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Citation for published version (APA):

Vanmol, S., De Vos, S., Beusaert, S., & De Wilde, J. (2022). How does newly qualified teachers' collegial network foster their feedback-seeking behaviour and job satisfaction? *Teachers and Teaching*, 28(6), 703-723. <https://doi.org/10.1080/13540602.2022.2098267>

Document status and date:

Published: 18/08/2022

DOI:

[10.1080/13540602.2022.2098267](https://doi.org/10.1080/13540602.2022.2098267)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

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To cite this article: Steven Vanmol, Sanne De Vos, Simon Beusaert & Johan De Wilde (2022): How does newly qualified teachers' collegial network foster their feedback-seeking behaviour and job satisfaction?, *Teachers and Teaching*, DOI: [10.1080/13540602.2022.2098267](https://doi.org/10.1080/13540602.2022.2098267)

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How does newly qualified teachers' collegial network foster their feedback-seeking behaviour and job satisfaction?

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ABSTRACT

This study goes beyond the classic paradigm that newly qualified teachers (NQTs) are in need of formal support in order to cope with the challenges they face during the early stages of their teaching career. The focus of this survey study with 443 NQTs in Flanders, Belgium is whether NSTs' proactive seeking of feedback from the principal and from their colleagues acts as a mediator between the characteristics of their collegial network and NQTs' job satisfaction. The results reveal that seeking feedback from the principal and colleagues mediates the relation between knowing other colleagues' areas of expertise and valuing that expertise in the collegial network, on the one hand, and job satisfaction, on the other. More specifically, seeking feedback from the principal was more strongly related to NQTs' job satisfaction than seeking feedback from colleagues. Remarkably, psychological safety was only related to seeking feedback from colleagues. No relationship was found between psychological safety and seeking feedback from the principal. The study concludes with suggestions on how to support the professional development of NQTs.

ARTICLE HISTORY

Received 14 February 2020

Accepted 22 May 2022

KEYWORDS

Newly qualified teachers (NQTs); collegial network; feedback; principal; colleagues; job satisfaction

1. Introduction

Previous research on teacher attrition has shown that the number of newly qualified teachers (NQTs)¹ who leave the profession during their first years in the job remains alarming. More precisely, recent numbers have indicated that 30–50% of NQTs leave the job early in their career or never actually enter the profession (Skaalvik & Skaalvik, 2011; Struyven & Vanthournout, 2014). In the US, for example, dropout rates vary between 39–50% (Smethem, 2007). In Flanders (Belgium), 26% of nursery teachers, 24,6% of primary school teachers and 44% of secondary school teachers leave the profession within the first five years after graduating (Flemish Parliament, 2019). Consequently, the field of education is losing large numbers of competent and talented teachers, placing the human capital in education at risk (R. Ingersoll & Strong, 2011).

The reasons for NQT dropout have been widely studied, and include poor learning outcomes, stress related to the shock experienced during the first years, job insecurity, lack of career opportunities and a low level of job satisfaction (Billingsley, 1993; Ingersoll, 2001; Macdonald, 1999; Struyven & Vanthournout, 2014). The last reason is especially interesting, as previous studies have already demonstrated that the job satisfaction of NQTs is an important factor in their induction period (Ingersoll, 2001). Moreover, previous studies have found a relation between job satisfaction and teachers' motivation to leave the profession (Skaalvik & Skaalvik, 2011; Vekeman et al., 2017).

This raises the question of how NQTs' job satisfaction can be enhanced within the school context. In order to reduce NQT dropout, some schools have implemented induction programmes to support NQTs' continual competence development, as well as their job satisfaction. These programmes may consist of various activities such as workshops, support systems, seminars or mentoring (Ingersoll & Smith, 2004). Research on teacher attrition has traditionally focused on the effectiveness of these formal programmes. However, these induction programmes by themselves are not a guarantee that NQTs' job satisfaction will improve (Kessels, 2010). On the contrary, it has been argued that teachers' job satisfaction is positively related to the quality of their relationships with colleagues and the principal (Connolly & Viswesvaran, 2000; Faragher et al., 2005). In particular, this collegial support seems to help keep teachers in the profession (Struyve et al., 2016). For example, Skaalvik and Skaalvik (2011) showed that social relationships with colleagues are indirectly related to job satisfaction, mediated through a feeling of belonging. Kinmana et al. (2011) stated that social support helps teachers to manage the emotional labour of the job and has a positive impact on their job satisfaction.

Furthermore, a strong social network allows teachers to invest in social informal learning activities (Putnam & Borko, 2000). Social informal learning takes place when teachers seek and give information, help and feedback, and thus learn from each other during their daily practice (Gerken et al., 2016). Previous research argued that feedback is crucial for the continual learning and development of employees, certainly in the early stages of their career (Van der Rijt et al., 2012). In addition, taking the initiative and proactively seeking feedback especially determine employees' professional development (London et al., 1999) and are crucial for surviving the challenges they face in the early stages of their career (Sharplin et al., 2011).

This study goes beyond the classic premise that NQTs need formal support in order to remain in the job. Instead, this study focuses on the role of the newly qualified teachers' collegial network and their social informal learning; more precisely, it focuses on their feedback seeking within their networks, and how that relates, in turn, to their job satisfaction. The central research question in this study is: How does their collegial network influence NQTs' feedback-seeking behaviour and, in turn, their job satisfaction?

This question is based on two areas of research. One area focuses on the characteristics of the relationships in a social network that affect the decision to rely on other people in their network and that thus determine how and how much is learned (e.g., Borgatti & Cross, 2003; Kyndt et al., 2016). The second area concentrates on the positive effects of learning (e.g., feedback-seeking behaviour) by linking it to higher job satisfaction (e.g.,

Crommelinck & Anseel, 2013). It is assumed that the availability of a warm collegial network makes it easier for NQTs to engage in seeking feedback. As a result, NQTs' job satisfaction is enhanced.

1.1 Job satisfaction

Locke (1976) and Weiss (2002) defined job satisfaction as a positive emotional feeling that people have about their jobs. More recently, job satisfaction has been described as 'the result of employees' perception of how well their job provides those things that are viewed as important by them' (Høigaard et al., 2012, p. 348) In the educational context, it is defined as 'teachers' affective reactions to their work or teaching role' (Skaalvik & Skaalvik, 2011, p. 1030). From an organisational psychology point of view, job satisfaction is linked with productivity and turnover (Lent & Brown, 2006). In vocational research, ample studies have confirmed the relationship between job satisfaction and intention to quit the teaching profession (e.g., Skaalvik & Skaalvik, 2011; Van Maele & Van Houtte, 2012).

Recently, antecedents of teachers' job satisfaction have been outlined (Malinen & Savolainen, 2016). A distinction is made between: (a) social and organisational factors (e.g., conditions in the workplace); (b) cognitive factors (e.g., efficacy); and (c) affective factors (e.g., stress). Further, Dinham and Scott (1998) stated that teachers' job satisfaction is influenced at three levels: (a) intrinsic to teaching itself (e.g., the relationships with the students); (b) extrinsic to the school (e.g., the portrayal of the teaching job in the media); and (c) school-based factors, such as relationships with colleagues and the principal. With respect to the last, many scholars have described job satisfaction as an indicator of the type of relationship a teacher has with the principal and colleagues (e.g., Connolly & Viswesvaran, 2000; Faragher et al., 2005). Lee et al. (1991), for example, found that schools that encourage cooperative environments in which human relationships are supportive foster job satisfaction. Similarly, in their study of 2569 elementary and middle school teachers, some of whom were newly qualified and some experienced, Skaalvik and Skaalvik (2011) found that social relationships with other team members, the principal and parents are indirectly related to job satisfaction, mediated through a feeling of belonging. The authors stated that in order to increase the feelings of belonging and job satisfaction, it is important to create a supportive school environment. In the same vein, based on their study with 628 teachers in UK secondary education, Kinmana et al. (2011) showed that various sources of social support help teachers to manage the emotional labour of the job and have a positive impact on their job satisfaction.

In addition, scholars have focused specifically on the job satisfaction of NQTs. This research has indicated that new teachers do not enjoy their jobs as much as more experienced teachers do (Liu & Ramsey, 2008). Low job satisfaction among NQTs has been related to their ambiguous position as a novice: NQTs are especially vulnerable because they must use competences that they have not yet fully developed, and they can only develop them on the job (Feiman-Nemser, 2001). This can lead to feelings of 'not being competent' and 'not feeling well'. The range of emotions experienced by NQTs is broad, ranging from despair to fulfilment (Rolls & Plauborg, 2009). The current prevailing paradigm is that in order to cope with this ambiguous position, NQTs are in need of

support. Aspfors (2012) and Daly et al. (2010) earlier showed that a supportive culture may be sufficient to cope with high dropout rates among NQTs. Struyve et al. (2016) added that this collegial support can increase feelings of overall satisfaction.

1.2. Collegial network

Nebus (2006) defined a collegial network as an ego-centred network of any individual in an organisation, in which the alters are individuals (e.g., colleagues, professionals) whom this person contacts for a work-related task or topic. This network provides this person with information, knowledge or advice, so that the person can learn from their successes or avoid failures. These interactions with colleagues play a major role in the professional development of teachers (Struyve et al., 2016) and form a crucial aspect in the continual improvement of educational practices (Stoll et al., 2006). In order to facilitate socialisation and learning processes, a collaborative and participatory atmosphere is needed, in addition to providing a formalised teacher support system (Weiss & Weiss, 1999). Collegial networks have been described as supportive, especially for beginning teachers (Fox & Wilson, 2015).

However, the actors' decision to rely on a specific other in a collegial network is affected by four relational characteristics: (a) the perception of others' areas of expertise, (b) the value of the expertise, (c) the accessibility of the source, and (d) the psychological safety involved in asking others for help (Borgatti & Cross, 2003).

First, the extent to which an actor is aware of or knows other individuals' areas of expertise leads to seeking information from them. Prior research has shown that teachers are not always aware of the knowledge and expertise of their colleagues. Consequently, they do not have access to potentially important information or help that could improve their teaching practice (Baker-Doyle, 2010; Bakkenes et al., 1999). Awareness of possible sources of information is pivotal for information seeking (Meredith et al., 2017).

Second, if the actor knows that the source's expertise is valuable, the probability of information seeking will increase. Employees seek more help from sources they perceive as having greater expertise or holding a higher hierarchical position (Nadler et al., 2003). For instance, if the person who gives feedback is a leader, manager or a coach, this will increase the perceived value of feedback (Van der Rijt et al., 2013). In addition, Tickle et al. (2011) found through path analysis that administrative support, in terms of educational leadership, is the strongest predictor of job satisfaction among teachers.

Third, the source's knowledge or expertise is only helpful if it is accessible to the actor. Access can be seen as the physical proximity as well as the perceived accessibility of colleagues (Borgatti & Cross, 2003). Formal subunits such as grade levels or subject area departments within schools increase the physical proximity of teachers and provide them with the opportunities and specific focus for interactions, as they connect available resources (Cross et al., 2001). However, these structures also become boundaries, as they limit teachers to making connections with colleagues from other formal structures (Brass et al., 2004). On the other hand, people's accessibility can vary depending on who the seeker is for others (Borgatti & Cross, 2003).

Finally, relationships that are psychologically safe promote learning as they are useful for deeper levels of knowledge sharing (Cross et al., 2001). Psychological safety is often seen as the most important predictor for learning in teams and collaboration (e.g., Boon

et al., 2013; Dochy et al., 2014; Grosemans et al., 2015; Tschannen-Moran, 2001). Psychological safety is positively related to learning in teams and sharing of expertise (Edmondson, 1999; Van den Bossche et al., 2006). Even more, team performance is affected by psychological safety when it is mediated by learning behaviours (Edmondson, 1999). In the same vein, Tiplic et al. (2015) found that beginning teachers' desire to leave their school or profession are reduced if they have trusting relationships with their principals

Previous research has shown the importance of these four relational characteristics concerning collegial networks by linking them with job satisfaction. For example, researchers have studied the degree to which NQTs value different kinds of support (Burke et al., 2015). This study was based on data from 336 NQTs during their first three years as a teacher in a primary or secondary school in New South Wales (Australia). Almost half of the participants felt isolated from their more experienced colleagues. Moreover, nearly one-third of the NQTs reported a lack of resource sharing. Both problems were more distinct for leavers. Burke et al. (2015) compared leavers with stayers, where *stayers* were NQTs who said they expected to remain in the job during the next 12 months (approximately 75%) and *leavers* were those who expressed the intention to quit during the next 12 months (approximately 25%). 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.

It is clear that there is a link between having relationships in a collegial network and job satisfaction (Reid et al., 2008; Steijn & Leisink, 2006). Choi and Tang (2009) also identified collegial support as a workplace factor determining NQTs' commitment, one of the core dimensions of job satisfaction. According to the results of a questionnaire study conducted among 243 first-year teachers in Israel (Nasser-Abu Alhija & Fresko, 2010), the support received from the mentor and colleagues is the strongest contributing factor to the successful assimilation of NQTs. In the same vein, studies addressing the learning culture confirmed the link between collegial relationships and job satisfaction (Dekoulou & Trivellas, 2015; Dirani, 2009; Rose et al., 2009). Moreover, teachers who experience less support from their colleagues are more likely to leave the teaching profession (Clandinin et al., 2015). In the context of NQTs, Pomaki et al. (2010) found a direct negative relationship between social support and the intention to quit. Baker-Doyle (2010) concluded her review by stating that 'social capital and social networks are a significant factor in teacher recruitment and retention' (pp. 9–10).

1.3. Feedback seeking

Feedback seeking is one of the key behaviours within social informal learning (Froehlich et al., 2014; Gerken et al., 2016), as it facilitates individuals' adaptation, learning and performance (Crommelinck & Anseel, 2013). Ashford (1986, p. 466) described feedback seeking as 'the conscious devotion of effort towards determining the correctness and adequacy of behaviour for attaining valued end states'. Employees no longer wait for feedback, they proactively seek relevant others and interact with them in order to adjust their knowledge and skills (Grant & Ashford, 2008). Ashford et al. (2003) stated that employees

regularly seek feedback in order to regulate their behaviour, to gain insight into how others perceive their work or to find out whether they are achieving their goals. As a result, self-initiated feedback is an essential tool for professional development (Van der Rijt et al., 2013).

In their meta-analytic review, Anseel et al. (2015) showed that both individual and situational factors play a role in undertaking learning activities. Lohman (2006) described seven personal factors (e.g., initiative, self-efficacy, interest in the profession, commitment to professional development) and three environmental factors (lack of time, lack of proximity to colleagues' work area and insufficient funds) affecting engagement in informal learning activities. Additionally, Kwakman (2003) in turn revealed four influential personal characteristics (e.g., professional attitude) and two work environment factors (collegial support and intentional learning support). More specifically, Crommelinck and Anseel (2013) stated that feedback seeking declines as the context becomes more public and more evaluative, since in these contexts, individuals could have the impression that feedback seeking can be seen as a sign of weakness or uncertainty. In addition, the feedback seeker will have to trust his source (Hofmann et al., 2009). A safe learning culture that facilitates informal feedback exchange with colleagues and a supervisor as a psychological safe haven is needed in order to be able to seek feedback without risks or cost (Ashford et al., 2003). The feedback source can influence the perception and acceptance of feedback (Van den Bossche et al., 2010). Feedback seekers particularly value the feedback received from employees in equal or higher hierarchical positions within the organisation (Van der Rijt et al., 2013).

Anseel et al. (2015) argued that newcomers in an organisation may be motivated to seek feedback in order to reduce uncertainty, but do not want to be seen as incompetent or project a negative image. According to Kyndt et al. (2009), younger employees (20–29 years old) receive fewer chances for feedback and acquisition of knowledge.

Teachers have several sources of feedback (e.g., informal interactions with the principal or with colleagues, formal evaluations by the principal, feedback from parents or information from standardised tests etc. In this study, colleagues and the principal are the main sources from whom to seek feedback. However, Grosemans et al. (2015) showed that teachers do not tend to be 'critical friends' of each other; instead, they give each other tips. In addition, their feedback consists of positive comments about each other's work. This is in line with the results of The Teaching and Learning International Survey (TALIS) that compares Flanders, Belgium with 18 other European Union countries. The feedback that teachers receive is intended to give a positive boost, rather than focusing on specific content or having an impact on their work in the class or school (Flemish Government, 2014). This can be understood in relation to the individual nature of teaching in Flanders. The majority (75%) of the teachers reported that they never observed lessons by other colleagues and gave feedback about them. This is in line with Deci and Ryan (1985), who stated that positive feedback nurtures the feeling of being competent. However, when successful alternatives are suggested, feedback keeps intrinsic motivation high, even when it indicates failure.

Previous research has studied the relation between feedback and commitment, socialisation and job satisfaction. Feedback is seen as crucial for being committed to the organisation or task (Hackman & Oldham, 1980) and has a significant positive effect on job satisfaction (Zhao et al., 2016). Seeking feedback has also been considered as a crucial way of individual adaptation and socialisation. For example, Morrison (1993) showed that organisational newcomers who take an active role by frequently seeking feedback become better integrated while adjusting to their new social environment. Overall, feedback-seeking behaviour has been linked to higher job satisfaction, lower intention to leave and lower turnover (Crommelinck & Anseel, 2013).

1.4 Hypotheses

This study is based on the hypothesis that NQTs feel more satisfied in their job if the collegial network empowers them to proactively seek feedback from their principal and colleagues. Thus, NQTs will seek feedback from the principal or colleagues if the characteristics of a warm collegial network are present and, in turn, this will foster their job satisfaction.

Hypothesis 1:

The characteristics of the collegial network are predictors for seeking feedback from the principal or colleagues.

Hypothesis 2:

Proactively seeking feedback from the principal or colleagues is positively associated with job satisfaction.

Hypothesis 3:

Seeking feedback from the principal or colleagues mediates the relation between the characteristics of the collegial network and job satisfaction.

The hypothesised relations are depicted in [Figure 1](#).

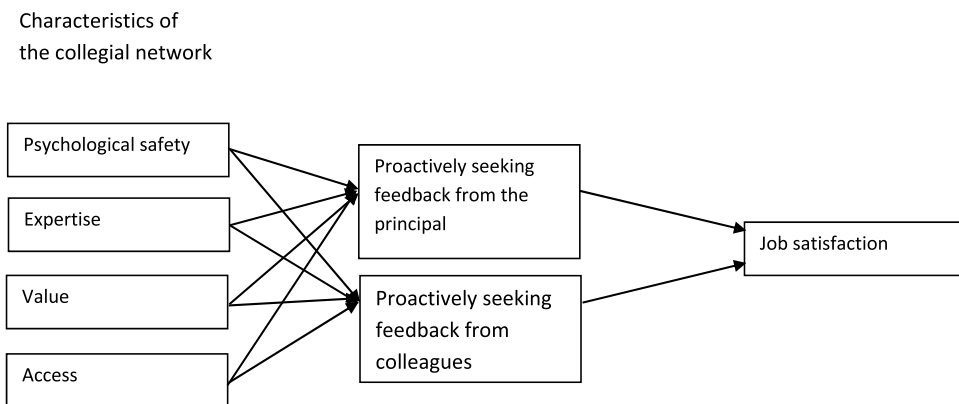


Figure 1. Hypothesised relations between the variables under study.

2. Method

2.1 Participants and procedure

Cross-sectional data were collected from NQTs during their first three years of teaching in Flanders in the context of a project on the support of NQTs, involving NQTs, school communities, supervisors and pedagogical guidance services. These NQTs completed an online survey in December 2015/January 2016. In total, 443 NQTs completed the survey (88.7% women and 11.3% men). The mean age was 27 years. The NQTs had received different levels of academic degrees, whether or not in educational fields (Table 1). A total of 14.2% graduated in 2012, 23.5% in 2013, 27.8% in 2014 and 34.5% in 2015.

The NQTs were assigned to a number of different schools during their early career (between 1 and 5 schools). An overview of the instructional levels at which they were working are shown in Table 2. About one-tenth (11.1%) of the NQTs had an adjusted assignment. In the Flemish context, this means that they had limited responsibility or were granted organisational benefits, for example, not being assigned the task of class coordinator or being given a less demanding teaching schedule.

2.2 Measures

Job satisfaction was measured with an adapted version of the Leiden Quality of Work Questionnaire (LAKS; Bolhuis et al., 2004; Van der Doef & Maes, 1999). This version applied a broad interpretation of job satisfaction, measuring the following dimensions: commitment to the organisation (5 items), satisfaction (3 items), intention to quit (6 items) and negative work-life balance (4 items). The 18 items were responded to using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alphas were .90 (commitment to the organisation), .78 (satisfaction), .73 (intention to quit) and .89 (negative work-life balance). The sum of weighted item scores was used as the scale score.

The *characteristics of the collegial network* (psychological safety, expertise, value and access) were based on four items from Borgatti and Cross (2003), namely: 'I dare to ask questions of this colleague without feeling uncomfortable' (psychological safety); 'I know the level of expertise of this colleague' (knowledge of others' expertise); 'The

Table 1. NQTs' degrees obtained.

	%
Bachelor's degree in primary education	58.8
Bachelor's degree in secondary education	18.1
Another degree (e.g., a master's degree, a bachelor's degree in another field)	23.4

Note. Some of the participants have more than one degree; therefore, the numbers do not add up to 100%. $N = 443$.

Table 2. NQTs' instructional levels.

	%
Primary school	58.7
Secondary school	33.1
Special needs education, adult education or a combination of jobs	8.2

expertise of this colleague is helpful for tasks at the class and/or school level' (value of others' expertise); 'If I have a question, I can rely on this colleague' (perception of others' accessibility). The NQTs were asked to list the colleagues who were part of their collegial network. Next, all four items were responded to for the colleagues within their collegial network, on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Next, an average was calculated over the different colleagues within the network.

Seeking feedback from colleagues and the principal was measured with a validated social informal learning questionnaire developed by Froehlich et al. (2014). The scale contains 6 items on feedback seeking, which are responded to using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Three items tapped into feedback from the principal (e.g., 'The feedback from the principal motivates me to take action') and 3 items asking about feedback from colleagues (e.g., 'The feedback from colleagues makes me think'). Cronbach's alphas were .81 (feedback colleagues) and .87 (feedback principal). The sum of weighted item scores was used as the scale score.

2.3 Analysis

First, descriptive analyses (means, standard deviations and correlations) were carried out in SPSS, version 22. After checking correlations, our hypotheses were tested by means of a structural equation model (SEM) in AMOS, version 16. Demographic characteristics such as gender, age, graduation year, degree obtained, instructional level and teaching experience were included in the correlational analysis, as control variables.

In an SEM analysis, a hypothesised model of relations between the variables is scanned for in the dataset at hand. On the basis of the goodness of fit, the model is rejected or not. In evaluating model fit, emphasis is placed on the comparative fit index (CFI), normed-fit index (NFI) and the root mean square error of approximation (RMSEA), due to their relative stability (Gerbing & Anderson, 1993) and acceptable cut-off values (Hu & Bentler, 1999). Statements about acceptable fit are based on the following threshold levels: CFI > .95; NFI > .95; RMSEA < .07 (Hooper et al., 2008; Schumacker & Lomax, 2004). Only relevant control variables (those having a significant relation with the variables under study) as indicated in the correlational analysis were included as covariates in the path analysis.

3. Results

3.1 Preliminary analysis

Table 3 reports means, standard deviations and correlations between all variables under study. The characteristics of the collegial network, seeking feedback from the principal and colleagues and job satisfaction all showed relatively high mean scores.

All characteristics of the collegial network had a significant positive correlation with seeking feedback from the principal or colleagues and job satisfaction. A significant positive correlation was also found between feedback seeking from the principal or colleagues and job satisfaction. Among the control variables, only age and degree (diploma) were significantly positively correlated with the variables under study.

Table 3. Descriptive statistics and bivariate correlations between all variables under study.

	M (/5)	SD	2	3	4	5	6	7
1. Psychological safety	4.45	.58	.37**	.39**	.72**	.17**	.32**	.29**
2. Expertise	4.26	.62		.56**	.43**	.24**	.34**	.21**
3. Value	4.26	.61			.46**	.25**	.36**	.28**
4. Access	4.58	.49				.21**	.34**	.24**
5. Feedback principal	4.05	.73					.43**	.38**
6. Feedback colleagues	4.27	.50						.31**
7. Satisfaction	3.33	.61						

Note. * $p \leq .05$; ** $p \leq .01$. $N = 443$

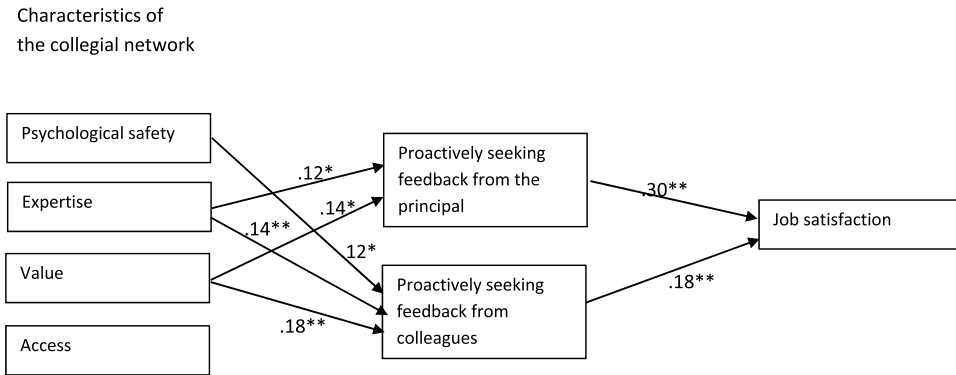


Figure 2. Structural model or relations showing feedback seeking’s mediating role between the characteristics of the collegial network and NQTs’ job satisfaction (only statistically significant paths were included in the presented figure). Note: *Age and degree obtained were also taken into account as control variables in the analysis depicted above.*

3.2 Structural equation model

A model including the characteristics of the collegial network as independent variables, seeking feedback from the principal or from colleagues as mediating variables, and job satisfaction as the dependent variable was tested in AMOS (see, Figure 2). The structural model fit the data well ($\chi^2 = 43.695$, $df = 10$). The CFI (.964) and NFI (.956) estimates were above the recommended threshold. The RMSEA (.087) estimates approached the recommended cut-off values.

These findings partly supported hypothesis 1. Among the characteristics of the collegial network, psychological safety was positively significantly related to seeking feedback from colleagues. Knowing the level of expertise in the network was significantly positively related to seeking feedback from colleagues and to seeking feedback from the principal. Valuing the expertise within the network was significantly positively related to seeking feedback from the principal and had an even stronger positive and significant relation with seeking feedback from colleagues. Hypothesis 2, concerning the relationship between seeking feedback and job satisfaction, was confirmed. The principal seemed to be more important than colleagues; however, seeking feedback from both was significantly positively related to satisfaction. These findings partly supported hypothesis 3, referring to mediation by feedback seeking from supervisor and colleagues of the relation between network characteristics and job satisfaction.

4. Discussion

Previous research on teacher attrition has shown that the number of NQTs who leave the profession during their first years in the job remains alarming (e.g., Skaalvik & Skaalvik, 2011). The reasons for their dropout have been widely studied and include a low level of job satisfaction (Struyven & Vanthournout, 2014). Earlier research focused on the benefits of formal induction programmes. However, a supportive collegial network is more important than formal induction programmes, as it enhances NQTs' job satisfaction and commitment and, in return, reduces their intention to leave the profession (Struyve et al., 2016). On the other hand, NQTs' personal investment in informal learning activities also plays a role. Feedback-seeking behaviour, for instance, has been linked with higher job satisfaction (Crommelinck & Anseel, 2013). In this study, we aimed to understand NQTs' job satisfaction by addressing the characteristics of their collegial network and the extent to which they seek feedback in this network, as a possible path to overcoming the high level of NQT attrition. We aimed to expand ideas of the supportive collegial network and informal learning. In doing so, our study sheds light on the interplay between agency (taking the initiative to seek feedback) and the supportive collegial context and their link with job satisfaction.

The results showed that hypothesis 1 was partly confirmed. The significant positive relations between certain characteristics of the collegial network and seeking feedback from the principal or colleagues revealed that knowing other individuals' areas of expertise and valuing that expertise in the collegial network do play a role in feedback seeking. In contrast to our hypothesis, psychological safety was only related to seeking feedback from colleagues. Remarkably, access was not a significant predictor.

These findings are not surprising, as seeking feedback is influenced by the relationships employees have with their colleagues and supervisor (Van der Rijt et al., 2012). Additionally, when NQTs are part of a collegial network in which learning is stimulated and supported and where their colleagues' expertise is valued, their professional development will be reinforced (Grosemans et al., 2015).

Psychological safety is a critical factor teachers need in order to ask for feedback (Stoll et al., 2006; Vancouver & Morrison, 1995). Our results indicate that NQTs' psychological safety affects their eagerness to seek feedback from their colleagues. These results are in line with prior research from Van der Rijt et al. (2012). They showed that psychological safety was positively associated with the quality of self-initiated feedback from colleagues. In contrast, there was no significant relationship found between psychological safety and seeking feedback from the principal. This might be explained by the NQTs' motives for seeking feedback. Usually, NQTs in Flanders are not offered permanent contracts during the first three years. As a result, they feel very insecure about whether or not they will be able to keep working at the school. These uncertain working conditions create an atmosphere in which NQTs are not intrinsically motivated to seek feedback from the principal, as it can be seen as a sign of weakness or uncertainty. After all, the supervisor is the one who decides whether NQTs' contracts are to be discontinued or renewed. As feedback-seeking behaviour decreases in evaluative contexts (Ashford & Northcraft, 1992), it is not surprising that NQT feel safer asking for feedback from colleagues instead of their supervisor. Additionally, hierarchy has been found to be a constraining factor for engaging in daily interactions within networks (Cross et al., 2001).

Instead, the main motive for NQTs' feedback-seeking behaviour could be more instrumental. Ashford et al. (2003) stated that when operating in uncertain situations, individuals frequently seek feedback that has a particularly high instrumental nature. They reach out to their colleagues to achieve a goal or perform well. In this case, NQTs are less afraid of getting negative feedback or risking being seen incompetent, as this is considered acceptable for a beginning colleague (Kelchtermans & Ballet, 2002). In sum, they assign lower costs to feedback inquiries to colleagues (Crommelinck & Anseel, 2013).

In our study, we did not find a significant relationship between accessibility of the knowledge of colleagues or the principal and the seeking of feedback. This might be explained by the fact that NQTs see their colleagues on a regular basis. In secondary schools, for instance, they are members of a course-related subject area group, where they hold regular consultation meetings with other teachers who teach the same subject. In other words, the physical proximity of colleagues means that reliance on colleagues is spontaneous (Borgatti & Cross, 2003). In addition, some of the respondents participated also in induction programmes in which they shared difficulties or problems, got help or supported each other. This could explain the absence of a relationship between having access to expertise and seeking feedback. Finally, not finding a significant relation between accessibility and feedback seeking from the principal might also be explained by the principal's lack of integration within the networks of NQTs in Flanders. Principals are higher up the ladder and have to deal with more administrative tasks, which makes them less accessible to their colleagues (Cross et al., 2001).

The results related to hypothesis 2, on the relation between proactively seeking feedback from the principal or colleagues and job satisfaction, showed that seeking feedback from the principal or colleagues predicts the job satisfaction of NQTs, where feedback seeking from the principal plays a more important role. Our findings support earlier studies underlining the importance of support from colleagues (Cole, 1991; Kelley, 2004), but it is the feedback from the principal in particular that helps them feel more comfortable in the job (e.g., Hulpia & Devos, 2010; Kelchtermans & Ballet, 2002). Various scholars have reported that the school administration plays a role in the job satisfaction of teachers (Bogler, 2002; Liu & Ramsey, 2008; Tickle et al., 2011). Previous research has also examined the indirect relationship between support from the principal and job satisfaction, and indicated a significant positive relationship (Skaalvik & Skaalvik, 2009, 2011). Kyndt et al. (2016) also stressed the importance of the role of the principal as a meaningful source of information and feedback, rather than just being an administrative leader. Finally, negative feedback from the principal can negatively influence NQTs' job satisfaction and also can have an important influence on their decision to leave the profession (Gallant & Riley, 2017).

Hypothesis 3 took a closer look at proactively seeking feedback from colleagues and the principal as a mediator in the relationship between the characteristics of the collegial network, on the one hand, and NQTs' job satisfaction, on the other hand. Our study showed that seeking feedback from the principal and from colleagues seems to function as a mediator between knowing other individuals' areas of expertise and valuing that expertise in the collegial network and NQTs' job satisfaction. In other words, the more NQTs know about the expertise in their collegial network and value it, the more they

report seeking feedback, which, in turn, appears to be related to their job satisfaction. Seeking feedback from colleagues also functions as a mediator between the psychological safety of the collegial network and the job satisfaction of NQTs.

In conclusion, our findings illustrate the potential of a warm, supportive collegial network for NQTs. Based on our results, we can argue that seeking feedback from the principal and colleagues mediates the relation between knowing other colleagues' areas of expertise and valuing that expertise in the collegial network, on the one hand, and job satisfaction, on the other. Moreover, seeking feedback from the principal is more strongly related to NQTs' job satisfaction than seeking feedback from colleagues.

4.1 Limitations and future research

Four limitations of this study imply that the results must be interpreted carefully. First, respondents participated on a voluntary basis. It is possible that NQTs who felt positive about their first years in practice were more likely to take the time to fill in the questionnaire. As voluntary subject participation can yield bias, future research could use a more random sampling strategy. Next, the data in this study are based on self-report questionnaires. Although most studies on constructs such as social informal learning and job satisfaction use this method, self-reporting can lead to a distorted picture (Van Den Broeck et al., 2014). After all, respondents may have overestimated or underestimated their feedback-seeking behaviour. For future research, we suggest the use of think-aloud protocols, in which respondents have to explain why they scored an item in a certain way (Van der Heijde & Van der Heijden, 2006). Additionally, future research could also triangulate the data by using different methods, such as school-level indicators of job satisfaction (e.g., retention and sick leave data) or even more profound social network analysis for measuring social informal learning. This method can be applied to achieve a more detailed understanding of the social informal learning taking place in NQTs' collegial networks (Crossley et al., 2015; Halgin & Borgatti, 2012).

Second, although model fit indices indicated a very acceptable model, the RMSEA was only marginally acceptable. Therefore, this study would benefit being repeated in the future. Additionally, the cross-sectional design of this study implies that it is not possible to draw conclusions on causality. Future research applying a longitudinal design could confirm our results and would enable us to draw conclusions on the causality of the relationships studied.

Third, a longitudinal follow-up study might reveal the role of the feedback received from the principal during the course of the NQTs' first years in teaching, and indicate critical points in time for NQTs in terms of job satisfaction. Besides that, the motives that drive NQTs to seek feedback from their supervisor can be investigated. Additionally, combining our quantitative findings with an in-depth, qualitative research method in a mixed method study design could reveal possible obstacles to NQTs feedback-seeking behaviour.

Finally, qualitative research could go beyond statistics and study research questions such as: What explains the relationship between the characteristics of the collegial network and NQTs' feedback seeking? What content and visions are discussed when feedback is exchanged? How does feedback seeking give rise to deep learning and, in turn, job satisfaction?

Concluding, our findings illustrate the potential of a warm, supportive collegial network for NQTs. Based on our results, we can argue that seeking feedback from the principal and colleagues mediates the relation between knowing other colleagues' areas expertise and valuing that expertise in the collegial network on the one hand and job satisfaction on the other. Moreover, seeking feedback from the principal is more strongly related to NQTs' job satisfaction than seeking feedback from colleagues.

4.2 Practical implications

This study has several implications for teachers, principals, teacher education and educational policy. First, our results show that seeking feedback from the principal is an important mediator between the collegial network and NQTs' job satisfaction. Therefore, principals need to be made aware of the importance of their feedback (e.g., Schürmann & Beusaert, 2016) and should not underestimate their influence in guiding NQTs during the first year (Brock & Grady, 2010). Levy et al. (2002) have shown that if employees see their supervisors as transformational leaders providing support, autonomy and feedback (Hulpia et al., 2009), they'll have higher intentions to seek feedback, which in turn can foster their job satisfaction (Dumdum et al., 2002). Contrariwise, a lack of support by the principal can cause teacher dropout (Gallant & Riley, 2017).

Second, our findings support the argument that being embedded in a collegial network provides opportunities for NQTs to invest in proactive feedback-seeking from colleagues or the principal (Struyve et al., 2016). As the decision to seek feedback from a colleague is affected by knowing other individuals' areas of expertise and valuing that expertise in the collegial network, principals could, for example, create time for the exchange of ideas (Kelchtermans, 2006) or support co-teaching (Struyve et al., 2016). Additionally, it could be interesting to set up interventions, for example, a collaborative learning space, that reveal the fields of expertise of the colleagues, make them explicit and consequently make knowledge sharing possible. This might be a first step in creating an open and safe environment. By integrating these kinds of systems, the exchange of feedback can be fostered (Crommelinck & Anseel, 2013).

Third, the importance of a collegial network should be taken into account during teacher education by enhancing students' network awareness. After all, seeking feedback from significant others in dealing with professional, emotional and environmental challenges during their induction period (Shoval et al., 2010) can enhance NQTs' job satisfaction.

Finally, at the school level, every teacher should be aware that the characteristics of their collegial network influence the feedback-seeking behaviour of NQTs in their induction period and enhance their job satisfaction. Pomaki et al. (2010) argued that schools should enhance the awareness of social support. They highlighted the need for informal communication involving every team member, and for offering a warm, inspirational school culture through which the support of NQTs would become the responsibility of every colleague in the team (Feiman-Nemser, 2001). If this could be realised, the Robinson Crusoe approach, in which every beginning teacher is thrown into the deep and has to try to swim (Fantilli & McDougall, 2009), would finally become a thing of the past. Above all, it would mean that NQTs would no longer have the feeling that they must swim alone; they would be buoyed up by their collegial network.

Note

1. According to Aspfors (2012), the distinctions between the various concepts related to the early stage of the teaching career, such as *new teacher* or *newly qualified teacher* (e.g., UK) and *beginning* or *novice teacher* (e.g., Australia) are fine ones. In this study, we use the term newly qualified teachers (NQTs) to refer to teachers who recently became qualified and have the same responsibilities as their experienced colleagues (Aspfors, 2012).

Acknowledgments

This research was financially supported by a PWO grant from Odisee University of Applied Sciences, Aalst, Belgium.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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