

The Interrelation between teachers' sense of professional agency and perceived professional recognition: five-year follow-up study of Finnish teachers

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ABSTRACT

Teachers' engagement in active learning from and within their professional community is highly dependent on the support they receive from their colleagues. In this study we examined teachers' sense of agency in the professional community and its relationship with received professional recognition over a five-year follow-up. The sample comprised 2310 Finnish comprehensive schoolteachers who responded to a survey in 2011 and 2016. The results showed that the teachers' sense of agency in the professional community in terms of the reported engagement in transformative practice, collective efficacy, positive interdependency, mutual agreement and active help seeking, was strong and somewhat stable over time. The professional recognition they received from colleagues contributed to the teacher's sense of professional agency in the professional community, enhancing their motivation, efficacy beliefs and skills to learn in the professional community. The study contributes to the research on teacher learning by showing that active learning within the professional community can be enhanced through professional recognition.

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Introduction

Learning from and with teacher colleagues has been found to have several positive consequences for both an individual teacher and for the school community. Peer learning has been shown to be related to teachers' commitment to school development (Lieberman & Pointer Mace, 2008), a student-centred teaching culture (Vescio et al., 2008), experimentation with new teaching methods (Bakkenes et al., 2010) and reduced risk of suffering from burnout (Pyhältö et al., 2015). It has also shown to be related to higher achievement among students (see e.g. Leana & Pil, 2006; Vescio et al., 2008) and

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hence it can promote school effectiveness (see Fullan, 2007). Unfortunately, teachers' engagement in active learning with their peers cannot be taken for granted. There is evidence that teachers do not systematically utilise the professional community as a resource for their learning. For instance, teachers rarely observe each other's classrooms (Kwakman, 2003) or co-teach (OECD, 2014). In Finland, teachers have work time allocated to co-planning, and collaboration is strongly encouraged. However, this resource is often used to prepare single lessons or projects instead of being used for long-term building of a professional learning community. To be able to use the resources of the professional community for teacher learning, a better understanding is needed of both the characteristics of active and intentional teacher learning within the teacher community, and the characteristics of collegial interaction that cultivate teacher learning from and within the community. In this study, we have aimed to fill this gap by exploring the dynamics between teachers' sense of agency in the teacher community, including their motivation, self-efficacy, and skills to learn (Pyhältö et al., 2015), and professional recognition received from their professional community in a five-year follow-up among Finnish teachers.

Teacher agency in professional community

Intentional and responsible management for learning from and with the teacher community cannot be explained by or reduced into a single attribute of the teacher (Pietarinen et al., 2016; Pyhältö et al., 2012). It calls for integration of a teacher's will to learn, perceiving that it is possible in that professional community and skills to do it. Accordingly, teacher's professional agency in the professional community is embodied by interrelated elements of the teacher's motivation to learn, efficacy beliefs of learning, and sufficient (self- and co-regulative) learning skills (Pyhältö et al., 2015; Soini et al., 2016; Van Eekelen et al., 2006; Wheatley, 2005). It is realised in teacher's efforts in (re) constructing, modifying, sustaining, and supporting professional relationships for learning (Pietarinen et al., 2016; Riveros et al., 2012), including learning from, with and for colleagues (Edwards, 2005; Pyhältö et al., 2012). Professional agency emerges as an opportunity to tap into the collective resources of the teacher community in professional learning, such as shared knowledge and practices, social support, and personal feedback (see Kauppinen et al., 2020; Pyhältö et al., 2015). Accordingly, teacher's ability to engage in negotiations, influencing individual and shared work, making collective choices and utilising each other's expertise, is highly dependent on their professional agency in the teacher community. Moreover, our earlier studies have shown that teachers' sense of professional agency in the professional community is related to increased levels of professional agency in the classroom (Pietarinen et al., 2016).

Teachers' agency in the professional community is context dependent (Imants & Van der Wal, 2020) and relational (see Edwards, 2005; Eteläpelto et al., 2013; Greeno, 2006; Lipponen & Kumpulainen, 2011; Priestley et al., 2012). Hence, a teacher may display a strong professional agency in the classroom and lack of it in their professional relationships. Teachers' professional agency is also dependent on the object of activity at hand (Engeström, 2005; Pyhältö et al., 2015). This means that the interrelated elements of teachers' professional agency in the professional community (i.e. motivation to learn, self-efficacy for learning and learning skills) in terms of learning from, with and for

colleagues are translated into contextualised modes of professional agency in the teacher community (Pyhältö et al., 2015).

Recently, we have detected five modes of professional agency in the teacher community, including *transformative practices*, *collective efficacy*, *positive interdependency*, *mutual agreement*, and *active help seeking* for learning (Pietarinen et al., 2016; Pyhältö et al., 2015). All five of them reflect the interrelated elements of motivation to learn, self-efficacy on learning and learning skills, realised in teacher's engagement in interactions and professional development within the professional community (Pietarinen et al., 2016; Pyhältö et al., 2015). *Transformative practice* (Pyhältö et al., 2015) is characterised by the teacher's commitment to develop their expertise (see e.g. Sachs, 2000; Turnbull, 2005) and the ability to use collective discussions and feedback in professional learning. This mode involves seeing the professional community as an essential resource for learning, managing learning at the individual and community levels, and putting effort into both improving the learning environment and regulating their own actions for learning (Edwards, 2005; Pyhältö et al., 2012; Soini et al., 2016; Vähäsantanen, 2015). *Collective efficacy* (Pyhältö et al., 2015) in learning refers to the teachers' trust in their collective proficiency to stay resilient, overcome the challenges and create new functional solutions for the problems faced in work through learning (see Skaalvik & Skaalvik, 2010). This mode reflects teacher's confidence in their professional community's ability to develop shared work practices, make collective decisions and to deal with difficult situations together. *Positive interdependency* for learning between teachers contains experiences of being positively reliant on colleagues, including encouraging others in collaborative practice and reflection, and in turn, using the feedback from others to improve their own practice (Pyhältö et al., 2015). Committing to *mutual agreement* on the principles of shared work entails appreciating the support of the professional community in the form of shared rules enabling the development of individual practice, i.e. valuing the shared expertise and processes (see Clement & Vandenberghe, 2000). This also involves believing in the professional community's ability to commit to the collectively developed and agreed rules of behaviour. Finally, *active help seeking* for learning as a mode of professional agency reflects teachers' ability, efficacy, and motivation to ask for support in challenging situations (Pyhältö et al., 2015).

The modes of teachers' professional agency are built on the professional interactions with colleagues, which are further embedded in the broader socio-cultural context of the school. This means that the quality and quantity of professional interactions sets boundaries and constraints but also opportunities for reinvention and enactment of teacher professional agency (Imants & Van der Wal, 2020; Riveros et al., 2012) in terms of learning. We presume that particularly the sense of being recognised as a valued and respected member of the professional community is a precondition for enhancing teachers' active agency in the professional community (see Hökkä et al., 2017; Van Grieken et al., 2017). Teachers' professional agency in the classroom context has shown to be relatively stable (E et al., 2022; Heikonen et al., 2020; Yli-Pietilä et al., 2023). Hence, we presume professional agency in the professional community also to have some stability over time. For instance, changing the well-established ways in which teachers interact and support each other in the professional community, is hard without intentional and collective learning efforts (see Diehl, 2019; Wood, 2007). On the other hand, individual variation over time is likely to occur in teacher's professional agency.

We recently detected increasing and decreasing trajectories of experienced agency in the classroom at the individual level (e.g. Yli-Pietilä et al., 2023). Identifying factors in the teacher—working environment dynamics that can either facilitate or inhibit active agency over time is crucial for supporting teachers' professional collaborative learning. As teachers' active agency has been suggested to prevent teacher stress and burnout (Pyhältö et al., 2015; Yli-Pietilä et al., 2023), we assume that achieving a high level of agency and being able to maintain active agency in the professional community is also important for teacher wellbeing.

Received recognition from professional community

It has been suggested that the social resources of a teacher community, realised in the quality of professional interactions, are crucial for cultivating teacher agency (see Edwards, 2005; Hökkä et al., 2017; Lipponen & Kumpulainen, 2011). For example, getting ideas from colleagues, experimenting together and shared reflection depend on experiencing the working environment to be supportive, safe, and collegial (see Bryk et al., 1999; Van Grieken et al., 2017).

Receiving professional recognition and being respected and trusted by colleagues are also related to teacher engagement in collaborative learning with their colleagues (see Hargreaves, 2001; Hökkä et al., 2017; Thapa et al., 2013; Van Grieken et al., 2017). Professional recognition entails receiving encouragement, support, and appreciation from colleagues. The recognition teachers receive from their colleagues forms a crucial part of the teacher—working environment fit experience (Pietarinen et al., 2013), which is further connected to teachers' work satisfaction and commitment (see e.g. Hakanen et al., 2006; Johnson et al., 2012). In turn, lack of the respect and support by colleagues and supervisors has shown to increase teachers' risk for suffering from stress and even depression (e.g. Kourmoussi & Alexopoulos, 2016; Lehr et al., 2009).

Moreover, it has been shown that appreciation supports teachers' work engagement in challenging situations (Bakker et al., 2007). Hence, receiving professional recognition provides a potentially significant resource for teacher agency in terms of learning in the professional community. Experiences of being heard, valued, and recognised by the professional community can enhance active agency through participation in collective efforts (see Hökkä et al., 2017; Ruohotie-Lyhty & Moate, 2016). Hence, we presume that recognition and appreciation from the teacher community contributes to teacher's sense of professional agency within their community. By receiving encouragement, support and appreciation from colleagues, the teacher's efforts in (re)constructing, modifying, sustaining, and supporting professional relationships for learning (Pietarinen et al., 2016; Riveros et al., 2012) increase. More specifically, the received recognition and trust among colleagues may enhance boundary crossings which is crucial for taking responsibility for shared growth and seeing the professional community also as an essential resource for teacher learning in the classroom (see Grossman et al., 2001; Wood, 2007).

Aim of the study

The aim of this study is to gain a better understanding of the dynamics between the teacher's sense of professional agency in the teacher community, including their

motivation, self-efficacy, and skills to learn (Pyhältö et al., 2015), and the professional recognition received from their professional community. Based on prior research into teachers' sense of professional agency and received professional recognition (Pietarinen et al., 2013, 2016; Pyhältö et al., 2015), the following three hypotheses were tested to analyse the complexity and stability of socially embedded teacher learning over time:

- (1) The sense of professional agency in the professional community is manifested in teachers' efforts in modifying (i.e. *transformative practice* 'PRAC' and *active help-seeking* 'HELP'), sustaining and supporting (i.e. *collective efficacy* 'CE' and *mutual agreement* 'AGRM'), and (re-)constructing (i.e. *positive interdependency* 'INTER') professional relationships for learning (Pyhältö et al., 2012, 2015; see also Bakkenes et al., 2010; Clement & Vandenberghe, 2000; Edwards, 2005; Putnam & Borko, 2000; Stoll et al., 2006; Vähäsantanen et al., 2009). Accordingly, teacher's agency in the professional community consists of five interrelated factors (PRAC, CE, INTER, AGRM, HELP).
- (2) Professional recognition, i.e. appreciation, support and encouragement from colleagues, (RECG) is a crucial precondition and driving force for an individual teacher's perceived engagement and participation in the professional community (see Edwards, 2005, Hökkä et al., 2017, Lipponen & Kumpulainen, 2011, Pyhältö et al., 2015). Hence, professional recognition is positively related to teachers' agency in the professional community (PRAC, HELP, CE, AGRM and INTER).
- (3) Both the received professional recognition and teacher's professional agency in the professional community show endurance over time and can be predicted by their prior levels (see Heikonen et al., 2020).

Method

Research context

The Finnish comprehensive school system includes primary school (grades 1–6) and lower-secondary school (grades 7–9). Teachers study a master's degree in either educational science or another domain, such as mathematics or biology, with compulsory additional study (35 credits) of educational science. Primary school teachers hold a master's degree in educational science, with the main subject being applied educational science or educational psychology, while subject teachers, who typically teach in lower secondary school, usually have an MA in a certain subject with an additional year of educational science. Special education teachers who teach in both primary and secondary schools have an MA in educational science, the main subject being special education.

Trust in the professionalism of teachers characterises the Finnish educational system (see Sahlberg, 2015). While schools follow the national core curriculum, schools and teachers have pedagogical autonomy in organising education. Moreover, there is no national inspection of schools or teachers. The Finnish school system is being developed continuously. For example, the national core curriculum is reformed in Finland approximately every 10 years, with the most recent renewal being in 2014 (Finnish National Board of Education, 2014). Curriculum making could be viewed as representing the tradition of process control aiming to develop, not just to deliver, curriculum policy

(Mølstad, 2015). In Finland, teachers have autonomy to form their final interpretations of the curriculum document and make creative pedagogical choices within the curricular framework (Sahlberg, 2015). Applying for entry into teacher education is also highly competitive and teaching is a valued profession. Almost all teachers in Finnish schools are formally qualified (Paronen & Lappi, 2018).

Participants

A cohort of Finnish comprehensive school in-service teachers, including class, subject and special education teachers was selected as participants of this longitudinal study by employing a probability sampling method ($N = 6000$). The longitudinal survey data were collected at two time points, in 2011 and 2016. The study was conducted following the guidelines for responsible conduct of research and the ethical principles of research with human participants by the Finnish Advisory Board on Research Integrity (2012, 2019). Participation in the study was based on informed consent and ethical review was not required (Finnish Advisory Board on Research Integrity, 2019).

First measurement 2011 (T1)

The cohort comprised 2310 comprehensive schoolteachers (class $n = 815$; 35%, subject $n = 729$; 32%, and special education teachers $n = 761$; 33%). The mean age of the respondents was 45.3 years ($SD = 9.84$; $Min/Max = 25/71$) with over a third of teachers over 50 years of age ($n = 854$, 37.4%) and about a third under 40 years of age ($n = 735$, 32.2%). Most of the teachers were women ($n = 1877$; 81.3%) and the minority men ($n = 428$). The sample representation was plausible in terms of age and gender, although women were slightly over-represented compared to the gender distribution of Finnish teachers: females 73% and males 27% (Finnish National Board of Education, 2013; for the non-response analysis see; Pyhältö et al., 2015).

Second measurement 2016 (T2)

The second survey was collected in 2016 from the same group of teachers. A total of 1478 teachers (primary $n = 523$; 64.2%, subject $n = 465$; 63.8%, special education $n = 486$; 63.9%) of the original teacher cohort completed the survey, the response rate being 64%. The mean age of the respondents was 48.7 years ($SD = 8.91$; $Min/Max = 30/75$). The sample at T2 had a slight over-representation of female teachers ($n = 1217$, 82.8%) and of teachers over 50 years old ($n = 664$, 45.5%). Teachers under 40 years of age ($n = 275$, 18.9%) were slightly under-represented in the sample at T2 (Finnish National Board of Education, 2013, 2016).

Measures

Scales for measuring teachers' a) professional agency in the professional community and b) received professional recognition were used (Appendix 1).

Based on the research on intentional and responsible management of (teacher) learning (e.g. Bandura, 1997; Hoy, 2008; Pyhältö et al., 2012; Salomon, 1996; Vermunt & Endedijk, 2011), the *professional agency* scale (Pyhältö et al., 2015) has been designed to measure the key integrated elements of teachers' professional agency, including

motivation to learn, efficacy beliefs about learning, and intentional acts to facilitate and manage learning in the professional community (see e.g. Edwards, 2005; Sachs, 2000; Turnbull, 2005). The *Professional agency in the professional community* scale consisted of 15 items measuring five modes of learning that reflect teachers' professional agency in the professional community of the school: *transformative practice* (four items; $\alpha^{T1} = .83$; $\alpha^{T2} = .87$), *collective efficacy* (four items; $\alpha^{T1} = .84$; $\alpha^{T2} = .86$), *positive interdependency* (three items; $\alpha^{T1} = .75$; $\alpha^{T2} = .82$), *mutual agreement* (two items; $\alpha^{T1} = .63$; $\alpha^{T2} = .70$), and *active help-seeking* (two items; $\alpha^{T1} = .71$; $\alpha^{T2} = .72$).

The *received professional recognition* scale (3 items; $\alpha^{T1} = .89$; $\alpha^{T2} = .91$) was designed to measure the teacher-centred approach to the teacher—working environment fit (Pietarinen et al., 2013), i.e. the individual teacher's perceptions of the appreciation they received from colleagues as a member of the professional community. The scale draws on Bakker et al. (2007) job resources components that were derived from the Healthy Organisation Barometer (see Lindström et al., 2000; Pietarinen et al., 2013). All items were rated on a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree).

Analysis

Measurement invariance of the scales between the time points was analysed first. The configural model, metric invariance model and scalar invariance model were compared (Putnick & Bornstein, 2016). A change of over $-.01$ in CFI and TLI values, and a change of over $.015$ in RMSEA or a change of over $.01$ in SRMR were used as cut-off values showing decreased fit that would reject each tested and more constrained model (e.g. Chen, 2007). Both scales were analysed in the same model in which the covariances between the two measurement points of each item were freed. On the professional agency scale, residual covariance between items Ce21 and Ce22 was freed (Pietarinen et al., 2016; Pyhältö et al., 2015). Full scalar invariance was supported (Table 1).

In the hypothesised model, autoregressive effects were defined for each latent variable and the modes of agency in the professional community were regressed on the received recognition. Thus, the model focuses on the interrelations within time points, controlling for the stability of the constructs. A non-significant χ^2 value, CFI and TLI values above $.90$, an RMSEA value below $.08$ and an SRMR value below $.08$ indicate a good fit with the data (Byrne, 2012; Hooper et al., 2008). The analyses were conducted using the Mplus statistical package (version 8.3; Muthén & Muthén, 1998–2017). The full-information maximum likelihood estimation was used, which utilises all available data in the longitudinal sample and produces more reliable estimates than listwise deletion (Schafer & Graham, 2002). The data were rather normally distributed (Byrne, 2012; Hair et al., 2014)

Table 1. Measurement invariance of the scales between the time points.

Model	χ^2	df	p	CFI	TLI	RMSEA
Baseline model, CFA T1	1142.423	119	.000	.932	.912	.061
Baseline model, CFA T2	968.587	119	.000	.928	.908	.070
Configural model	2650.299	508	.000	.932	.916	.043
Metric invariance (factor loadings constrained equal)	2683.329	521	.000	.932	.917	.042
Scalar invariance (factor loadings and intercepts constrained equal)	2818.481	533	.000	.928	.915	.043

with slight skewness (min/max: $-0.50/-1.58$) and kurtosis (min/max: $-0.23/3.16$). Accordingly, the models were estimated using the MLR estimator, which produces maximum likelihood estimates with standard errors and χ^2 test statistics that are robust to non-normality (Muthén & Muthén, 1998–2017).

Results

The descriptive results showed that the teachers had a strong sense of professional agency in terms of *modifying* (i.e. PRAC, HELP), *sustaining and supporting* (i.e. CE, AGRM) and *(re)constructing* (i.e. INTER) professional relationships for learning, and received *professional recognition* from colleagues over the five-year period of teaching career (see Table 2). Most modes of teacher agency increased over the five-year follow-up: *transformative practice* ($t[1467] = -5.40; p < .001$), *collective efficacy* ($t[1467] = -6.54; p < .001$), *positive interdependency* ($t[1468] = -10.68; p < .001$) and *active help seeking* ($t[1466] = -5.83; p < .001$). In turn, *mutual agreement* showed a slight decrease ($t[1465] = 2.25; p < .05$). The professional recognition received sustained at the same mean level ($t[1471] = -1.88; p > .05$). All the correlations among sub-scales within and across time points (T1–T2) were statistically significant in the expected direction (see Table 2), indicating an intertwined relationship between the received recognition (RECG) and the modes of professional agency in the teacher community (PRAC, CE, INTER, AGRM and HELP).

The results further showed that the hypothesised model (Figure 1a&b) fit the data sufficiently well based on the goodness-of-fit indices ($\chi^2[563] = 3000.02, p < .001$; CFI = .92, TLI = .91, RMSEA = .043 [90% C.I. = .042–.045]; SRMR = .05). The model showed that the sense of professional agency in the professional community was constituted by the interrelated modes of transformative practice, collective efficacy, positive interdependency, mutual agreement, and active help seeking at both time points (H1).

Moreover, the autoregressive effects showed that each mode of teacher learning that constitutes the sense of professional agency was somewhat stable over time (H3) (see Figure 1a). More specifically, teachers' perceived capacity to contribute to and appreciate the shared rules of behaviour in facing the most challenging pupils in their work was the most constant mode of teacher learning over time in terms of its

Table 2. Correlations between the variables, means and standard deviations.

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Transformative practice T1 (PRAC1)	-											
2. Transformative practice T2 (PRAC2)	.53	-										
3. Collective efficacy T1 (CE1)	.52	.31	-									
4. Collective efficacy T2 (CE2)	.29	.56	.47	-								
5. Positive interdependency T1 (INTER1)	.66	.46	.59	.38	-							
6. Positive interdependency T2 (INTER2)	.42	.73	.35	.64	.55	-						
7. Mutual agreement T1 (AGRM1)	.55	.35	.54	.29	.51	.31	-					
8. Mutual agreement T2 (AGRM2)	.37	.57	.36	.61	.39	.59	.48	-				
9. Active help-seeking T1 (HELP1)	.47	.31	.61	.31	.53	.33	.37	.27	-			
10. Active help-seeking T2 (HELP2)	.27	.53	.34	.65	.35	.64	.23	.48	.46	-		
11. Professional recognition T1 (RECG1)	.48	.29	.68	.36	.47	.27	.37	.25	.61	.32	-	
12. Professional recognition T2 (RECG2)	.29	.55	.41	.71	.33	.56	.21	.45	.33	.62	.48	-
M	5.46	5.63	4.86	5.06	5.31	5.57	5.74	5.71	5.65	5.82	5.41	5.49
SD	.98	.93	1.11	1.11	.92	.95	1.06	1.08	1.06	1.05	1.15	1.14

*Observed mean variables were used in descriptive analysis. All correlations were significant at p level $< .001$.

prediction of itself over the five-year period (*mutual agreement*, $\beta = .50$) (see [Figure 1a](#)). Moreover, teacher learning in terms of modifying professional relationships by building on their colleagues' ideas and practices (i.e. *transformative practice*, $\beta = .45$) and constructing the organisational climate by contributing to and using the collective resources of the community in their learning (*positive interdependency*, $\beta = .44$) were moderately constant during the five years' time (see [Figure 1a](#)). Being capable of openly discussing even the most difficult subjects in the professional community (i.e. *active help-seeking*, $\beta = .31$) was also moderately constant over five years' time in teachers' everyday work (see [Figure 1a](#)). Agency in terms of supporting and showing trust in the professional community's ability to face and solve challenges (i.e. *collective efficacy*, $\beta = .27$) was the least stable mode of agency in the professional community.

The results also confirmed that the received recognition, i.e. appreciation, support and encouragement from colleagues, was positively correlated with the sense of professional agency in terms of modifying, supporting and constructing professional relationships for learning (H2) (see [Figure 1b](#)). The professional recognition received was positively related to all modes of teacher learning within both measurement points: perceived transformative practice ($\beta^{T1} = .55$; $\beta^{T2} = .46$), collective efficacy ($\beta^{T1} = .80$; $\beta^{T2} = .69$), positive interdependency ($\beta^{T1} = .57$; $\beta^{T2} = .49$), active help-seeking ($\beta^{T1} = .75$; $\beta^{T2} = .63$), and mutual agreement ($\beta^{T1} = .47$; $\beta^{T2} = .41$) (see [Figure 1b](#)). Moreover, the received professional recognition was also relatively stable ($\beta^{T1 \rightarrow T2} = .50$) over time.

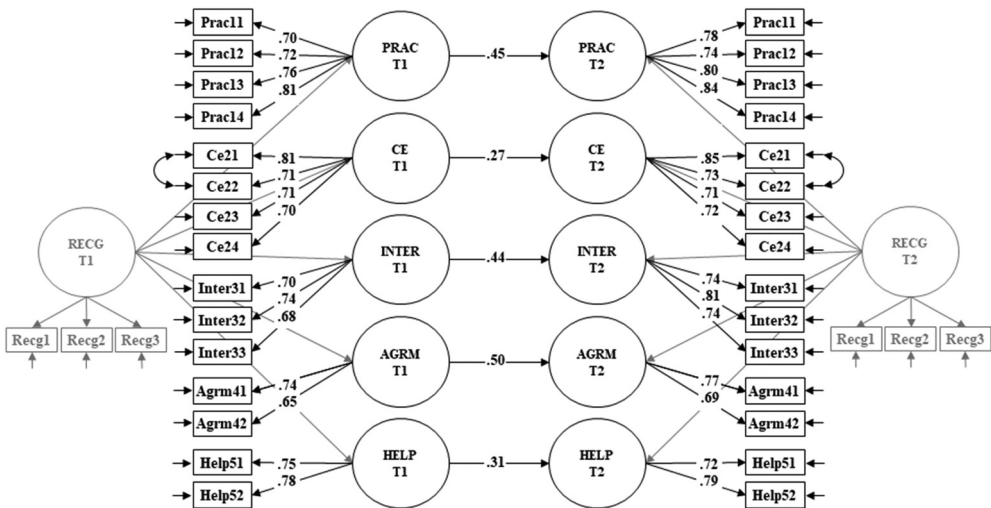


Figure 1a. Standardized model: χ^2 (563, $N = 2310 = 3000.02$ $p < .001$; CFI/TLI = .92/.91; RMSEA = .04; SRMR = .05. All parameters were significant at level $p < .001$. All the variables were estimated together while recognition is faded out for clarity, see [Figure 1b](#).

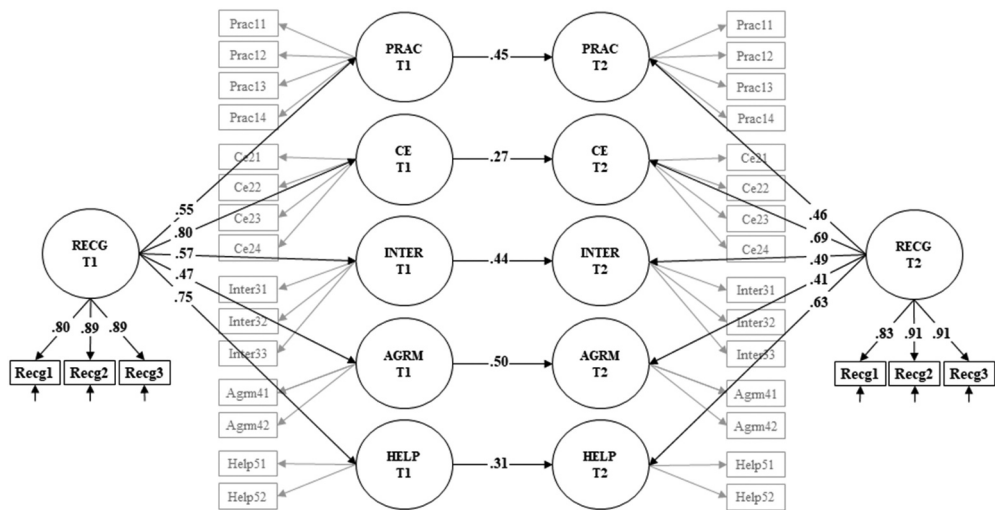


Figure 1b. The standardised model showing the regressions between received professional recognition and the five modes of professional agency in T1 and T2.

Discussion

Methodological reflection

It has been recommended that several fit indices should be used for determining model fit. In this study, the hypothesised model fitted the data adequately well based on most of the fit indices, although the chi-square test of model fit did not support the model. However, the chi-square test has been shown to be sensitive to large sample sizes (see Byrne, 2012). The scales used in this study were consistent in measuring the same constructs at the two measurement points in terms of measurement invariance. Moreover, discriminant validity was examined by comparing the square root of the average variance extracted (AVE) for each construct with the correlations between the different constructs (Hair et al., 2014). Discriminant validity was supported between all other constructs, whereas the correlation between the collective efficacy and active help-seeking factors at T2 was the same as the square root of AVE for collective efficacy (see Appendix 2). However, these two factors were both part of the agency in the professional community scale.

Overall, the validity of the scales was adequate (see also Pietarinen et al., 2016; Pyhältö et al., 2015), however, further research in different contexts is needed. In addition, the mutual agreement and active help-seeking scales have only two items and thus, it would be useful to develop the scales further by including more items. The response rate in this longitudinal study was moderate. The sample at T1 was representative of Finnish teachers in terms of age (see Pyhältö et al., 2015). Female teachers were slightly over-represented in the sample at both time points. Moreover, the proportion of younger teachers was lower at T2.

This study used self-reported survey data to gain information on teachers' experiences of recognition and agency on a large scale. However, common method bias might have influenced the relationship between agency and recognition, which were measured by the

same survey format. Further research with mixed methods could bring valuable new insights on the quality of teacher agency in the professional community, and the role of professional recognition in constructing a supportive working environment fit for teachers. Moreover, it is important to note that causality cannot be inferred from the results, since longitudinal relations between the different constructs were not focused on. Hence, more research on the dynamics between professional recognition, agency in the professional community, and their relationship over time is needed.

Considering these limitations, the study contributes to the research on teacher agency by examining the modes of agency in the professional community and their stability over a five-year period. Moreover, the results highlight the importance of professional recognition, in the form of appreciation and encouragement from colleagues, as a precondition for teachers' collective learning in the professional community.

Theoretical and practical implications

In service teacher learning is suggested to take place primarily by doing and learning from the experience, embedded in the everyday interactions of school (see Korthagen, 2017). Accordingly, the quality and quantity of professional interactions a teacher engages in provide a core resource for facilitating teacher learning (Korthagen, 2017; Postholm, 2012). The aim of this study was to gain a better understanding of teacher learning in the professional community by exploring the interrelationship between teacher's sense of professional agency and the received professional recognition from colleagues. Moreover, the stability of recognition and agency in the professional community was examined over a five-year follow-up. The results showed that teachers' agency in the professional community, entailing transformative practice, collective efficacy, positive interdependency, mutual agreement, and active help-seeking, was strong and somewhat stable over time among Finnish teachers, even though during the follow-up period, the Finnish national core curriculum was reformed, and all schools were engaged in the development work.

The results showed that the modes of professional agency form a structure of related but independent elements of agency in the professional community (Pyhältö et al., 2015). Overall, the teachers experienced collective learning in terms of developing practice together, creating a positive climate with collective efficacy and interdependency, and being able to ask for help in challenging situations on a positive level over the five-year period of their careers. Experiences of mutual agreement on and appreciation of shared rules slightly decreased over time.

The modes of agency in the professional community predicted themselves over time, indicating that teacher's professional agency has some stability over time also in the context of the professional community. The finding is aligned with results concerning teacher's professional agency in the classroom implying that the teacher's agency there is somewhat stable over time (E et al., 2022; Heikonen et al., 2020; Yli-Pietilä et al., 2023). The results indicated that particularly, mutually agreeing on how to handle difficult situations in the community and appreciation of these shared rules of behaviour was a strong predictor of mutual agreement later. Transformative practice, in terms of developing work practices by using and building on colleagues' ideas and practices, and constructing positive interdependency, were also rather constant modes of agency

in the professional community in terms of predicting themselves over time. The findings imply that teachers' professional relationships within the school community as basis for their learning are rather enduring in the perceptions of teachers over time.

The sense of collective efficacy and active help seeking were slightly less stable over time and thus, more susceptible to change. Help-seeking and collective efficacy involve actively working together with other teachers, not only encouraging others or taking ideas from the community for transforming individual work practice. The hands-on collaboration required in active help seeking and collective efficacy related to developing school practice together as a community might involve more vulnerabilities, as contradictory objectives, ambitions, or viewpoints may emerge within the community. It is also worthwhile to recall that the data was collected in midst of curriculum reform which might have involved different pressures and resources for this kind of active learning in different situations over the five-year follow-up (see Imants & Van der Wal, 2020).

Prior research has shown that a positive and open school culture is crucial for teachers' active engagement in learning in the professional community (e.g. Postholm, 2012; Van Grieken et al., 2017; Wood, 2007). Teachers need to feel safe in the professional community, experience trust and to be respected by their colleagues, to be able to cross boundaries and take-up new challenges (see Lee et al., 2011; Van Grieken et al., 2017; Wood, 2007). Our findings complement this understanding by showing that the received recognition, i.e. appreciation, support and encouragement from colleagues, contributes simultaneously to teacher's motivation, efficacy beliefs and skills to learn in the professional community. Thus, the findings imply that a balanced teacher-working environment fit in terms of the professional recognition experienced by teachers facilitates their sense of professional agency (see also Hökkä et al., 2017), i.e. the perceived capacity to modify, support and construct learning-oriented professional relationships, even though the professional context might change over time.

Based on the findings, it can be argued that perceiving professional recognition acts as a facilitator for a safe environment for learning in the professional community and helps to advance valuable relationships and collaboration, which are crucial to teacher agency and learning. This implies that facilitating a culture in the professional community in which each individual feels respected and valued as a professional can be a precondition for building a professional community in which teachers feel safe to take risks in terms of learning (see also Van Grieken et al., 2017; Wood, 2007). It has been suggested that when a teacher feels respected and accepted, they might be more inclined to take responsibility of shared growth in the professional community, to develop their practice and experiment with new ways of teaching without the fear of failure, whereas without the received recognition, collective development work might be perceived as criticism of their individual professionalism (see Grossman et al., 2001; Van Grieken et al., 2017). Moreover, the professional recognition in terms of appreciation and respect by colleagues strongly predicted the perceived recognition after the five-year follow-up. At the same time, the level of received recognition also sustained at a rather high level. This might imply that teachers' sense of being valued and heard as professionals in their school community reflects a culture of trust in schools and a positive professional culture that endures when achieved.

Interestingly, the least stable modes of agency in the professional community, i.e. collective efficacy and help seeking, were also the ones that recognition had the

highest impact on. Thus, it seems that collective efficacy, in terms of the sense of ability to deal with challenges collectively, and skills to seek help actively when it is needed, are more strongly dependent on receiving professional recognition from colleagues than the other modes of agency in the professional community. Results imply that professional recognition is the core collegial feature that enhances active and intentional teacher learning from and within the community. Therefore, a culture with appreciation and recognition of each teacher's professionalism might act as a facilitator that keeps active collaboration, support and collective learning going in the professional community during challenging times, such as during large-scale reforms or unexpected societal crisis. To summarise, our study extends previous research on in-service teacher active and skilful informal workplace learning by 1) showing that received professional recognition from colleagues cultivates teachers' sense of professional agency in the professional community, and by 2) shedding light on the endurance of teachers' sense of professional agency in the professional community and received professional recognition over time. However, further studies are needed to examine the longitudinal (crossed) relations between these constructs, as it was shown that within measurement point, the relationship between the sense of agency in the professional community and perceived recognition was strong. Moreover, in future studies it would be useful to recognise the individual variation in teacher agency in the professional community and recognition, by exploring trajectories of the development of agency by using a person-centred approach.

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Appendix 1

The scales and items for exploring teacher's sense of professional agency and received professional recognition in the professional community (translated from Finnish).

Scales*

1) Teacher's professional agency in the teacher community

Transformative practice (PRAC)

Prac11: Other teachers' ideas inspire me to advance my own teaching.
 Prac12: I'm able to utilise the feedback from teacher colleagues in developing my teaching.
 Prac13: I'm willing to discuss my own work with my teacher colleagues.
 Prac14: The discussions in the teacher community inspire my work.

Collective efficacy (CE)

Ce21: In our teacher community we encourage each other to develop.
 Ce22: We are able to deal with challenging school situations together.
 Ce23: Our teacher community is able to take care of our pupils together.
 Ce24: The common development work in our school has made it easier to carry out my own teaching.

Positive interdependency (INT)

Inter31: I'm willing to act in order to advance the best for our entire teacher community.
 Inter32: I encourage my teacher colleagues to collaborate.
 Inter33: I'm able to utilise the critical feedback I get from the teacher community.

Mutual agreement (AGRM)

Agrm41: Settling the common school behaviour rules helps me to advance my teaching.
 Agrm42: I appreciate the fact that we have shared rules of behaviour in facing the most challenging pupils.

Active help-seeking (HLP)

Help51: I can discuss even the difficult subjects in my teacher community.
 Help52: I'm not afraid to ask the other teachers for help.

2) Teacher-working environment fit: received professional professional recognition (RECG)

Recg1: My colleagues provide me with encouragement and support.
 Recg2: I feel my colleagues appreciate the work I do.
 Recg3: My colleagues are interested in my opinions.

*The item scale: *completely disagree* 1 2 3 4 5 6 *completely agree* 7.

Appendix 2

Discriminant validity in terms of the Average Variance Extracted (AVE) and latent variable correlations from the final SEM model.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Transformative practice T1 (PRAC1)	-											
2. Transformative practice T2 (PRAC2)	.58	-										
3. Collective efficacy T1 (CE1)	.66	.49	-									
4. Collective efficacy T2 (CE2)	.36	.71	.54	-								
5. Positive interdependency T1 (INTER1)	.83	.51	.77	.40	-							
6. Positive interdependency T2 (INTER2)	.50	.85	.53	.81	.57	-						
7. Mutual agreement T1 (AGRM1)	.76	.45	.74	.36	.72	.43	-					
8. Mutual agreement T2 (AGRM2)	.49	.74	.54	.79	.48	.77	.60	-				
9. Active help-seeking T1 (HELP1)	.61	.45	.78	.47	.71	.49	.52	.41	-			
10. Active help-seeking T2 (HELP2)	.36	.70	.49	.84	.40	.86	.31	.67	.55	-		
11. Professional recognition T1 (RECG1)	.55	.48	.80	.56	.57	.49	.47	.44	.75	.55	-	
12. Professional recognition T2 (RECG2)	.27	.59	.40	.80	.28	.62	.23	.53	.37	.74	.50	-
AVE	.85	.94	.66	.70	.68	.78	.76	.80	.91	.92	.75	.78
Squareroot of AVE (Discriminant validity)	.92	.97	.81	.84	.83	.89	.87	.89	.95	.96	.86	.89