what ways do different generations of teachers learn from each other'. The background of the teachers is presented in Table 1.

Table 1. Background of the teachers.

	Belgium	Finland
Gender		
Female	11	11
Male	5	
Age		

20-30	8	2
30-40		4
40-50		3
50-60	7	2
60→	1	
School level		
Primary		5 *
Secondary	16	4
Tertiary		3

* One teacher worked in both primary and secondary education

The interview data and written accounts were transcribed verbatim and translated into English. Throughout the analysis when interpretative issues arose, we went back to the original language data for confirmation of interpretations.

In the analysis, a thematic qualitative approach was adopted (Braun & Clarke, 2006). The first phase of the analysis was data-driven and inductive in the sense that coding and classifying were conducted based on the data instead of a predetermined classification schema. After the preliminary coding, where a part of the data was subjected to data-driven classification, fairly detailed categories were achieved. In this phase, we investigated whether differences existed between the two national datasets that would enable international comparison. We concluded that there were no remarkable qualitative differences between the datasets and that exactly the same categories appeared in both Finnish and Belgian data. Thus, we decided not to make a comparison between the countries and, instead, to combine the data for using it as a one dataset. We jointly specified the coding and started to join the categories

into larger upper categories and broader themes. The categorizations were extended to the whole set of data, while continuously elaborating the categories and their interrelationships. Next, the final upper and subcategories as well as broader themes were formed. As the categorization proceeded, the level of abstraction was increased so that while the preliminary categories were named by expressions taken directly from the data, the upper categories and broader themes were formed on a more conceptual basis, drawing up classifications on a more general level. Finally, the data were reviewed once more by considering the final shapes of the main themes and categories and by naming them. In the final phase of the categorization, we began to detect similarities with previous studies on teacher learning and professionalism, and these had an influence on how we conceptualized our findings and named certain categories. Therefore, the analysis as a whole may be characterized as a dialectical process of inductive and deductive reasoning, where the outcome is produced by the interplay of the data and the theory (Dubois & Gadde, 2002).

Findings

As our initial analysis revealed that the 'what' and 'how' questions were intertwined in teachers' responses, we present these findings together. However, we draw a distinction between learning from older and younger colleagues.

Learning from older colleagues

Regarding *what* is learned from older teachers, nine main themes emerged from the data: practical information, classroom management, content knowledge, pedagogical content knowledge, self-regulation, attitudes and dispositions, ways of being a teacher, and community building (Table 2).

Table 2. Summary of what and how teachers learn from older colleagues.

WHAT	HOW: way of learning	Learning events/contexts
1. Practical information	- Discussion	- Informal activities
2. Classroom management	- Collaboration	- One-to-one-mentoring
3. Content knowledge	- Sharing information,	- Group mentoring or other
4. Pedagogical content	knowledge and	group activities
knowledge	experiences	- Subject team meetings
- developing course	- Asking/receiving advice	- Pedagogical seminars
materials	- Asking for help	- Digital learning
- assessment practices	- Feedback	environments
5. Self-regulation	- Reflection	- Learning from negative or
6. Attitudes and dispositions	- Observation	positive examples or
7. Ways of being a teacher	- Imitation	experiences
8. Community building +	- Adjusting practices	- Safe, respectful climate
responsibility		(including friendship, trust
		and respect relationships)

1. Practical information

The first theme identified from the data relates to gaining general and practical information about the school organization and practices. Examples of this kind of learning include different tips, information about the format of projects and special events within the school, guidelines about administration, and staff dossiers. This information is shared informally by asking and receiving information, or as a part of mentoring support during an induction meeting at the beginning of the school year, as described by this young teacher:

> *"In the beginning of the year, mentors organize an information session for new teachers. You receive an ABC (information booklet) of the school in which you can find all kinds of general information." (B1)* [information sharing, mentoring]

(To ensure anonymity, respondent names are codified. B refers to Belgium and F to Finland. The learning interaction type and event/context is presented in brackets.)

2. *Classroom management*

Teachers frequently reported that they learn from older colleagues how to deal with student behaviour, but also how to deal with diverse learners and their different backgrounds. Mainly informal conversations are important in this regard, including discussing which refers to engaging in dialogue, sharing experiences and giving insight into real-life situations, as explained by these teachers:

> *"A now-retired colleague of mine once said, wisely, that she avoids having the kinds of confrontations where there are no honourable ways of ending them." (F1)* [discussing, receiving advice, informal]

> *"I think I benefitted a lot from informal conversations in the staff room… by telling stories, they give me insights into situations like how to react to student behaviour, …I think this is the most valuable thing… sharing experiences with colleagues, engaging in dialogue, …" (B2)* [discussing, sharing experiences, informal]

The initiative for consultative discussions can also come from younger teachers by asking older teachers' advice on how to manage difficult students or class groups. Provision of advice can consequently take place through both uni- and bilateral interaction. The following quote exemplifies active advice seeking from an older colleague:

> *"Sometimes I ask for advice so that I can compare things: Did I do this in a good way? How would you react to that? What punishment would you give?" (B3)* [feedback, asking advice, informal]

Classroom management skills can also be learned from older colleagues just by observing colleagues dealing with student behaviour and imitating them:

> *"Sometimes I steal ideas with my eyes, just by looking at my colleagues" (B2)*
> [observation, imitation, informal]

The experience of older colleagues is also sought with respect to dealing with student diversity, where the support of a mentor is perceived as valuable:

> *"She advised me on how to sensibly pace a subject throughout a course and how to proceed with different types of learners. I could also talk about any problems I encountered with her and seek out suitable solutions. She was my mentor and an unbelievably strong supporter in my early years." (F2)* [receiving advice, discussion, mentoring]

3. Content knowledge

Regarding knowledge of subject matter, teachers sought advice from older colleagues more experienced in the subject. This young teacher explained her relationship with her older colleague as follows:

> *"For Geography I have an older colleague who I can turn to for all my content related questions. She is very open towards this and often encourages me by saying 'Just come and ask me if you have any questions'. She's always happy to explain things to me." (B4)* [asking advice, asking help, informal]

4. Pedagogical content knowledge

This knowledge covers the question of how to teach a certain subject, which teaching methods and assessment practices to use and how to develop course materials. Examples of this kind of learning can be found in discussions, asking advice and help, and information sharing. For instance, a subject team meeting was considered to be an excellent practice for facilitating learning about pedagogical content knowledge.

"These subject team meetings are relevant because you can share information and materials, and you can share teaching methods." (B5) [sharing information, subject team meeting]

Besides face-to-face interactions, digital learning environments make sharing course materials more efficient and enable learning from examples, as the following quote illustrates:

"For French Language, we have an online platform where we add many documents, tests, ... I think this is a good thing to have this kind of archive so that I can use these documents as a starting base… that way, at least, I have an idea about how it should look…" (B6) [sharing information, learning from examples, digital learning environment]

Collaboration with older colleagues was perceived to be especially beneficial in the development of course materials, such as tests and exams. Consulting and using colleagues' materials, peer-checking of documents and comparing materials are examples of how teachers reported to have gained pedagogical content knowledge from their older colleagues. In addition, friendship and trust relationships were seen as contributing factors to a safe, respectful climate in which IGL takes place.

"In my current job, I have learned an unfathomable amount from my older colleagues. I've learned about teaching content and methods and been supported with educational principles that I hold dear. My professional development has been supported by a strong culture of sharing [...] One of the most important lessons I learned in the past and in my current post is that even in the most challenging times and assignments, I am deemed worthy of trust. That helps me to develop and stride forward." (F3) [sharing information, trust]

"After I switched schools, one of my new colleagues was an experienced teacher who introduced me to the practices of a new educational level. For example, we went through the practices of matriculation examinations together. She was also very clear about how much she appreciated the opinions of a younger colleague. We both benefitted from our pedagogical conversations: experience and innovation were woven together." (F4) [discussing, sharing experiences, respectful climate]

5. *Self-regulation*

Learning regarding self-regulation was often related to time management. For example, on the problem of time pressure, one young teacher mentioned receiving advice from older colleagues on coping strategies for time-management and, for instance, how to prioritize tasks. Mentoring sessions were also seen as beneficial in becoming aware of one's own practices and getting advice on coping strategies.

"I've learned to understand, and even avoid, hurry. I even try not to use the word 'hurry' in class. I definitely learned that from my wonderful mentor teacher back when I was still studying at university. My current superior taught me to understand that ultimately I am the only person who can manage just how filled with hurry my life will be." (F5) [receiving advice, mentoring]

6. *Attitudes and dispositions*

The teachers' reported learning from older colleagues regarding attitudes and dispositions can be divided into two main themes: firstly, towards the teaching profession and, secondly, towards students and their families.

In terms of attitude towards teaching, teachers reported that they had learned from their older counterparts how to be comfortable as a teacher and relaxed while teaching. According to the

respondents, this attitude can be learned by collaborating in a respectful climate, as explained by this young teacher:

> *"Another teacher of the same subject is at the other end of the age scale, with retirement looming just a few years away. ... Our teaching styles are entirely different, but that hasn't prevented us from respecting our personal ways of doing things. Our cooperation is fruitful. She has taught me how to be relaxed while teaching." (F6)* [collaboration, respectful climate]

The second theme, attitude towards students and their families, refers to interactions between teachers and students or the ways in which students are approached by teachers. Again, the participants emphasized that a safe and respectful climate plays a facilitating role in developing positive attitudes towards students. The following quote emphasizes the importance of relationships of trust:

> *"I especially learned how my older colleagues encountered the children and their parents [...] I was impressed by their patient, individual, warm and safe manner of being with the children. I learned that I was worthy of trust and that I was constantly developing – I received feedback and support from my colleagues." (F3)* [feedback, trust]

7. Ways of being a teacher

Whereas the previously described categories focused primarily on learning related to teachers' actual work, this category refers to learning about the teacher's self and teacher identity. Younger teachers become aware of their own teacher style or teacher profile when observing their older colleagues in daily practices. Different teacher types of these older colleagues were perceived as positive or negative examples to younger teachers. Learning related to strengthening teacher identity seems to start with an observation process, which then turns into

reflection and evaluation of the behaviour or habits of the older colleague. One outcome reported was that teachers began to see the older teachers as a role model and start imitating this teacher style. On the other hand, teachers also reported learning from their perceived negative examples. In this case, they deliberately adopted a different approach and became more aware of what kind of teacher they want to be. All of these ways of learning stimulate consciousness of teacher identity and further development of one's own teacher style.

> *"One certain (older) colleague of mine has a very cold attitude towards her students. At times it seems like she almost enjoys giving students extra homework or detention. [...] Naturally, I am not saying that a teacher's job should be a likeability contest. However, I do believe that a teacher's job is much more enjoyable and productive when you get along with your students. Personally, I could not fathom being anything else in front of my students than what I am everywhere else too." (F6)* [learning from negative examples, observing, reflecting, informal]

8. *Community building and responsibility*

Our data showed that what younger teachers learn from their older colleagues relates not only to individual ways of working but also to the ways that school communities function. For example, one respondent highlighted the importance of building a positive atmosphere in the work community. Special emphasis was placed on how to integrate new teachers within this community, on the one hand by supporting and encouraging novices, and on the other hand, by sharing information with them. This learning situation refers again to the relevance of a supportive school climate:

> *"Her methods were really encouraging to a young teacher and made a big impression on me. Her grip on things was firm, yet she was very easily approachable. She (school principal) supported her teachers. Her great sense of humour also affected the*

atmosphere of our working community. On the other hand, the things I experienced at the beginning of my teaching career taught me to always share information with others." (F4) [sharing information, supportive climate]

Overall, the respondents described a broad variety of events in which learning took place. Firstly, learning from older colleagues occurred mainly through informal activities. As regards more formal activities, in addition to pedagogical seminars and subject team meetings the teachers mentioned learning events such as mentoring, organized either one-to-one or as a group. Furthermore, the learning context seems to play a mediating role. A safe, respectful climate in which friendship and trust relationships form seems to provide a foundation for both informal and formal IGL interactions.

Learning from Younger Colleagues

The following themes regarding learning from younger colleagues emerged from the data: ICT skills, innovative teaching methods, producing innovative course materials, attitudes and dispositions, and ways of being a teacher (Table 3).

Table 3. Summary of what and how teachers learn from younger colleagues.

WHAT	HOW: way of learning	Learning events/contexts
1. ICT skills	- Discussion	- Informal, reciprocal
2. Innovative teaching	- Collaboration	relationships
methods	- Sharing information,	- One-to-one mentoring
3. Producing innovative	knowledge and experiences	- Group mentoring
course materials	- Providing advice	- Workshops
- *general course materials*	- Asking for help	- Subject team meetings
- *assessment practices*	- Reflection	
4. Attitudes and dispositions	- Observation	
5. Ways of being a teacher	- Imitation	
	- Experimenting	

1. ICT skills

One of the first themes to emerge from the data regarding learning from younger colleagues relates to ICT knowledge and skills. This includes, for instance, the use of software for developing lesson materials, such as digital worksheets and presentations, digital learning environments and online tools, as well as the use of tablets for educational purposes. The theme is closely related to the next two themes: innovative teaching methods and producing innovative course materials.

The following example shows that mentoring is not only perceived as important for young teachers to learn from older ones, but also in reverse, so that mentoring provides experienced teachers with opportunities for learning from younger colleagues, especially in terms of digital skills:

"Time has passed by and now I have become the older colleague :) The innovations that she offers me are mainly concerned with electronic materials and IT skills in general. We also share any information we have on new pedagogical solutions that we have tried out ourselves. Peer-group mentoring is extremely important now that so many things are in flux, such as the new national core curricula, the digital leap, etc." (F4) [sharing information and experiences, mentoring]

Another way in which older teachers reported to have further developed their ICT skills was by attending workshops. The following teacher recognizes the importance of ICT workshops as an IGL event for the older generation of teachers:

"We already had a workshop to learn how to use a tablet and how to use the digital learning platform... for these kind of innovations it is important to organize such

workshops so that we (older teachers) can keep ourselves up to date" (B7) [sharing information, experimenting, workshop]

In addition to the previously mentioned rather formal ways of learning, mentoring and workshops, teachers reported also learning from their younger colleagues in an informal way, just by asking help and advice:

"When we had to digitalize our curriculum planning, two (older) teachers came to me and asked for some help. But that was to do with IT. I notice they actively look to me for answers to their multimedia questions." (B4) [asking help, informal]

2. Innovative teaching methods

The study participants also reported that younger teachers are an important resource with respect to innovative teaching methods and, especially, methods that stimulate student interaction and collaboration.

The following young teacher explains how the sharing of innovative materials with an older colleague resulted in a shift in the older teacher's teaching style towards more interactive teaching:

"At the beginning of the year I developed a very interactive lesson package, with quizzes, movies, group exercises, etc. I shared this with my older colleague... whose own teaching style was far from interactive... And I think this colleague realized that this can also be a comfortable way of teaching... So, I noticed that now and then she teaches in a more interactive way." (B1) [sharing information, experimenting]

While mentoring is often seen as a way of learning for young teachers, it can also result in learning from younger colleagues. This quote about classroom visitations within the context of mentoring provides a clear example of how mentoring can be seen as bidirectional learning among younger and older teachers:

"This is really something I had to learn... In my lessons, pupils always had to be completely silent... but through visiting lessons as a mentor, I could see that other ways were working too. It made me realize that a noisy lesson doesn't always mean a bad lesson where student learning can't happen [...] There are other things, too, that I noticed when attending mentees' lessons that inspired me to do things in a similar way."

(B8) [observing, imitation, mentoring]

3. Producing innovative course materials

Regarding the development of innovative course materials, teachers described learning from their younger colleagues in relation to how to produce assessment documents and tools, such as assignments, tests and exams, as well as general course materials produced to facilitate student learning. These younger teachers' course materials were described by their older counterparts as innovative, with the content being more up-to-date and catering to different student needs.

One teacher described how she had learned from a younger colleague while giving them advice. In providing advice to her younger colleague, a circle of reflection was initiated in the mind of the older teacher. By viewing the course materials of the younger colleague, the older teacher began to reflect on her own practices and eventually adjusted her own practices:

"Any advice she needed from me was mainly in connection with developing exams. When I saw her exams, I began thinking about the monotony of my own exams. The assignments I gave were mainly short written explanations or open questions. The exams my young colleague made had not only so-called productive assignments, but also exercises that involved combining different pieces of information. After that, I started to design my exams differently: now my exams are made up of different sections that are meant to be more versatile for the differentiated needs of different students. The

results have shown that fewer and fewer students get failed grades. At first it was surprisingly difficult to cope with the idea that you can also learn from your younger colleagues." (F6) [providing advice, observing, reflecting, comparing, adjusting own practices]

Moreover, collaboration within the subject team was reported to be a source for learning from younger teachers by offering opportunities to exchange materials.

"When you develop an exam in collaboration with a colleague you can often see how other colleagues have applied their course materials... which can be from a completely different approach, or especially young teachers who used innovative stuff or more up-to-date materials, while we are often relying on our old handbooks... so then it is interesting to have a look at that and to be able to develop new materials" (B9) [collaborating, sharing information, observing, adjusting own practices, subject team]

4. Attitudes and dispositions

Learning from younger colleagues can also be related to attitudes towards work, such as being goal-oriented and eager to learn new things, as exemplified by the following:

"She taught me that you can and should set anything you wish as your goal. Step by step this colleague has progressed and developed into a brilliant, sought-out teacher and educator. She has worked so hard and sacrificed so much for her goals. Diligence, patience and determination have brought her to the point where she is right now. And she is just starting out. Still young, enthusiastic and very goal-oriented. A fantastic career still ahead of her." (F8) [observing, informal]

The example shows that teachers' learning from their younger colleagues in terms of attitudes mainly happens in an informal way, in everyday teaching practice.

5. Ways of being a teacher

Not only young teachers but also experienced teachers described experiences of learning from their younger colleagues about their own teacher identity, that is, what kind of teacher they are or want to be.

> *The most important thing that I've learned from my (younger) colleagues is that everyone is allowed to be the kind of teacher they are, and that will suffice. Finding your own way of working as a teacher and strengthening it is a long journey. It requires self-assessment and cooperating with others. You can always learn new things, and you should; facts, skills as well as attitudes. All you need is an open mind. When you find or learn something, it's fun to share it with others. (F2)* [reflecting, collaborating, informal reciprocal relationships]

Discussion and Conclusions

In the present study we examined IGL among teachers in terms of what and how they learn from their older and younger colleagues. The study confirms that teacher development does not occur solely within formal professional development activities, but rather the majority of learning takes place within daily practice and discussions among colleagues (Grosemans, Boon, Verclairen, Dochy, & Kyndt, 2015). IGL can therefore be understood as both a formal and informal learning activity. Our examination of the interrelationship between younger and older colleagues brought the informal component of IGL into focus.

When examining what teachers of different ages learn from each other, we clearly recognize the categories of teacher knowledge by Shulman (1987) within our data. However, categories of self-regulative knowledge and ways of being a teacher were missing in Shulmans' categorization. Our findings support those described by Kyndt et al. (2016), who identified professional attitudes and identity as learning outcomes in addition to subject knowledge and

pedagogical knowledge and skills. We also found that pedagogical content knowledge, attitudes and dispositions, and ideas related to the development of teacher identity can be learned from both younger and older colleagues. Interestingly, within pedagogical content knowledge, an explicit focus on innovative teaching methods is found in teachers' descriptions of learning from younger colleagues. Another remarkable finding was that the development of professional attitudes and professional identity seems to be a lifelong process that is reciprocally influenced by both older and younger generations; both parties learn from each other about the fundamental question "Who am I as a teacher?". Accordingly, our findings confirm that identity construction is a strongly social process.

While learning from younger teachers often focuses on innovative teaching methods and ICT skills, learning from older colleagues appears to be important for gaining practical information, development of classroom management skills, self-regulation and community building. According to the model for teacher expertise development of Berliner (2001), teachers are labelled as expert in later stages of their career. Berliner's model may be critically viewed in the contemporary educational world. We conclude that also younger teachers can be perceived as experts with respect to specific kinds of knowledge, and concurrently, older teachers can be perceived as beginners in certain knowledge domains. Consequently, the designation of 'expert' should be applied knowledge domain specifically, rather than as a comprehensive description of competence. These differences in knowledge might be explained by, for instance, differences in educational training programmes that teachers of different generations have attended.

Regarding the ways in which teachers learn, we found similarities between learning from older and younger colleagues. Respondents indicated that learning occurred, for instance, by discussing and collaborating, sharing information, knowledge and experiences, providing and receiving advice and help, observing, reflecting, imitating, and adjusting

practices. Interestingly, there seems to be a bigger variety in learning events or contexts when young teachers learn from older teachers. Learning from younger colleagues occurs through informal interactions, and formal activities such as participation in mentoring, and attending subject team meetings and workshops. Learning from older colleagues extends this list with pedagogical seminars, making use of digital learning environments, and learning from negative or positive examples or experiences.

The learning activities we found in terms of learning from younger and learning from older may overlap. Therefore, we suggest that future research looks more deeply which multiple learning activities can be found together. In addition, the importance of a positive school climate with friendship, trust and respect was emphasized in the learning experiences of young teachers. This implies that school principals need to pay attention to the development of a teacher community that is characterized by psychological safety. Furthermore, it is important to create opportunities for intergenerational interactions. Further research might go deeper into these intergenerational relationships and interactions, for instance, by using a social network approach. This method might provide insight into the extent to which teachers form relationships with colleagues of their own generation or other generations (e.g. AUTHOR, 2017). Furthermore, learning interactions such as asking and providing advice could be examined relative to friendship and trust relationships, since both seem to offer a context for learning, especially in the case of learning from older colleagues.

A methodological limitation of the study may be the small sample size. However, in qualitative research it is possible to produce valid results with small datasets. For example, Täks (2015, pp. 48-49) reported that in her study the saturation point occurred during the 7th interview and was confirmed after the 11th interview. Also, self-reported data in the form of written accounts and interview answers might be seen as a limitation since participants might be more

likely to report their most memorable experiences and might tend to present a favourable image of themselves, also referred to as socially desirable responding (Van de Mortel, 2008). In addition, the voluntary participation might have led to biased dataset with participation of teachers who were already more open towards learning, especially in the case of the Finnish teachers who participated in Peer-Group Mentoring. Another limitation can relate to the basic concept of generation. In this study, we used a chronological definition of generation. However, an experienced teacher moving to a new school or department may feel like a 'novice', whereas a younger teacher may have considerably more experience within a specific context or knowledge domain. Further studies should therefore take into account the number of years of experience within the school.

To conclude, we believe that the intergenerational approach provides an important research perspective on teacher learning in general. Due to the differences in knowledge that teachers of different generations bring to the process of learning, learning outcomes, too, can vary. Proximity to learning resources seems to be important for informal learning (Lohman, 2000), and teachers of all ages can be seen as a learning resource. Consequently, our findings indicate the importance of stimulating relationships and interactions between different generations of teachers.

References:

Baily, C. (2009). Reverse intergenerational learning: A missed opportunity? *AI & SOCIETY, 23*(1), 111-115. doi: 10.1007/s00146-007-0169-3

Berliner, D. C. (2001). Learning about and learning from expert teachers. *International Journal of Educational Research, 35*, 463-482.

Bjursell, C. (2015). Organizing for intergenerational learning and knowledge sharing. *Journal of Intergenerational Relationships, 13*(4), 285-301. doi: 10.1080/15350770.2015.1108952

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101.

Chaudhuri, S., & Ghosh, R. (2012). Reverse mentoring. A social exchange tool for keeping Boomers engaged and Millennials committed. *Human resource development review, 11*(1), 55-76.

Darling-Hammond, L., Hammerness, K., Grossman, P., Rust, F., & Shulman, L. S. (2005). The design of teacher education programs. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco: Jossey-Bass.

Dreyfus, H., & Dreyfus, S. E. (1986). *Mind over machine. The power of human intuition and expertise in the era of the computer*. New York: Blackwell Publishers.

Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research, 55*(7), 553-560. doi: http://dx.doi.org/10.1016/S0148-2963(00)00195-8

Flores, M. A. (2005). How do teachers learn in the workplace. Findings from an empirical study carried out in Portugal. *Journal of In-service education, 22*, 485-508.

AUTHOR (2017).

AUTHOR (2016).

Grosemans, I., Boon, A., Verclairen, C., Dochy, F., & Kyndt, E. (2015). Informal learning of primary school teachers: Considering the role of teaching experience and school culture. *Teaching and Teacher Education, 47*, 151-161.

AUTHOR (2015).

AUTHORS (2012).

Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers. A critical review of the research. *Review of Educational Research, 81*(2), 201-233.

Kyndt, E., Gijbels, D., Grosemans, I., & Donche, V. (2016). Teachers' everyday professional development: Mapping informal learning activities, antecedents, and learning outcomes. *Review of Educational Research, xx*(xx), 1-40.

Loch, C., Sting, F., Bauer, N., & Mauermann, H. (2010). How BMW Is Defusing the Demographic Time Bomb. *Harvard Business Review, 88*(3), 99-102.

Lohman, M. C. (2000). Environmental inhibitors to informal learning in the workplace: a case study of public school teachers. *Adult Education Quarterly, 50*(2), 83-101.

Mannheim, K. (1952). *Essays on the sociology of knowledge*. London, UK: Routledge & Kegan Paul.

Marron, M. B. (2015). New Generations Require Changes Beyond the Digital. *Journalism & Mass Communication Educator, 70*(2), 123-124.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company. How Japanese companies create the dynamics of innovation* (T. H. J. Tromp, Trans.). New York: Oxford University Press.

Novotný, P., & Brücknerová, K. (2014). Intergenerational learning among teachers: an interaction perspective. *Studia paedagogica, 19*(4).

Patrick, F., Elliot, D., Hulme, M., & McPhee, A. (2010). The importance of collegiality and reciprocal learning in the professional development of beginning teachers. *Journal of Education for Teaching: International Research and Pedagogy, 36*, 277-289.

Richter, D., Kunter, M., Klusmann, U., Lüdtke, O., & Baumert, J. (2011). Professional development across the teaching career: Teachers' uptake of formal and informal learning opportunities. *Teaching and Teacher Education, 27*, 116-126.

Ropes, D. (2011). Intergenerational learning in organisations. A research framework. In CEDEFOP (Ed.), *Working and ageing. Guidance and counselling for mature learners*. Luxembourg: Publications Office of the European Union.

Ropes, D. (2013). Intergenerational learning in organizations. *European Journal of Training and Development, 37*(8), 713-727.

Schleicher, A. (2016). *Teaching Excellence through Professional Learning and Policy Reform*: OECD Publishing.

Schmidt_Hertha, B., Jelenc Krasovec, S., & Formosa, M. (2014). *Learning across generations in Europe. Contemporary issues in older adult education* (Vol. 2). Rotterdam: Sense Publishers.

Shulman, L. S. (1987). Knowledge and Teaching: Foundations of the New Reform. *Harvard Educational Review, 57*(1), 1-21.

Täks, M. (2015). *Engineering students' experiences of entrepreneurship education. A qualitative approach.* (Doctoral dissertation), University of Tartu, Estonia. Retrieved from http://dspace.ut.ee/handle/10062/45901

Tempest, S. (2003). Intergenerational learning. *Management learning, 34*(2), 181-200.

AUTHOR (2008)

AUTHORS (2011).

Van Daal, T., Donche, V., & De Maeyer, S. (2014). The impact of personality, goal orientation, and self-efficacy on participation of high school teachers in learning activities in the workplace. *Vocations and learning, 7*, 21-40.

Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *Australian Journal of Advanced Nursing, 25*(4), 40-48.