Informal learning of primary school teachers: Considering the role of teaching experience and school culture

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HIGHLIGHTS

- Primary teachers undertake a variety of informal learning activities.
- Experimentation and collaboration are considered to be the most important activities.
- Experienced teachers undertake as many learning activities than novice teachers.
- Learning activities of novice and more experienced teachers are different.
- Teachers need to feel it is safe to share problems and approach colleagues.

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ABSTRACT

Teacher learning does not solely occur within formal professional development activities; in fact, the majority of learning occurs through daily practice. The current study focuses on this everyday learning and examines primary teachers' informal learning. Results showed that teachers learn through a variety of learning activities including 'experimenting', 'reflection', 'learning from others without interaction' and 'collaboration'. In addition, differences between novice and more experienced teachers were identified. More experienced teachers learn as much as their novice colleagues, however they undertake different learning activities. Finally, results reveal that although collaboration is an important source of learning, primary teachers value their autonomy.

Within the current fast-changing society, knowledge and skills quickly become out-dated. Usually this is mostly associated with professions in the technology, ICT or medical sectors. However, teachers are also confronted with changes, high pressure, increasing demands, reforms and innovations in their job (e.g., Clement & Vandenberghe, 2000; Lohman, 2006; Van Eekelen, Bosbuizen, & Vermunt, 2005). Furthermore, pupils have a more diverse background than ever before while expectations concerning what the children are taught are rising. To be able to keep up with this situation, it is important teachers continue to develop themselves professionally (e.g., Armour & Yelling, 2007; Cameron, Mulholland, & Branson, 2013). According to Elman, Illfelder-Kaye, and Robiner (2005) professional development can be defined as

continuously acquiring, extending and refining complex competences or solely skills, knowledge or proficiencies. Professional development activities "can be promoted in workshops or education programs, but also through professional and personal experiences such as reading, mentoring and consultation" (Elman et al., 2005, p. 368).

Both within practice as in prior research, formally organised learning activities such as training and schooling appear to have received much more attention and appreciation from policy makers (e.g., Fraser, 2010; Jurasaite-Harbison, 2009). However, at the European level, informal learning in the workplace increasingly forms an integral part of the policies on lifelong learning (European Commission, 2001; OECD, 2003). Also, for teachers, the interest in informal learning has increased as the awareness is growing that what teachers learn in professional development initiatives (i.e., formal learning activities) is insufficiently transferred to the daily practice of teaching (e.g., Fraser, 2010; Poulson & Avramidis, 2003). Consequently, the importance of informal learning — i.e. teacher

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learning within the daily practice of teaching — for the development of employees has become more widely recognised (e.g., Cunningham & Hillier, 2013; Rytivaara & Kershner, 2012; Shapiro, 2003). Eraut (1998) argues that most of what people learn is acquired in an informal way, when dealing with the daily challenges of the workplace or when interacting with colleagues, customers or clients (Hoekstra, Korthagen, Brekelmans, Beijaard, & Imants, 2009).

Prior research has shown that time for learning in the workplace — for teachers this usually means non-teaching time and preferably joint non-teaching time — is an important antecedent of teachers' informal learning (e.g., Christensen, 2013; Jurasaite-Harbison & Rex, 2010; Winchester, Culver, & Camiré, 2013). Because primary teachers often have less (joint) non-teaching time in comparison with secondary teachers, their informal learning might be even more precarious. While it has been suggested that informal learning is the most commonly used form of workplace learning (e.g., Hicks, Bagg, Doyle, & Young, 2007; Skule & Reichborn, 2002), research on informal learning of primary teachers remains rather scarce (Hoekstra, Brekelmans, Beijaard, & Korthagen, 2009). The current study aims to contribute to the international research on informal teacher learning by examining which learning activities primary teachers undertake in their daily practice. In addition, prior research (Rolls & Plauborg, 2009) also described how teachers evolve throughout their career and how this is related to their learning. However, the role of informal learning throughout teachers' career development remains unclear. Therefore, the current study wants to contribute to this line of research and examines whether novice and more experienced teachers differ in the informal learning activities they undertake. Furthermore, Hargreaves (1994) claims that if one wants to understand what the teacher does, the teaching community and work culture of the teacher should be taken into account. Accordingly, this study considers the role of school culture for teachers' informal learning.

1. Theoretical framework

1.1. Informal learning

Throughout the literature, informal learning is often defined in contrast with formal learning (e.g., Eraut, 2004; Marsick & Volpe, 1999). Although it seems there is a very clear distinction between formal and informal learning, this is not the case. Colley, Hodkinson, and Malcolm (2003) point out that formal and informal learning should not be seen as separate categories, but should always be combined. The authors argue that both formality and informality are attributes of learning. Sawchuk (2008) agrees with this insight and states "informality and formality in learning express a relational continuum rather than dichotomous categories" (p. 1).

Formal learning, on the one hand, is often described as learning that takes place in a structured and organised environment. Its main characteristics are that learning is structured in terms of learning context, learning support, learning time, and learning objectives (Kyndt, Govaerts, Verbeek, & Dochy, 2014). Informal learning, on the other hand, has been defined in many different ways (e.g., Eraut, 2004; Hoekstra, Brekelmans et al., 2009; Marsick & Volpe, 1999). However, these definitions have several elements in common. Informal learning is generally not classroom-based, but mainly takes place in the workplace without systematic support (Hoekstra, Brekelmans et al., 2009). It emerges in an unstructured environment and throughout people's daily activities and routines (Marsick & Volpe, 1999). Informal learning occurs both individually as well as in collaboration with others (Eraut, 2004). The learning outcomes are not predetermined, as informal learning mostly

arises spontaneously and not highly consciously (Marsick & Volpe, 1999). Finally, this kind of learning is expected to result in the development of professional knowledge and skills (Lohman, 2006). While the continuum between formal and informal learning is an interesting and adequate starting point for conceptualising informal learning, it also tends to lead to a lack of clarity concerning the specific learning activities examined within empirical studies. Therefore, it is important to explicitly indicate which types of activities are under investigation. In this study, informal learning will be defined in line with prior research on informal teacher learning, as unstructured, spontaneous learning in the workplace without systematic support (Hoekstra, Brekelmans et al., 2009; Marsick & Volpe, 1999).

1.2. Teachers' informal learning activities

Following Hoekstra, Korthagen, et al. (2009), teachers' informal learning activities will be defined in this study as "the activities a teacher undertakes in the workplace that contribute to a change in the teacher's behaviour and/or cognition" (p. 278). Throughout the literature, several types of activities are distinguished (Hoekstra, Brekelmans et al., 2009; Kwakman, 2003; Scribner, 1999).

A first category of activities pertains to '*reflection*'. This is the action where teachers consider their own teaching practice (Kwakman, 2003). Through reflection, the teacher becomes aware of what happened in a situation and can make sense of it. According to the theory of Schön, there are two types of reflection: reflection on action and reflection in action (Van den Bossche & Beausaert, 2011). Reflection on action means that someone reviews what he or she has done in order to discover how one's know-how in action may have contributed to an unexpected outcome. Reflection in action happens when the action itself is still in progress, without interrupting it, making it possible to adjust what someone is doing, while they are doing it (Van den Bossche & Beausaert, 2011).

A second category of learning activities entails reading, information seeking and keeping up-to-date. Kwakman (2003) states that one of the responsibilities of teachers is to stay informed about "new insights and developments influencing the professional field" (p. 153). Meirink, Meijer, and Verloop (2007) give a broader interpretation of this category by defining it as '*learning from others without interaction*'. They explain that teachers do not only learn from texts written by others, but also from listening to presentations. Furthermore, they also argue that observing colleagues' teaching methods is part of this category. Teachers can see what their colleagues do and learn from it, even without engaging in interaction with each other (Meirink et al., 2007).

A third category refers to learning by *experimenting*. This means that teachers intentionally try something new, in order to improve their own practices in the classroom (Kwakman, 2003). Furthermore, teachers can also learn by doing. They do something (e.g., preparing a class, explaining a subject to their pupils) and try to improve it by trial and error (Van Eekelen et al., 2005). Although Kwakman (2003) does not make an explicit difference between experimenting and learning by doing, these categories are often seen as separate learning activities (e.g., Hoekstra, Brekelmans et al., 2009; Meirink et al., 2007; Van Eekelen et al., 2005). The main reason for this distinction is that '*learning by doing*' is less conscious than '*experimenting*' (Meirink et al., 2007).

Another learning activity of teachers is to collaborate with their colleagues (Kwakman, 2003). Meirink et al. (2007) give this category a broader definition, namely '*learning from others in interaction*'. This includes conversation and discussion with each other as well as joint activities. This means that teachers work together, share ideas, and request or give advice (Hodkinson & Hodkinson, 2005). Collaboration can also inspire teachers and subsequently

lead towards new experiments (Meirink, Meijer, Verloop, & Bergen, 2009). Furthermore, Hoekstra, Korthagen, et al. (2009) state that collaboration and teacher learning have a complex relationship. Whether or not collaboration will lead towards learning depends on how collaboration is interpreted and shaped. If collaboration is merely seen as a means to reduce the workload or to receive support for one's situation, this will generally not result in teacher learning.

1.3. Teaching experience

Teacher learning is not unique to a certain phase within a teacher's career; prior research has identified differences between novice and more experienced teachers regarding informal learning (e.g., Flores, 2005; Rolls & Plauborg, 2009; Richter, Kunter, Klusmann, Lüdtke, & Baumert, 2011). According to the literature, engaging in learning activities depends on the teaching experience of teachers. Teachers at the beginning of their career are very eager to learn, because they are faced with a lot of new challenges for which they do not feel prepared (Flores, 2005; Rolls & Plauborg, 2009). Flores (2005) found that starting teachers reported more learning through trial-and-error (experimenting) than more experienced teachers. Anderson and Olsen (2006) stated that collaboration, especially with more experienced colleagues, was very important for novice teachers. Richter et al. (2011) confirmed this finding and explained this by stating that beginning teachers "draw more on the professional expertise of more experienced teachers" (p. 124).

Although research on teacher learning has devoted a lot of attention to the learning processes of beginning teachers (e.g., Collinson & Cook, 2004; Henze, Van Driel, & Verloop, 2009; Lohman & Woolf, 2001), several studies focused on the learning activities of more experienced teachers (e.g., Bakkenes, Vermunt, & Wubbels, 2010; Hoekstra, Beijaard, Brekelmans, & Korthagen, 2007; Hoekstra, Brekelmans et al., 2009). These studies have shown that experienced teachers also undertake a variety of learning activities as described in the sections above. Flores (2005) and Richter et al. (2011) however, found that experienced teachers read professional literature more often than their younger colleagues but experiment less (Flores, 2005; Van Daal, Donche, & De Maeyer, 2013). Nonetheless, there is some disagreement on this matter. According to Van Daal et al. (2013), experienced teachers show more avoidance behaviour towards learning in the workplace. Whereas Richter et al. (2011) concluded that more experienced teachers invest as much time in informal learning as their younger colleagues, both groups prefer different learning activities. Finally, the research of Cameron et al. (2013) showed that more experienced teachers were more selective in choosing which learning activities they engage in.

1.4. School culture

Prior research on informal learning made it clear that many elements play a role in the uptake of learning activities (e.g., Flores, 2004; Patrick, Elliot, Hulme, & McPhee, 2010). Not only personal factors, such as initiative and commitment to professional development, determine whether teachers will undertake learning activities (Lohman, 2006). Factors from the work environment also play a significant role in the professional development of teachers. An organisation that supports and stimulates learning, as well as supporting and available colleagues are very important elements within the work environment (Kwakman, 2003; Lohman, 2006). These elements can be seen as important attributes of the school's culture (Kwakman, 2003).

School culture can be defined as "the beliefs, values, habits and assumed ways of doing things among communities of teachers who have had to deal with similar demands and constraints over many years (Hargreaves, 1992, p. 217). Hargreaves (1994) distinguishes four types of school culture characterised by more or less collaboration.

The first culture is characterised by individualism. This means that teachers are isolated in their classrooms, they do not get a lot of feedback, and helping one another does not happen very often. However, individualism is not always necessarily negative, but is sometimes a logical result of certain determinants. The second type of school culture is characterised by contrived collegiality, meaning that the working relationships are administratively regulated, compulsory, implementation oriented, fixed in time and space and predictable. The third type of culture is what Hargreaves (1994) calls 'balkanization'. This occurs when teachers work together in smaller sub-groups. These groups have a low permeability, a high permanence and there is personal identification with the group. This phenomenon can have negative consequences for teacher learning. Teachers will only collaborate with the colleagues of the same group and individual interests will be less visible. Furthermore, there is a higher risk of aborting attempts of change in order to keep the shared understanding and support intact. The fourth and final school culture is a collaborative culture. Within this culture the collaborative working relations are spontaneous, voluntary, development-oriented, pervasive across time and space and unpredictable (Hargreaves, 1994).

However, Flores (2004) states that school culture is "diverse rather than monolithic" (p. 301). Different school cultures can co-exist in a school and consequently different opportunities for teacher learning and development are available. Williams, Prestage, and Bedward (2001) conclude that cultures can be placed on a continuum going from highly individualistic to spontaneous collaborative. It can therefore be concluded that cultures should not be seen as categorical as the description of Hargreaves (1994) implies.

Throughout the literature it is often stated that for informal learning, a school culture built on trust and collaboration is important (Flores, 2004; Jurasaite-Harbison & Rex, 2010; Krecic & Grmek, 2008; Marsick & Volpe, 1999; Williams et al., 2001). The main reason for this is that colleagues can challenge and help each other, give ideas by sharing their experiences and work on something together (Clement & Vandenberghe, 2000). It thus seems that the literature that is mainly theoretical in nature is generally positive about collaboration in schools; in practice and in empirical research, the stakes are very different. Johnson (2003), for example, states that a collaborative culture does indeed provide a lot of opportunities for teacher learning, but that collaboration is not unilaterally 'good'. He found that when collaborating, some teachers also experienced work intensification, loss of autonomy, interpersonal conflict and there could even arise competition between teachers.

2. Present study

As mentioned earlier, the main focus of this study is on the informal learning of Flemish primary school teachers. Prior research already described several informal learning activities that teachers undertake. This study investigates whether this theory corresponds to what can be found in Flemish primary schools, leading to the first research question: *Which informal learning activities do primary school teachers undertake?*

In addition, the relationship between teachers' informal learning and their teaching experience remains uncertain. Some authors state that more experienced teachers learn less than

beginning teachers (Van Daal et al., 2013) while others find that they do learn as much, but engage in different learning activities (Richter et al., 2011). However, the number of studies explicitly comparing beginning and experienced teachers is limited. A second objective of this study is thus to contribute to a better understanding of the relationship between teaching experience and the informal learning of primary school teachers. Consequently, the second research question is: *Is there a difference between primary school teachers with and without experience regarding their informal learning activities?*

Finally, a collaborative culture seems to stimulate informal learning. However, Johnson (2003) points out that this culture could have a downside as well. Starting from the conceptualisation of Hargreaves (1994), this study examines whether a collaborative culture contributes to the informal learning of teachers. Therefore, the final research question is: *What is the role of school culture in the informal learning of primary school teachers?*

3. Method

3.1. Design

To answer the proposed research questions, the current study adopts a mixed method approach. The main focus lies on the rich and detailed data collected by means of a qualitative approach. Simultaneously, quantitative data were gathered (Johnson, Onwuegbuzie, & Tuner, 2007). This quantitative addition allowed a more complete view of the participating schools because a larger sample of teachers was addressed, contributing to the validity of the data (Greene, Caracelli, & Graham, 1989; Sale, Lohfeld, & Brazil, 2002).

The qualitative data were mainly collected through semi-structured interviews. This semi-structured format was chosen because it allows a broad focus on all the learning activities and elements of school culture. It has the flexibility to ask more detailed questions in order to explore the stories of the interviewees further (Qu & Dumay, 2011). Furthermore, a questionnaire about the school's culture and informal learning of the teachers was administered.

3.2. Sample

The recruitment of participants was started by randomly e-mailing primary schools in Flanders with the question whether they wanted to participate in this study. In Flanders, primary education consists of six grades (pupils are usually between 6 and 12 years old). In the majority of the schools, each primary teacher teaches one grade, where they teach every subject (except for religion and physical education) to that class of pupils. When schools did not reply, a reminder was sent after approximately one week. In total, almost 200 schools were contacted. After a follow-up by telephone, ten schools were found willing to participate. The aim was to collect data from a representative sample of schools across Flanders. The ten participating schools were spread over all the provinces of Flanders. Furthermore, the schools are equally distributed over two educational networks: half of them are from the state school system, the other half from the subsidised school system. In each school, two primary school teachers were interviewed: one with less, and one with more than five years of teaching experience within primary school education. In total, 20 teachers were interviewed. Two teachers with less than five years of experience, who volunteered to participate in the research, were excluded from the analysis because they were not teaching within primary education but in kindergarten. The final sample of eighteen teachers included eight teachers with five or less years of

teaching experience and ten with more than five years experience. Thirteen teachers are fulltime allocated to one class, two teachers worked part-time in one class, while the other three teachers taught two classes.

Simultaneously, the ten schools were asked to distribute a questionnaire amongst all their teachers. After excluding the kindergarten teachers from the sample, 44 questionnaires from eight schools were returned. The remaining two participating schools only allowed the interviews and did not distribute the questionnaire. The sample consists of 40 women and four men. Teachers from all grades were represented in the sample. Furthermore, seven teachers have five or less years of teaching experience and 37 teachers more than five years. The years of experience ranged from one year to 35 years of experience. For both the interviews and the questionnaires, primary teachers participated voluntarily. Furthermore, it was stressed that the data would be analysed and reported anonymously.

3.3. Instruments

For the semi-structured interviews, we developed a protocol based on the theoretical framework. This protocol comprised three main parts. The first part consisted of general questions (e.g., teaching experience, in what grade does the interviewee teach, etc.) in order to get more information about the teacher's professional situation. The second part focused on the school's culture (e.g., if there was a lot of collaboration, if the interviewee spent a lot of time alone, etc.). The final part explored the informal learning activities of the teacher. The interviews took approximately 45 min per interviewee and took place at the start of the second semester.

The questionnaire consisted of scales derived from prior research and contained 71 questions. The questionnaire was divided into three parts. Similarly to the interview, the first part collected relevant background information of the participants, such as age, teaching experience, etc. The second part focused on school culture and contained questions from the School Quality Management Culture Survey (Detert, Schroeder, & Cudeck, 2003). The scales measuring 'collaboration' (e.g., "There is ongoing collaborative work across subject areas in this school") and 'teacher involvement' (e.g., "I am responsible for improving things within the school, even when they do not directly involve my own classroom") were included. The third part of the questionnaire focused on the informal learning of the teachers and was based on the research of Kyndt, Dochy, and Nijs (2009). Because, according to the literature, collaboration is a very important learning activity, additional questions concerning this topic were included. These questions were retrieved from a scale of the 'Inventory Learning to Teach Process' (ILTP) (Oosterheert, Vermunt, & Denessen, 2002). Examples of these questions are: "I actively participate in discussions between experienced teachers about education" and "I approach teachers in my school to ask them their ideas about particular educational innovations". Finally, we also added questions from the ILTP about trying out something new when learning to teach (experimenting). An example of this is: "Learning to teach means that I try out suggestions or tips and test if they work". All the questions had five possible responses '1 = completely disagree', '2 = disagree', '3 = neutral', '4 = agree', '5 = completely agree'.

3.4. Data analysis

All interviews were recorded with the permission of the interviewees and transcribed verbatim by the interviewer. NVivo10 software was used for coding and analysing the interviews. A coding scheme was developed, based on the theoretical framework (deductive approach) as well as the data itself (inductive approach).

This process of both deductive and inductive analysis was performed in order to protect the content validity of the coding scheme but at the same time fully capture the experiences of the teachers (Strijbos, Martens, Prins, & Jochems, 2006). Four interviews were coded using the initial coding scheme based on theory (deductive approach), and were then refined after a first analysis (inductive approach). The remaining fourteen interviews were coded by means of this final coding scheme. The quotes used in this report were translated from Flemish to English by the author.

The questionnaires were analysed with the SPSS software (version 21). First, the reliability of the scales was tested. Next, the descriptive statistics and correlations between the scales were calculated. Finally, differences between experienced and new teachers were analysed by means of a Mann-Withney U Test due to the limited sample size ($n = 44$).

4. Results

4.1. Informal learning activities

It became clear from the literature that teachers can undertake many different learning activities and that they can do this either on their own or in collaboration with their colleagues. In order to establish whether this theory corresponds to what can be found in Flemish schools, the first research question was: *Which informal learning activities do primary school teachers undertake?* In this section, we will formulate an answer to this question. The classification of learning activities is based on the categories of teachers' learning activities that were presented in the theoretical background of this study.

4.1.1. Experimenting

While they are reading or seeking information, teachers often get new ideas they want to try within their own classroom. This finding is confirmed by the answers to the questionnaire. The experimenting scale ($\alpha = .81$) had a mean score of 3.69 ($SD = 0.61$). Most of the interviewed teachers experiment because they want to challenge themselves or want to make their lessons more interesting. Ten respondents said that they can always learn something from a new experience: *"I'm not afraid to try something new. If it fails, it fails. Next time, you know you shouldn't do it like that and try to do it differently."* Most experimenting involves trying out a new teaching method or a different kind of class organisation (e.g., group work). Others just want to make their lessons a bit more fun, by introducing little games: "You have to be a bit creative. […] I see a child's ball and then I think that we could practise the multiplication tables […] by throwing it to each other."

Two teachers said they experimented, especially with music education. Also the subject 'world orientation' was mentioned explicitly when teachers spoke about experimenting. It was however noticeable that for example mathematics or language skills were much less frequently mentioned explicitly. One teacher explained why she mostly experimented while teaching music:

Anyhow, I think that you can loosen up during music education. At that moment it is very instructive to try out a lot of new things. But I also think that there's already a lot predetermined during math lessons and language skills. With music education you have a lot more freedom to do your own thing.

The reason why teachers experience more freedom to experiment with some particular courses is not really clear. One explanation could be a practical one:

I heard from a colleague that she experimented with mathematics and language skills. She started with giving all her instructions and the children could then plan for themselves which assignment they did first. But she said that after a while she didn't have an overview anymore of which child was working on what material. She didn't know anymore who understood it and who didn't.

From this quote it can be concluded that teachers find it important that they know exactly where their pupils stand in their progress concerning the main subjects. This can be attributed to the fact that lessons of mathematics or language skills build further on each other whereas for example music lessons are more or less independent. Furthermore, these main courses also have a more prominent place in the final attainment levels or curricula than for example music education, which makes them all the more important.

4.1.2. Reflecting

All interviewed teachers indicated they reflect about their teaching. The quantitative data also confirmed this result ($\alpha = .87$, $M = 4.16$, $SD = 0.42$). They felt it was important to think critically about their teaching, so they could learn from their mistakes and improve their lessons. However, there was a lot of difference in the explicitness and extensiveness of their reflection. Some think about their lessons, but do not find it is necessary to always write something down: *"It's sufficient for me to process it mentally. Then I already know what should be improved."* Others take their time to make some notes about how they felt their lessons went:

We have a notebook especially for reflection — or at least I have. And after every lesson when I think I did well, I write it down so I can use that again next year. When something didn't go that well, I also write it down so I can do it differently next year. I really try to consciously think about it.

Some teachers do not always reflect alone, but together with one or more colleagues. They tell each other how their lessons went and how they think they can improve them. One teacher said he reflected every day together with his pupils:

At the end of the day I [reflect] together with the children. At the beginning of the lesson I go over the goals I want to achieve. […] And if you ask the children at the end of the day what they have learned and they can name those goals, then I think my lessons went fairly well. […] Or I just ask them if they found it too difficult or too easy or if it was fun.

Reflection can happen at different moments during the day. Some teachers reflect at the end of the day at school or when they are going home. Others reflect on the past week when they are preparing their lessons during the weekend. A few teachers even reflect at the end of every individual lesson or while they are teaching. This means teachers can reflect on action as well as in action.

4.1.3. Learning from others without interaction

Most teachers stated they read or seek information about recent developments in education, which is confirmed in the questionnaire. Teachers indicated a mean of 3.96 ($SD = 0.55$) on the information seeking-scale ($\alpha = .78$). The interviewees indicated they do this in order to find a better, more interesting or more fun way to teach.

Almost everyone mentioned that they read some sort of article or magazine about teaching. Furthermore, teachers stated that they

also receive a lot of e-mails from publishers with information on new teaching methods. These are, however, first thoroughly screened and only read when it is specifically relevant for their personal teaching: *"I have to select the interesting information. If it's about kindergarten, then I won't read it."*

Some teachers go further than reading the occasional e-mail or magazine. They voluntarily visit events of publishers: *"I go, for example, to open house or information evenings. There you can get a better look at some new teaching methods."* Teachers from five schools said their school also informs their teachers by inviting guest speakers to talk about certain topics or teaching methods. Although this activity may start without interaction when teachers mainly listen to what the guest speaker has to say, it is possible that this can lead towards interaction with the speaker as well as with colleagues.

4.1.4. Learning from others in interaction

In the questionnaire, teachers indicated there is a lot of general collaboration. This subscale ($\alpha = .75$) had a mean of 4.03 ($SD = 0.43$). From the interviews it became clear that 'interaction' entails different activities. A first interaction format our respondents mentioned is frequently occurring discussion between colleagues. One of the main discussion topics is the content of their lessons. Such a discussion can, on the one hand, be with the whole team during a formal staff meeting, where the general direction and policy of the school is discussed. On the other hand, teachers also talk informally about the learning content of their courses to make sure everything is explained consistently across the different classes: *"We make sure we always explain it the same way. We discuss: 'I teach it in that way, will you do it the same way? Or how will you explain that in your class?'"* Mostly, they discuss this with the teacher who teaches in the same year as they do (a 'parallel teacher'). In some schools, however, there is only one class for each year, so the teacher does not have a parallel teacher. In this case, they discuss the content of their lessons with their colleague teaching one year above or below their own class. Some teachers also find it important that they know what learning content is given in the year beneath and the one above them:

> *Especially the prior and following year. [...] Because we have to follow up what the children learned during the previous year, and also to make sure everything they will learn the following year fits with what I teach this year. So we frequently discuss with those colleagues. Sometimes I even enter a class of the prior year and observe to see what they learn there.*

Some organisational or practical issues are also discussed between colleagues. This can, for example, be about organising a school trip together with a colleague. Furthermore, every school in this study also has several 'working groups', each with a specific task (e.g., organising a Christmas party, organising a school celebration with all the parents, etc.). Within most schools, every teacher is obliged to participate in at least one of these groups. It is either made compulsory by the principal, or the teachers feel it would not be socially accepted not to participate. However, they are free to choose in which group they participate.

Teachers do not only exchange experiences about teaching methods through discussion, but also by sharing teaching materials they made themselves. For example, worksheets for children that need additional support: *"Recently, I made a work sheet for my pupils. When I was copying it, the teacher from the fourth year saw it and said: 'I could also use that'. So then I just passed it along."* But there was also a practical reason for sharing materials: *"I make a deal with my colleague: 'Will you make materials for that lesson? Then I can borrow that from you and I shall prepare another lesson, which you*

can borrow from me'."* This mutually beneficial exchange especially occurs between parallel teachers, because they have to teach the same content and thus can divide the work between them. Furthermore, teachers also shared a lot of school materials such as measurement instruments and games. The results of the questionnaire also confirm that teachers often share materials ($\alpha = .85$, $M = 4.36$, $SD = 0.47$).

A third way of interaction that teachers engage in, is asking their colleagues for tips, help or advice. These findings are supported by the results of our questionnaire. Collaboration and giving or receiving feedback (e.g., asking for tips or advice from colleagues) showed a significant positive correlation ($r = 0.66$; $p < .01$). From the interviews, we learned that teachers ask for help, advice or feedback in two main situations: disruptive children and content specific teaching problems. First of all, this specific activity occurs when teachers do not know how to handle the behaviour of one particular pupil in their class. In such a case they often approach a colleague who already has some experience with that child: *"I teach the sixth year, so I sometimes ask the teacher of the fifth year: 'Did you have the same problems with that pupil in your class? How did you handle him?'"* Especially at the beginning of a school year, teachers approach their colleagues to ask them about their previous experiences with their pupils and if they have any tips. Secondly, teachers ask their colleagues how they would approach a particular subject or lesson. *"We talk about a lot of different subjects. About: how would you do this? Or I have this particular problem, how would you handle that?"* Another teacher explained how his colleagues interacted:

> *Actually, we act as a sounding board for each other. One colleague says something; another will give a response to it. Every one of us takes on these tips and applies them to their lessons.*

These informal conversations and tips can in their turn lead towards new experiments: *"If I hear the tips of my fellow colleagues, then I think: yes, I can try that."*

Many teachers also give and receive feedback, which was also confirmed in the questionnaire. The answers indicated a mean of 3.90 ($SD = 0.33$) for the subscale of feedback ($\alpha = .77$). Through the interviews it became clear that this feedback mainly consists of positive and affirming comments on each other's work: *"When you have a look at someone's classroom where everything went great, then you'll give very positive feedback, because that's very motivating."* When being asked if they ever gave or received negative feedback, the teachers often replied that they felt it would be "a bit bossy" or impolite. However, every teacher indicated they gave and received a lot of tips for improvement. Those who gave feedback thus tried to do so in a constructive way: *"When I hear from a colleague that a lesson didn't go well, I'll say: did you try this or that? We'll talk and think about it together."*

While analysing the interviews, a fourth important learning source was detected. Several teachers stated that they learned a lot from the children themselves: *"They tell you something you didn't know before or talk about something from the media I didn't know yet."* Furthermore, the children could also cause the teacher to read or look up some information: *"Sometimes the children ask a question of which you say: 'That's very interesting, but the teacher has to look it up'. Then you're learning something."*

4.2. Teaching experience

The second research question concerned the teaching experience of the teachers: *Is there a difference between primary school teachers with and without experience regarding their informal learning activities?* Throughout the interviews, several differences

between teachers with less than five years of experience and those with more experience became apparent, which we discuss in this section.

4.2.1. Experimenting

Two of the eight new teachers said they did not feel ready to experiment yet: "This is my first experience as a teacher. Now I'm glad when I have something to hold on to, and to teach something in the same way I have already done." However, not all new teachers felt the same. Another young teacher tries to experiment a lot, but feels forced to do so:

I just graduated and I have to prove myself. I know my school leader likes us to experiment. She approves it and therefore I experiment more. […] I will do anything in order to please my school leader, so I can get a permanent position in the school.

A starting teacher from another school stated that the more experienced teachers are less open to new ideas:

You feel a difference between teachers about educational reforms. […] I won't give many new ideas, because I feel they will be ignored. There are some older teachers who still want to reform, but there are also several teachers who just want to give the same every year. I think you always should try to improve things, no matter if you're young or very experienced. But it's not always easy to find your place as a new teacher amongst the whole group.

Whereas less experienced teachers seem to disagree, all the experienced teachers stated that they still feel it is important to try something new:

I always say that from the moment I dislike going to school, I will quit. You have to stay motivated for your children, otherwise you won't teach well anymore. […] And to regularly try out something new is part of that, I think.

4.2.2. Reflecting

Every teacher in this study indicated that they reflect about their own teaching, and most of the senior teachers reflect just as much as their younger colleagues. A few of the seniors do not reflect after every lesson anymore, because they "*already have a lot of experience*". This does not mean, however, that they do not reflect at all. Some of them simply lack the need to do it as frequently or as explicitly as the starting teachers.

4.2.3. Learning from others without interaction

Four out of the eight beginning teachers tended to read and seek less for information than their more experienced colleagues. One teacher attributed this to the fact that he had just recently graduated and felt he just learned the latest developments. Another reason these less experienced teachers mentioned was that they were too busy with working out how to teach their own lessons. These four beginning teachers did however for example read professional magazines or searched the Internet for new things to use in their lessons. So stating that they do not look for information at all would be false. Only more experienced teachers said they visited events of publishers to see for themselves what different kinds of teaching methods exist.

4.2.4. Learning from others in interaction

The analysis of the interview data did not reveal any difference between beginning or experienced teachers concerning discussion. Both groups equally discuss learning content and/or practical issues. All teachers also shared materials, regardless of teaching experience. There was, however, a difference regarding asking questions. Experienced teachers seem to ask for help or tips less frequently than their younger colleagues. They are, instead, more often the contact person when a starting teacher has a question:

Actually, people more frequently come to me than me going to them. I'm one of the senior teachers here in the school. […] Mostly, they ask about the way to teach a certain subject or how to handle the behaviour of certain children.

This does not mean that very experienced teachers never ask advice from their younger colleagues. Those questions, however, are not often about the teaching itself, but more about the technology in the school: "*I often go to my younger colleagues when I have a question about the computer or something in that area.*"

Furthermore, starting teachers tend to give less feedback to their colleagues because they are not sure enough of themselves yet or feel not experienced enough:

Mostly I don't give feedback because I don't dare to pursue the matter in greater depth. […] When I arrive at home, I'll say: 'I will say this and that', but actually I don't really dare to do so. The others are way more experienced and they are able to respond immediately. […] Then I just think it doesn't really matter.

4.2.5. Quantitative data

Although the teachers indicated several differences between experienced and new teachers in the interviews, these differences were not confirmed by the results of the quantitative analyses. In general, no significant differences between experienced and beginning teachers were found in our quantitative data, with the exception of the scale measuring 'support and guidance' ($z = -2.62$; $p < .01$). The mean rank of this subscale for the experienced teachers equals 20.32, whereas for inexperienced teachers it is 34.00, meaning that beginning teachers felt they received more support and guidance than more experienced teachers.

4.3. School culture

The final research question of this study focused on the school culture: *What is the role of school culture in the informal learning of primary school teachers?* The results concerning this question are discussed in the following section.

4.3.1. Individualism

Teachers indicated that they did not mind being alone for one or several hours during the week. These occasions mainly occur when their pupils have physical education or religion lessons. During their time alone, most teachers complete their other work, like filling in their agenda, copying worksheets, cleaning their classroom or correcting homework. No activities that could lead towards learning, except for looking something up on the Internet, seem to emerge when teachers are alone in their classroom during a free hour.

4.3.2. Collaborative culture

Because the subscale measuring a collaborative school culture was unreliable ($\alpha = .39$), no statements about whether or not the schools had a collaborative culture can be made based on the quantitative data. However, from the interviews it became clear that there is a lot of collaboration going on in every school included in this study. Mostly, teachers ask or give each other tips, as stated earlier in this paper. Therefore, it can be concluded that there was a

collaborative culture present in most of these schools in the perception of the teachers. Every interviewed teacher also said they informally and spontaneously collaborate with colleagues. Such collaboration mainly emerges when teachers have a free hour. In some schools, the school leader made sure some of those free hours of parallel teachers coincided with each other, to ensure that they had the opportunity to collaborate during that time. They were not forced to collaborate, but most of them did usually spend some time with their colleague during these times.

Furthermore, this spontaneous, collaborative culture also became clear when the teachers were asked what they would do if they had a problem. Almost every teacher replied with roughly the same answer: *"At first I always try to solve it by myself, but if that doesn't work I ask my colleagues"*. This statement indicates that they appreciate the autonomy to try something by themselves, but when this does not work it is natural for them to approach their colleagues. Additionally, most teachers approach their parallel teacher or colleague teaching one year higher or lower than their own class more often than another colleague. The reasoning behind this choice is that parallel teachers *"are more in touch with children of the same age or with the same lesson content."* Some teachers had specific contact persons, depending on the problem:

> I think I can go to every colleague. But I think that for this kind of problem I'd go to this teacher and for that kind of problem I go to that teacher. So I don't always go to the same person.

In general though, every interviewee felt they could always approach their colleagues. This does not mean that this is the case for every teacher in every Flemish school. One teacher talked about her experiences in her previous workplace:

> I didn't dare to [talk about my experiences]. When I said in a previous school: 'that didn't work out well', I didn't receive any help and they would criticize what I had done. But in this school I do dare to share it.

This statement indicates that in order to have a collaborative culture, there should be support from each other and a safe environment to share experiences: *"If you ask them a question, they will help you. You are not on your own. They always try to answer your questions in the best possible way"*. In contradiction, the quantitative results did not show a significant correlation between experiencing support from colleagues and collaboration ($r = 0.28$, $p = .07$). There was, however, a significant positive correlation between experiencing support and feedback ($r = 0.40$; $p < .05$).

If they experienced support from their colleagues, teachers said they would not only ask for help, but they also try to experiment more: *"We felt very supported if we wanted to [experiment]. Recently, […] we tried several things which we probably wouldn't have done without the support of colleagues and a broader framework."* Because teachers collaborated and spoke about their experiences, they *"stay innovative and search for new information."* However, in one case this collaboration lead to competitiveness:

> Sometimes it gets a little competitive. It shouldn't, but no one wants to come off worst. That's probably normal in a team. You work together as a team and then you think: 'he or she has tried this, perhaps I should also try something new'. So yes, that could give a little pressure.

4.3.3. Role of the school leader

Although the interview did not specifically focus on the role of the school leader, many teachers indicated the importance of the school leader for the informal learning of teachers and the way they look at or feel about learning activities. A lot of teachers felt supported by their school leader to experiment with something new. The school leader can give teachers the time to try out a new method and ask them afterwards what their impressions were. A lot of the support for experimenting teachers' experience was not always very explicit, but they felt they had the freedom to try out something new. Furthermore, the school leader can also stimulate teachers to reflect about their own teaching. Although every teacher felt it was natural to reflect, some were forced by their school leader to do it very explicitly. They had to write some sort of reflection on every lesson, which was then inspected by the school leader. Most teachers, however, preferred to do it in their own way and when they themselves felt it was necessary. However, one teacher, who was forced to reflect on everything in the past, saw a possible advantage in an obligated reflection:

> Sometimes it was a bit too much. But on the other hand that was good because you really had to consciously think about every lesson. Whereas now, you only think for a short time about the good and bad parts of your lesson. In the past you thought about it a lot more then now.

A school leader also plays an important role in the reading and information seeking of teachers, by making a pre-selection of the information for them, so they are not overwhelmed by the sheer amount of it. Afterwards teachers are stimulated or forced to read this selected information. The school leader can also be the reason why teachers do not try to search for information on new teaching methods. One teacher stated: *"With our previous school leader, we had very little to say about the teaching methods. The school leader determined everything by himself"*. This teacher did not feel like her input was valued in the decision of choosing a new teaching method and therefore saw no reason to search for information about it by herself. Finally, next to information seeking, the school leader is also often responsible for inviting guest speakers.

5. Conclusions and discussion

The present study contributes to the current knowledge on primary teachers' informal learning by examining the learning activities these teachers undertake, investigating if differences exist between beginning and more experienced teachers and looking at the role of school culture for informal learning. Although, the current study was executed in Flanders, it is relevant for an international audience as it concerns learning activities that teachers undertake within their daily practice and thus is not dependent on national policies, training programs or reforms. The current study supports the idea that formal and informal learning should be seen as complementary to formally organised training programs (Kyndt & Baert, 2013, Tynjälä, 2008). However, in the past much more attention has been devoted to formal learning initiatives, ignoring the relevance of informal learning (Fraser, 2010; Rytivaara & Kershner, 2012; Shapiro, 2003).

First, the current study was able to show that although they have a limited amount of non-teaching time at school — as illustrated by several studies from different countries (e.g. Christensen, 2013; Jurasaite-Harbison & Rex, 2010; Nawab, 2011; Winchester et al., 2013) — primary teachers undertake a variety of learning activities. In line with prior research, activities of each of the proposed categories were identified (e.g., Hoekstra, Brekelmans et al., 2009; Hoekstra, Korthagen, et al., 2009; Kwakman, 2003; Meirink et al., 2007). Results show that primary teachers experiment a lot within their classroom, that they reflect in and on action and learn a lot from others with and without interaction. Especially,

experimentation and collaboration with colleagues were considered important learning activities.

Regarding experimenting, results showed that teachers experiment less when teaching the 'main subjects' such as languages or mathematics. This can perhaps be attributed to the fact that these lessons build on each other, whereas for example music education exists more of independent lessons. Therefore, teachers can find it even more important to be in control of these lessons and know exactly where their pupils stand in their progress. However, the results can also raise questions about the role and influence of standards and curricula. Simons (2002) states that nowadays, schools, and therefore teachers, are permanently held accountable and judged for their delivered quality. This quality is often measured by obtaining certain standards (Simons, 2002). Because of a more prominent place of the main subjects in these standards, teachers could perhaps feel the need to stick closer to the curriculum and experiment less. However, more research about the influence of standards and curricula on teachers' informal learning is needed.

Second, in line with Richter et al. (2011), this study confirmed that more experienced teachers do not necessarily undertake less learning activities than their less experienced colleagues, but that they do prefer other learning activities. Although no differences were found in the quantitative data, except for the scale 'guidance and support', the interviews did reveal differences between beginning and experienced teachers. The difference in findings between the quantitative and qualitative part could be due to the fact that interviews provided richer descriptions (Johnson et al., 2007). Whereas teachers could only provide a single answer to the questions in the questionnaire, the semi-structured interviews provided opportunities to elaborate more on aspects that participants considered important. As mentioned, experimenting was an important learning activity for primary teachers. All teachers indicated that they experiment, but beginning teachers indicated they experiment less. This result is in contrast with prior research that found that beginning teachers experiment more than their more experienced colleagues (Flores, 2004; Van Daal et al., 2013). In this study beginning teachers indicated that they felt not ready to experiment yet. This can be explained by the fact that starting teachers are more concerned with discipline and class management, while more experienced teachers seem to have the room to improve teaching methods (Rolls & Plauborg, 2009). Several novice teachers in this study also reported that they tended to read and seek less for information than their more experienced colleagues, a finding that was also demonstrated by Flores (2005) and Richter et al. (2011). However this does not mean that they did not search for information at all. Novice teachers also consulted professional literature and searched the Internet. In terms of interacting with others, the results provide a more detailed image in comparison with prior research (e.g., Richter et al., 2011). For the learning activities discussion and the sharing of materials, no differences were identified. However, there were differences between asking questions/help and giving feedback. More experienced teachers ask less questions or help, while novice teachers are more reluctant to give feedback due to their limited experience. It can be concluded that informal interaction with colleagues, especially with more experienced colleagues is of great importance for beginning teachers (e.g., Richter et al., 2011).

Third, schools in this study all showed signs of a collaborative culture. Our quantitative research could not confirm this, due to the unreliable measure of this subscale ($\alpha = .39$). Teachers indicated it was natural for them to spontaneously collaborate with each other. Even when they had the opportunity to be alone, most of them sought out the company of others to discuss their lessons or to ask questions. An important aspect of this culture was that teachers

needed to feel it is safe to share their problems and that they can approach their colleagues. This finding is both in line with the research of Tschannen-Moran (2001) who found that the level of trust is an important predictor for the level of collaboration in schools, as well as with the research on team learning that shows that psychological safety is the most important and consistent predictor for learning to occur within teams (e.g., Boon, Raes, Kyndt, & Dochy, 2013; Dochy, Gijbels, Raes, & Kyndt, 2014). However, in line with the findings of Clement and Vandenberghe (2000), teachers also indicated that they valued their autonomy and also wanted to work out their problems by themselves.

5.1. Limitations and future research

This study has some limitations that should be taken into account. First, this study only investigated the perceptions of teachers about their learning activities. They were asked which activities they themselves think would contribute to their learning. Second, the schools in this study participated voluntarily, which according to Lohman and Woolf (2001) could be associated with a more positive attitude towards learning. The fact that every participating school primarily reported having a culture where teachers all spontaneously collaborated and mostly felt supported in their learning, could be due to this sampling bias. It is likely that schools with a less favourable culture (e.g., Flores, 2004) towards learning decided not to participate in this research. Therefore, only findings about a stimulating, collaborative culture could be identified in this study. It would be interesting for further research to inquire more about the role of other cultures in schools. Third, because the main focus was on the qualitative data collection, a limited number of teachers was included in this study. This method allowed the gathering of detailed data that gave a rich view of the learning activities teachers undertake. Nevertheless, this has repercussions for the generalizability of this research. The study tried to address this limitation by administering questionnaires. These were, however, also completed on a voluntary basis. Therefore, an insufficient number of questionnaires were returned to analyse the relationships among the constructs of interest in more detail. Additionally, the questionnaire consisted of scales derived from prior research. This has the repercussion that the questions about school culture were not sufficiently attuned to the conceptualisation of Hargreaves (1994) of school cultures. It would be interesting if future research would develop a questionnaire on these specific school cultures that can be administered to larger samples in order to be able to generalise prior findings.

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