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To cite this article: Stéphane Colognesi, Catherine Van Nieuwenhoven & Simon Beusaert (2020) Supporting newly-qualified teachers' professional development and perseverance in secondary education: On the role of informal learning, *European Journal of Teacher Education*, 43:2, 258-276, DOI: [10.1080/02619768.2019.1681963](https://doi.org/10.1080/02619768.2019.1681963)

To link to this article: <https://doi.org/10.1080/02619768.2019.1681963>



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Published online: 04 Nov 2019.



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ARTICLE

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Supporting newly-qualified teachers' professional development and perseverance in secondary education: On the role of informal learning

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ABSTRACT

High percentages of newly qualified teachers (NQTs) drop out during their first 5 years in the classroom. Often, formal support systems are put in place to overcome 'practice shock'. However, in this research, it was hypothesised that it is not the formal support structure put in place that determines whether starting teachers feel satisfied in their job and show perseverance but rather the amount of knowledge exchange that takes place. This was confirmed by the results of a first quantitative study. Then, a follow-up qualitative study showed that having the principal in the role of a mentor is often experienced as a mechanism of control or evaluation. Starting teachers prefer to choose their own mentor. They prefer their mentor not to be a superior but a close colleague whom they trust, who is teaching the same course in the same year. Our results have especially implications for onboarding of novice teachers. Since social informal learning (e.g. through the exchange of feedback with colleagues) benefits newly qualified teachers, it is important to create a safe and warm learning climate in which knowledge exchange can flourish. Also, NQTs should be given the opportunity to choose their mentor.

ARTICLE HISTORY

Received 12 March 2018
Accepted 14 October 2019

KEYWORDS

Teacher induction;
professional development;
professional continuing
education; beginning
teachers; Belgium; informal
learning

1. Introduction

Keeping newly qualified teachers in front of a classroom is not easy. Figures suggest that attrition rates have been rising steadily since the 1970s, although there is a wide variation across countries (e.g. McKenzie et al. 2005; Perie and Baker 1997). Recent statistics show that 30–50% of teachers exit the profession in the first 5 years of their career (Ingersoll and Smith 2003; Smethem 2007; Delvaux et al. 2013). It makes practitioners and scholars wonder why so many teachers drop out. In literature, different reasons are suggested, such as the increased possibility for teachers to take different jobs, but also the 'practice shock' for which they are not adequately prepared theoretically, practically or mentally (Gold 1996; Gingras and Mukamurera 2008; Høigaard, Giske, and Sundslø 2012). Literature

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suggests that one of the main reasons for the high attrition rates among starting teachers lies in inadequate guidance and support (Gaikhorst et al. 2014). It is argued that a support structure, defined as 'the support activities that schools undertake to assist their beginning teachers, such as guidance from a coach, opportunities to gradually grow into the teaching profession and the provision of an introductory handbook' (Gaikhorst et al. 2014, 23–24), might make a difference. In most schools, this support is offered in the form of 'mentoring'. Mentors are often experienced teachers who help ease the novices' transition from student to full-time classroom teacher (Nielsen, Barry, and Addison 2007, 15). More specifically, Kemmis et al. (2014) make a distinction between three archetypes of mentoring, based on various empirical studies: mentoring as supervision, mentoring as support and mentoring as collaborative self-development. The latter refers to support that might also be found in the sharing of experiences and expertise in a network of teachers, within or outside the new teacher's own school. In that sense, it can be linked to co-development as an approach in which a group of novices, accompanied by a mentor, aim to improve their professional practice by benefiting from the groups and the interactions taking place (Payette and Champagne 1997; Van Nieuwenhoven, Vicoso, and Colognesi 2018).

In general, it is argued that the support offered should meet several requirements, including the need to make time available, a trust relationship and the addressing of individual needs (London and Smither 1999). Examples of requirements within the above three archetypes of mentoring are (a) for mentoring as supervision: observing and reflecting on performance with mentee; (b) for mentoring as support: supporting the mentee in their professional on-the-job development by observing while the mentee teaches; and (c) for mentoring as collaborative self-development: ensuring the optimal circumstances for peer mentoring in order to resolve problems and the opportunity to share experiences in confidential group discussions (Kemmis et al. 2014). Additionally, the authors demonstrate that these different mentoring practices are not stand-alone items. Rather, they depend on the presence of specific kinds of cultural-discursive, material-economic and socio-political arrangements that '(a) provide the resources that make possible the sayings, doings and relatings of the practice, (b) allow this form of mentoring to pursue its distinctive project, and (c) help to form distinctive kinds of dispositions in new teachers that this form of mentoring anticipates, advocates and nurtures' (Kemmis et al. 2014, 159).

Next, Vivegnis (2016) identifies four crucial roles to be performed by the mentor when supporting the novice teacher in order to support his/her autonomy and professional emancipation: offering support (listening, emotional support, etc.), facilitating learning and development (giving pedagogical assistance, recognising professional competences, providing information on available teaching resources, etc.), cultural facilitation (helping to understand the school context, providing information on available resources to help teachers function well in the sector, etc.) and being critical (questioning theoretical knowledge, exploring new approaches, encouraging innovation, etc.).

However, it is not only formal support systems that might benefit starting teachers. Theories in workplace learning add a relevant perspective on the issue of attrition among newly qualified teachers. As indicated by Tynjälä and Heikkinen (2011), for example, teachers, as well as other professionals, indicate that it is at work that they have learned the most important competences needed in the job itself. In addition, other empirical studies indicate that most of what is learned on the job is acquired through informal

learning (e.g. Froehlich et al. 2014). Informal learning is less structured, is controlled to a greater degree by the learner, is often a by-product of some other activity and happens unconsciously (Livingstone 2001; Marsick and Watkins 2001; Mulder 2013). More precisely, Eraut (2004) distinguishes three categories of informal learning, namely implicit, reactive, and deliberative informal learning. Implicit learning is unconscious and not recognised by the learners themselves. Eraut (2004) argues that learning from experience generally includes an implicit component – for example, during the process of (workplace) socialisation. Reactive learning is more conscious. This learning is intended and includes a component of reflection. However, it happens within the context of some other activity and therefore receives only partial attention. Deliberate learning happens in work situations where time is specifically allotted for learning (Tynjälä 2012). Many empirical studies have shown that informal learning is a more efficient form of learning than formal learning (Berings, Poell, and Simons 2008; Billett 2002; Eraut 2007; Gorard, Fevre, and Rees 1999; Van der Heijden et al. 2009). Formal learning includes all designed learning that takes place in a structured context and that may lead to formal recognitions, such as diplomas or certificates (Colardyn and Bjornavold 2004). In-company training sessions, seminars, and workshops are typical examples of formal learning activities, but the support offered to newly qualified teachers might also be offered in a formal way.

Not only is the informal nature of workplace learning important, but the social dimension of workplace learning also deserves recognition. Aspfors and Bondas (2013) state that the teaching profession is fundamentally social. They argue that human relationships lie at the core of the school community and influence newly qualified teachers' initial working experience. For example, challenging relationships with colleagues are seen as the most difficult hurdle facing novice teachers (e.g. Day 2008; Fransson and Gustafsson 2008). Eraut (2007) identifies encounters and relationships at work and opportunities for receiving feedback and support as important factors when it comes to learning at work.

Eraut also names participation in group activities, working alongside others and consultations as some of the activities as most conducive to learning. Similarly, Bamberger (2009) states that pro-actively seeking information, feedback and help are important components of work-related informal learning. Seeking information refers to the pro-active search for information. Seeking feedback is the search for information targeted at evaluating and reflecting upon work processes and the self (Anseel, Lievens, and Levy 2007) and seeking help refers to 'the proactive search for assistance from others to solve a specific problem' (Froehlich, Beausaert, and Segers 2015). Moreover, teachers and other professionals learn in dialogical relationships that are formed in broader, professional support networks of teachers. In that sense, collaboration and interaction can be seen as a pivotal means of workplace learning, that stimulate teachers' reflection and continuous development (Fox and Wilson 2009; Tynjälä and Heikkinen 2011). Mentoring as collaborative self-development (see above) is a good example of this type of learning.

Comparing the literature on formal support systems (such as mentoring), on the one hand, and informal and social workplace learning on the other, it can be concluded that benefiting from a formalised support system or having a mentor does not necessarily mean that newly qualified teachers will progress in their professional development, feel more competent or demonstrate more perseverance. This leads us to hypothesise that it is not the formal support structure in itself that makes the difference, but rather the

exchange of information that takes place and the help and feedback that is given, whether or not within a formalised support structure.

To test this hypothesis, a mixed-method approach was applied. First, a quantitative study was conducted, and then a qualitative study. A synergy was created through combining the strength of both approaches. While the quantitative study looked for empirical evidence on the existing relations between the variables under study, the qualitative study aimed to better understand the relations found (Creswell and Plano Clark 2007). More specifically, the quantitative study that was carried out first addressed the following two research questions: (1) Which type of support is offered to newly qualified teachers? (2) Is there a relationship between the type of support and the type of exchange provided and the young teachers' feeling of competence and degree of perseverance? This quantitative study was followed up with a qualitative study aimed at gaining an understanding of the above relationships by means of the following questions: (1) How did newly qualified teachers experience formal and informal support and what were the conditions needed to make them effective? (2) What, according to them, constitutes ideal support?

Scholars have indicated that previous research on support structures and informal learning has not always drawn a link to teacher retention (Sharplin, O'Neill, and Chapman 2011; Kyndt et al. 2016). This study takes a first step towards rectifying this by looking into the relationship between support structures and informal learning, on the one hand, and perseverance and feelings of competence on the other. Research has indicated that perseverance and feelings of competence are good indicators of long-term retention. For example, Høigaard, Giske, and Sundsli (2012) found that work engagement and teacher efficacy are positively related to job satisfaction but negatively related to job burnout and intention to quit.

The research questions were first tested by means of a quantitative study. Then, in order to progress beyond statistics, a complementary qualitative study looked into potential explanations for the relationships found. This research study was innovative in that it not only compared types of support but also took into account the types of exchanges that take place within the different formalised support systems.

2. Study 1: quantitative study

2.1. Method

2.1.1. Participants

A questionnaire was distributed via email by programme coordinators of three teacher training programmes on both bachelor and master level. Teachers were invited to participate voluntarily and were informed that by participating they agreed that their answers would be processed anonymously for research purposes. Two hundred and fourteen novice teachers working in secondary education in the Federation Wallonia-Brussels, Belgium, with 5 years of teaching experience or less, filled in the online questionnaire. There seems to be a consensus that once teachers have been teaching for more than 5 years, retention rates increase (Struyven and Vanthournout 2014). The group comprised 37 men and 117 women (the other respondents chose not to give their personal details). All provinces were represented in the sample. Fifty-one participants

(24%) had 1 year of experience or less, 43 had between zero and 2 years of experience (20%), 45 had between 2 and 3 years of experience (21%), 47 (22%) had between 3 and 4 years of experience and 28 (13%) had between four and 5 years of experience. Their average age was 26. Most of them were between 23 and 27 years old. Remarkably, more than half of the young teachers had an interim contract; 47% had a contract until the end of the school year, while 12% had a contract for a limited period within the school year. One third of the respondents (34%) had a temporary contract. Only 8% of the young teachers participating in this study had a fixed contract. The majority was working full time. Sixteen per cent were working 4 days per week. Only two respondents were working less than 2.5 days per week. The majority was teaching in lower secondary education (pupils aged between 12 and 15 years, spread over 3 years). Only a quarter of the participants were teaching in higher secondary education (pupils aged between 15 and 18 years, spread over 3 years). The sample included teachers working in two different school communities. Sixty-eight per cent of the teachers were working in private schools, such as Catholic schools, while 32% of the teachers were working in public schools. Thirty-three per cent of the respondents indicated that they were working in a disadvantaged school (low socio-economic status), while 19% considered that they were working in a school with a more advantaged population (high socio-economic status). Forty-eight per cent indicated that the socio-economic status of their students was average.

This study conforms to the internationally accepted ethical guidelines and the ethical code of the Belgian Science Policy Office (www.belspo.be). Given the nature of the study, no approval from the ethics committee was needed.

2.1.2. Measures

The questionnaire comprised five sections with questions on the person, the types of support received, the types of knowledge exchanged and the teacher's perceived competences and perseverance.

2.1.2.1. Types of support. In order to measure the types of support the young teachers were experiencing, they were given a list of various types of support, as discussed in focus groups with experts. They were asked to indicate the types of support they were receiving, how often and whether it was organised in a formal way (formal support) or in an unplanned, unstructured, informal way (informal support). Where relevant, other types of formal or informal support could be added to the list. Examples of types of support were mentoring, conversations with the principal, co-teaching, collegial support groups and internal or external training. In the end, all these formal and informal learning activities were counted (frequencies). Next, also their frequency, ranging between 'every day' to 'once per year', was taken into account.

2.1.2.2. Types of knowledge exchange. The different types of knowledge exchange (information, help and feedback exchange) were measured with a validated questionnaire developed by Froehlich et al. (2014) and adapted to the teaching context. The questionnaire consisted of 12 items, scored on a Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The questions were divided into four subscales: exchange of information, exchange of help, exchange of feedback with colleagues and exchange of feedback with the principal. The questionnaire was translated into French, following the

guidelines of the International Test Commission (Hambleton 1994). The Cronbach's alphas were .69, .66, .83 and .86, respectively.

2.1.2.3. Feeling competent in the job. Based on the legal document listing the competences newly qualified teachers in Federation Wallonia-Brussels should possess (Higher Pedagogical Council 2010), which in turn is based on the six components of professional development according to Mukamurera (2014, 11–13), we developed a new questionnaire. The questionnaire comprised 14 questions, scored according to a 5-point Likert scale, ranging from completely disagree to completely agree.

In order to validate the newly developed questionnaire, an exploratory factor analysis (maximum likelihood) was conducted. The analysis of eigenvalues indicated that three factors had to be retained. However, the pattern matrix indicated that Factors 1 and 3 only contained two items each. Additionally, the scree plot indicated that Factor 1 actually explained most (40%) of the total variance. Therefore, the factor analysis was forced into one factor. All 14 items loaded on the one factor. Factor loadings ranged from .47 to .69. No distinction was made between attitudes, competences and knowledge. The Cronbach's alpha was .87.

2.1.2.4. Perseverance. Perseverance was measured as described and conceptualised by Portelance, Martineau, and Mukamurera (2014, 169–197), namely as having four main characteristics, measured with 13 items: resilience (3 items), attachment (5 items), joy derived from teaching (3 items) and adaptability (2 items).

The newly developed questionnaire was validated by means of an exploratory factor analysis (more precisely, a maximum likelihood analysis). Looking at the eigenvalues of the factors, three factors were retained. However, only one item was loading on the first factor and the scree plot clearly indicated one factor. Therefore, the items were forced into one factor, which explained 40% of the total variance. The items had loadings ranging from .30 to .77. Only one item had a loading of below .30 and was deleted. The Cronbach's alpha was .88.

2.1.2.5. Background variables. Finally, we controlled for various background variables, such as gender, age, experience, education, type of contract, part-time/full-time, province, subject, network (public or private), lower/upper secondary school, and the socio-economic status of the school population.

Table 1 summarises the variables under study, the scales, a sample item and their Cronbach's alphas.

2.1.3. Procedure

Data were collected via an online questionnaire. The questionnaire was distributed in different schools in Wallonia, Belgium as well as in a teacher professionalisation programme in the same region. If they preferred, participants could opt to fill out the questionnaire on paper.

2.1.4. Data analysis

Data analyses were conducted with SPSS, 2013. After checking for normality, preliminary analyses were performed. More precisely, mean values, standard deviations and

Table 1. Measures and their alpha's.

Scale	Alpha	N	Sample item
<i>Type of support</i>			
Formal support		5	Formally organised meeting(s) with the principal
Informal support		6	Informal chat with colleagues
<i>Type of knowledge exchange</i>			
Information	.687	4	I participate in project groups to discuss work-related problems
Help	.658	2	Getting help would be one of the first things I would do if I were having trouble at work
Feedback from principal	.863	3	Feedback from my principal encourages me to reflect
Feedback from colleagues	.830	3	Feedback from colleagues motivates me to act
<i>Perceived competences</i>	.873	14	I know exactly what is expected of me in my organisation.
<i>Perseverance</i>	.877	12	I am satisfied with my professional situation.

correlations between the variables being studied were calculated. Finally, in order to test the hypothesis, hierarchical regression analyses were performed.

2.2. Results

2.2.1 Preliminary analysis: descriptives and correlations

Table 2 presents the various variables under study and their descriptives (frequency or means and standard deviations). Next, Table 3 lists the types of support provided (frequencies and percentages). In general, teachers received two types of formal support and experienced two to three types of informal support. Formal support tended to take the form of interviews with the principal, observations made by the principal, documentation offered and training, usually outside the school. Teachers indicated that they received the following informal support: talk with the principal and/or colleagues, spontaneous help from colleagues, and spending free time with colleagues, for example, during breaks. Participants reported receiving more informal support than formal support. Seventy per cent reported that they had experienced informal support while only 60% reported receiving formal support.

In relation to the types of exchange taking place, the descriptives indicate that the participating teachers exchanged help primarily with each other. When seeking feedback,

Table 2. Scales and their descriptives.

Scales	Frequency/Mean	Standard deviation
<i>Types of support</i>		
Formal support	2.06	2.11
Informal support	2.63	2.16
Frequency of formal support	2.41	1.21
Frequency of informal support	4.38	1.22
<i>Types of knowledge exchange</i>		
Information	3.589	.773
Help	4.164	.706
Feedback from principal	3.885	.892
Feedback from colleagues	3.732	.74
<i>Perceived competences (/10)</i>	7.659	.984
<i>Perseverance (/5)</i>	3.789	.63

Table 3. Types of support: Frequencies and percentages.

Support	N	%
Formal support	128	60
Interview with principal	72	34
Observations by principal	77	36
Mentor	17	8
Training (in school)	23	11
Information session	37	17
Documentation	85	40
Support groups	27	13
Training (outside school)	68	32
Co-teaching	3	1
Collaborations with colleagues	19	9
Working with a consultant	10	5
Meetings with colleagues	3	1
Total	441	
Informal support	150	70
Talk with principal	68	32
Talk with colleagues	143	67
Observing colleagues	35	16
Support groups	23	11
Spontaneous help from colleagues	106	50
Spending free time with colleagues	96	45
Sharing courses	2	1
Online course	1	0.5
Total	474	

Table 4. Correlations between the variables under study.

Variable	1	2	3	4	5	6	7	8	9	10
1.Formal support for learning	1									
2.Informal support for learning	,258**	1								
3.Frequency of formal support	,222**	,458**	1							
4.Frequency of informal support	,382**	,180	,231*	1						
5.Exchange of help	,151*	,048	,260**	,131	1					
6.Exchange of information	,163*	,125	,211*	,218*	,334**	1				
7.Exchange of feedback with colleagues	,252**	,334**	,425**	,218*	,547**	,372**	1			
8.Exchange of feedback with principal	,257**	,178**	,246**	,259**	,434**	,350**	,598**	1		
9.Performance	,128	,122	,073	,099	,278**	,223**	,191**	,221**	1	
10.Perseverance	,207**	,100	,240**	,129	,335**	,149*	,295**	,253**	,352**	1

Note. * < .05, ** < .01, *** < .001

they contacted the principals first, and colleagues second. The exchange of more neutral information happened the least frequently of all.

Table 4 shows the correlational analyses. While there was a significant positive correlation between performance and the exchange of feedback, help and information, there was no significant positive correlation between performance and formal and informal support for learning, or with the frequency of formal and informal support. In other words, the more exchange of information, help and feedback there had been, the more positive novice teachers perceived their performance to be. However, it appears that the type of support offered is not what makes the difference.

Similarly, there was a significant positive correlation between perseverance and all types of knowledge exchange. It did not correlate significantly with informal support, but there was a significant positive correlation with formal support and its frequency. In other words, the more formal support a newly qualified teacher experiences, the more perseverance he/she shows.

Table 5. Hierarchical regression analysis.

		Perseverance		Perceived competences	
		B	ΔR^2	B	ΔR^2
Step 1	Formal Support	,162		,095	
	Informal support	-,028		,041	
	Frequency of formal support	,096		,113	
	Frequency of informal support	,153		-,081	
			.09		.03
Step 2	Formal Support	,041		,057	
	Informal support	-,102		,075	
	Frequency of formal support	,035		,069	
	Frequency of informal support	,005		-,135	
	Seeking help	,044		,088	
	Seeking information	,001		,260*	
	Seeking feedback from colleague	,334*		-,095	
	Seeking feedback from principal	,267*		,024	
			.21***		.07

Note. * < .05, ** < .01, *** < .001

2.2.2. Hierarchical regression analysis

Table 5 depicts the results of the hierarchical regression analyses, with types of support (Step 1) and types of knowledge exchange (Step 2) as independent variables and perceived performance and perseverance as dependent variables. No background variables were taken into account since preliminary analyses showed that the background variables did not significantly correlate with perseverance or perceived performance.

The results show no significant relationships between the type or frequency of support and perseverance or perceived competences. In other words, no matter the type and the amount of formal support teachers receive, they will not show more perseverance or perform better as a result. However, significant positive relationships were found between the feedback received from colleagues and the principal, on the one hand, and perseverance on the other, meaning that the more feedback the beginning teachers received from colleagues and the principal, the more perseverance they showed. Both relationships explain 21% of the variance in total. Furthermore, there appeared to be a significant positive relation between the exchange of information and the performance of beginning teachers, although the explained variance of the model is not significant.

2.3. Study 2

2.3.1. Method

2.3.1.1. Participants. In order to provide an answer to the 2 qualitative research questions posed, we interviewed 12 novices working in the lower secondary education system: three men and nine women with between one and 5 years of service behind them and belonging to different Francophone Belgian establishments with heterogeneous socio-economic indices. The 12 participants were selected among the respondents of the quantitative study. They were randomly selected, based on years of experience and type of support received. Table 6 gives an overview of the participants and their characteristics.

We observed a significant gap between how the participants described how they were supported and the support as reported by the school management, which indicates that

Table 6. Participants in study 2 and their characteristics.

Code	Experience (in years)	Gender	Education ¹	Socio-economic status of the school ²	Formal support provided
E1	3	F	BA	Strong	Interview with principal
E2	2	M	BA	Strong	Interview with principal
E3	5	F	BA	Weak	Interview with principal
E4	3	F	MA	Average	Interview with principal
E5	3	F	BA	Strong	Interview with principal
E6	4	M	BA	Weak	Co-development
E7	2	M	MA	Weak	Co-development
E8	1	F	BA	Weak	Mentor
E9	3	F	BA	Strong	Mentor
E10	4	F	BA	Weak	Interview with principal, co-development and mentor
E11	3	F	BA	Weak	Co-development and interview with principal
E12	4	F	MA	Weak	Interview with principal

participants were not necessarily supported as theoretically planned by the institutions. With respect to the formal support, nine had the principal as mentor and three had a colleague as mentor (individual formal support). Three participants enjoyed a formal, collective type of support in the form of organised information sessions. All 12 participants also enjoyed both individual and collective informal support.

2.3.1.2. Measures and coding. Each participant attended a semi-structured interview. Examples of questions were: (1) When entering practice, were you accompanied? How did that go? (2) Did the support offered help you? (3) Did you have discussions with the principal and/or colleagues, and if so, when? Did these moments help you as a teacher? (4) How do you feel in your job? What has changed since you started working? (5) Do you feel that the support offered had an impact on your attachment to the job? (5) What would be the ideal type of support for you?

We then carried out a thematic analysis of verbatim transcripts by means of audio recording (L'Écuyer 1987; Miles and Huberman 1994). The transcripts were divided into meaningful units of text, inductively, based on the information provided in the interviews. Afterwards, they were categorised or added to predefined groups of variables (Albarelo 2012). The predefined groups of variables were: formal support offered, types of knowledge exchange, perseverance, difficulties and needs. Lastly, a selection of critical incidents was made in order to illustrate the various groups of variables.

2.3.2. Results

2.3.2.1. Differences between and conditions attached to formal and informal support. A priori formal types of support were reported by 6 of the 12 participants, such as mentoring by the principal. All of them defined 'mentoring by the principal' as 'a class visit and a performance interview, focusing on the exchange of feedback'. For five of the six participants, the guidance was perceived as negative because they felt judged during the interviews. Consequently, they did not perceive the mentoring as a developmental tool. Only one of the six teachers believed that the visits by the principal actually served as an incentive to improve and challenge teaching practices.

He only picked out details ... things to improve; he never mentioned positive things ...

It's not constructive, it's not of much use, it just puts more pressure on us. (E3)

I do not think I want to talk with a member of management about my problems (...) I prefer to talk to a colleague. (E4)

It helped me because at some point we need to be challenged. (E1)

Alongside the six participants who experienced support from their principal, there were three participants who were guided by a colleague. The colleague acting as a mentor was, in fact, a more experienced colleague, assigned by the principal. The participants receiving this type of support said the mentor helped them in dealing with practical issues (e.g. how to fill in administrative documents, time planning, how the photocopier works ...). They indicated that they seldom asked the assigned 'mentor' for help. They preferred to approach a colleague who happens to be nearby.

We have a good relationship. It [the mentoring] does not help me. It is just something that is there in case I need it. I have not contacted him. And he never really approached me either. (E7)

We receive a mentor. We can turn to him with any problems we have. He is a contact person. I asked him questions on practical and organizational issues. Whenever we have a question we know who we can go to. But I didn't go to my mentor, I went to other colleagues. (E8)

The results relating to collective and formal types of support were similar to those relating to the 'colleague as mentor'. The three participants who experienced this type of support agreed that while it helped them in answering practical and organisational questions, it did not help them to develop, probably because of the 'one-shot meetings' (e.g. three per year), without follow-up, which limits the transfer to the workplace.

A few meetings with the educational coordinator ... three times ... on the positive side, being able to answer some questions ... Having the view of a programme inspector about daily issues. (E6)

The same recurring themes. It went round and round. These discussions were not motivating. Not that it did not help me. Very little evaluation took place. (E11)

In summary, the formal types of support were not used to good effect. Additionally, they had little impact on the development of (newly qualified) teachers in our sample and their perseverance in the profession.

Alongside formal types of support, the participants also interacted with each other informally. The 12 selected participants reported benefiting from the informal support provided by a colleague, depending on their trust relationship. In other words, the analysis of the verbatim transcripts revealed that it was actually the trust relationship with the colleague that contributed to the improvement of practices and thus transformed the informal exchange into a tool for professional development.

It has given me more confidence ... A colleague told me he gave the exercise in a different way. I tried it and I found that it worked better. (E11)

"This is the only teacher I could ask for a little help. And that is because she wanted to.(E12)

I gained more structure in my lesson preparation. The contact with this colleague helped me to adjust my practices. (E7)

It is possible to see oneself in class. My close colleague gives me feedback, without any pressure. We could also shoot videos. (E4)

Moreover, when the participants spoke of informal exchanges with team members, for example, in the staff room, they mentioned benefiting from insights gained via this type of knowledge exchange in relation to classroom management and course planning and set-up ... It was again found that it is the climate of trust and mutual support that makes the difference.

"Colleagues", they are my real source of encouragement. Without them I would have been depressed. (E3)

I was helped by the exchanges with colleagues ... on managing the class and on how to handle issues that arise. (E12)

When they saw me coming out of a lesson that seemed to have been difficult, they explained to me how they managed these lessons a little better. (E11)

When we see that some things do not work, we realise that this may also be the case for other colleagues who are even more experienced. (E11)

In conclusion, the informal support offered seems to be a powerful tool for supporting the professional development of the newly qualified teachers in our study. All the participants are unanimous in stating that it helps them in recognising their difficulties and improving their classroom practice, together with other colleagues.

2.3.2.2. *The ideal type of support.* All 12 participants agreed upon what constitutes an ideal type of support at the start of their professional career. The same categorisation of support systems discussed above was used to organise the results (Bamberger 2009; Anseel, Lievens, and Levy 2007; Froehlich, Beusaert, and Segers 2015).

First, the exchange of information should, according to the participants, be supported by the principal, since the principal is the person best able to facilitate the integration of new teachers in the school. Having the principal as a mentor also allows the mentor to explain the school's internal functioning. However, this has nothing to do with the help-seeking initiated by the starting teacher as advocated by Bamberger (2009), who makes a distinction between two types of help-seeking, depending on the type of help needed. On the one hand, there is a need for instrumental help, i.e. help that is needed in relation to a work-related requirement. On the other hand, there is a need for emotional help, i.e. help with solving personal problems, e.g. related to (psychological) well-being. Bamberger (2009) argues that it is exactly this kind of help that has a positive impact on performance and reduces employees' feelings of uncertainty, because it provides them with more information on the context in which they are working. They perceive it as a service offered by the management from the start.

Secondly, feedback can best be provided by a colleague of the newly acquainted teacher's choice, teaching in the same discipline. It appears that beginning teachers do not necessarily rely on more experienced colleagues. It can be concluded that it feels

more comfortable for novices to observe other novice teachers in order to exchange and benefit from reflexive feedback.

Thirdly, assistance with solving a specific problem could be provided by a more experienced colleague, who is teaching in the same discipline (Froehlich, Beusaert, and Segers 2015). The fact that colleagues have chosen one another seems to play an important role; it goes together with feeling psychologically safe. The colleague as a mentor helps the novice spontaneously, without judging or evaluating the beginning teacher.

3. Conclusion and discussion

High percentages of newly qualified teachers drop out during the first 5 years of teaching. Often formal support systems are put in place to help newly qualified teachers overcome 'practice shock' (Gold 1996; Gingras and Mukamurera 2008; Høigaard, Giske, and Sundsli 2012). Though these forms of support are institutionalised, they do not really follow the basic principles of mentorship (Vivegnis, Portelance, and Van Nieuwenhoven 2014; Vivegnis 2016) or co-development (Van Nieuwenhoven, Vicoso, & Colognesi, 2018). In other words, the support offered does not start from a problem introduced by the novice teacher, based on the difficulties he/she has encountered during work, which is then discussed in dyads or peer groups.

In this research, it was hypothesised that it is not the formal support structure put in place that determines whether starting teachers feel satisfied in their job and show perseverance but rather the amount of knowledge exchange that takes place. The research study consisted of two sub-studies. First, a quantitative study was conducted on the relation between support systems and job satisfaction and perseverance. Secondly, a qualitative study examined newly qualified teachers' perceptions on differences between formal and informal support systems as well as the conditions necessary for high-quality support. These teachers' perceptions on what constitutes the ideal type of support were also studied.

The results of the quantitative study indicated that different types of informal support take place more often than formal support. Furthermore, the regression analysis confirmed our hypothesis that it is not the type of support offered nor its frequency that relate positively to starting teachers' competences and perseverance. Rather, it is the exchange of feedback with colleagues and with the principal that determine a newly qualified teacher's attrition, and there is a relationship between information exchange and how positively they perceive their competences.

The results from the qualitative study, that focused on differences between formal and informal support systems and the preconditions that need to be met, as perceived by newly qualified teachers, bring some nuance to the issue at hand. It was found that having a principal as a mentor is often experienced as a mechanism of control or evaluation. Starting teachers prefer to choose their mentor. They prefer their mentor not to be a superior, but a close colleague whom they trust, and who is teaching the same course in the same year. Thus, having confidence in the mentor is an important condition for learning.

It is worth noting that a discrepancy was detected between how mentoring is described in the literature and how it is organised in practice. Finally, results indicated that the ideal type of support, according to the starting teachers themselves, generally

takes place in the context of informal collaboration with close colleagues. This would appear to have a positive influence on their integration and professional development.

These findings are in line with literature that highlights the strength of informal learning in the support of beginning teachers and their development (Berings, Poell, and Simons 2008; Billett 2002; Eraut 2007; Van der Heijden et al. 2009). More precisely, Aspfors and Bondas (2013) emphasise the importance of social networking, i.e. the relationships built up between peers to support their integration when they first enter the profession. New staff want to be well integrated and supported by their peers, and recognise that they develop many educational and teaching skills in the workplace through informal learning (Rouillard 2015). Similarly, previous research argued that feedback (informal learning) plays a core role when it comes to the continuous learning and development of employees (van der Rijt et al. 2012), certainly in the early stage of the career (Sharplin, O'Neill, and Chapman 2011).

Also, the findings are in line with previous research on the relation between support or collaboration and intentions to remain in the job (Hargreaves 2003). For example, according to the results of a questionnaire study conducted among 243 first-year teachers in Israel, the support received from the mentor and colleagues is the strongest contributor to the successful assimilation of NQTs (Nasser-Abu Alhija and Fresko 2010). Baker-Doyle (2010) concludes her review study by stating that 'social capital and social networks are a significant factor in teacher recruitment and retention' (pp. 9–10).

Finally, previous research also referred to the important role of trusted peers and supervisors for teachers' learning and development and thus attrition. In that sense, Tiplic, Brandmo, and Elstad (2015) have found that the lack of teacher-principal trust is an important antecedent for turnover amongst newly qualified teachers. Next, Burke et al. (2015) compared 'leavers', those who expressed an intention to quit during the next 12 months (approximately 25%), with stayers. Many 'leavers' reported suffering from limited resource sharing, limited collaboration opportunities with (experienced) teachers and limited mentor access. Moreover, 'leavers' seemed to favour collaboration with more experienced teachers rather than interaction with their assigned mentors.

In conclusion, the results of this study are especially relevant given that teacher recruitment and retention are major challenges in many countries nowadays. In that sense, understanding the reasons why teachers drop out is an important prerequisite to ensuring a healthy inflow of newly qualified teachers in the future and keeping the quality of education high.

3.1. Limitations and suggestions for future research

There are a number of limitations that could be taken into account in the future research. A first limitation relates to the sample group and the types of formal support they received. For the purposes of the analysis, participants were grouped based on the type of support they had received in practice. Unfortunately, it became apparent that the support participants had actually received was different from the support they officially stated that they had received before starting the study. Consequently, participants were not distributed equally between the types of support received. Secondly, it was not easy to determine the characteristics of the different support systems. While core characteristics, such as the person involved in the mentoring (principal versus colleague) help us to determine what type of support is being

offered, other characteristics, such as the type of questions posed and type of knowledge exchanged, tend to overlap. Thirdly, it is not easy to make a clear distinction between the many types of informal learning activities taking place. Moreover, some of these informal learning activities happen unconsciously. It is possible that some of the informal learning was not taken into account because we were not able to measure it. Future research could overcome this deficit in measuring informal learning by, say, making use of socio-metric badges. Socio-metric badges could measure the knowledge sharing taking place between colleagues and the principal and could give us a more detailed insight into what is discussed, how and how often. Then, the learning activities that have taken place within the framework of formalised guidance could be used as the unit of analysis instead of the formal support organised.

Furthermore, future research could study in more detail the role of the principal in workplace learning and the perseverance and attrition of novice teachers. What role does the principal's leadership style and position play in the learning and development and – in turn – the perseverance and attrition of newly qualified teachers? Similar studies could be set up to examine the style, role and position of the mentor.

3.2. Practical implications

This research feeds the discussion on how to organise support for newly qualified teachers. Both studies provide arguments for supporting informal learning among teachers instead of imposing formalised support systems. Supporting informal learning among starting teachers can be achieved, for example, by allowing them to choose their mentor – a person with whom they feel confident and psychologically safe. Meeting the mentor need not be formally organised, but can depend on the needs and questions of the novice teacher. Providing the novice teacher with sufficient autonomy whilst continuing to offer opportunities for learning and development will have the most positive impact on his job satisfaction and competence development.

Our results also have implications for initial teacher training. Since social informal learning (e.g. through the exchange of feedback with colleagues) benefits newly qualified teachers the most, it is clearly important to sufficiently develop teachers' communication and teamwork skills during their initial training, for example, through the set-up of student communities in relation to their internships (De Vos et al. 2018). During regular meetings, these communities can discuss difficulties faced during internships, as well as prepare classes together. This might lead to interesting debates on learning methods and student learning, for example. Also, students might do their internships in duos. Being in front of a classroom together with a peer, student might foster discussions on student learning, classroom management, difficulties experienced, etc. They might also observe each other and give feedback. Similarly, Dupriez and Cattonar (2018) refer to collegial professionalism, i.e. being able to systematically collaborate and have exchanges with other members of the teaching team.

Notes

1. In French-speaking Belgium, teachers in primary and secondary education might have a Bachelor's degree (BA, 3 years at a university of applied sciences) or a Master's degree (MA, 5 years at a research university).

2. The socio-economic status of a school is determined based on five region-related criteria: income per inhabitant, educational level, unemployment rate, professional activities and quality of housing. Taking these five criteria together, every student is indexed, taking into account his/her region of origin. The index is revised every 5 years.

Acknowledgments

We wish to thank Amandine Burnotte and Benoît Denblyden for their help in collecting the data.

Disclosure statement

No potential conflict of interest was reported by the authors.

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