



Research paper

Achieving professional agency for school development in the context of having a PhD scholarship: An intricate interplay[☆]

Helma Oolbekkink-Marchand^{a,*}, Anna van der Want^a, Harmen Schaap^b,
Monika Louws^c, Paulien Meijer^b

^a HAN University of Applied Sciences, P.O. Box 30011, 6503, HN, Nijmegen, the Netherlands

^b Radboud Teachers Academy, Radboud University, P.O. Box 9103, 6500, HD, Nijmegen, the Netherlands

^c Department of Education, Utrecht University, Postbus 80140, 3508, TC, Utrecht, the Netherlands

H I G H L I G H T S

- Teachers' agency in the context of a PhD was described as two interrelated processes: agency as autonomy and epistemic agency.
- Teachers' agency as autonomy in the context of a PhD was characterized as extensive, bounded and restricted.
- Teachers' achieve epistemic agency by informed actions influencing curriculum development and research culture in school.
- Teachers achievement of agency resulted from an intricate interplay between personal and social resources.

A R T I C L E I N F O

Article history:

Received 7 January 2021

Received in revised form

12 February 2022

Accepted 19 February 2022

Available online 14 March 2022

Keywords:

Professional agency

PhD scholarship

School development

Teacher research

Secondary education

A B S T R A C T

In this multiple case study, we investigated teachers professional agency in relation to school development in the context of having a PhD scholarship, and the interplay of personal and social resources. Semi-structured interviews were conducted with 11 Dutch secondary education teachers with PhD scholarships. Teachers are achieving bounded, restricted and extensive agency, and performed informed actions aiming to influence curriculum development and research culture. The interplay between personal and social resources we found influences teachers achieving of professional agency. Implications for future research include more in-depth analysis of this interplay of resources in achieving agency.

© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

In both research and practice, there is a call to position teachers as actors who actively influence school development, for example, by contributing to the (school) curriculum (Priestley et al., 2012) or by participative decision-making on school policy (Bouwman et al., 2017). Teachers are seen as professionals who can define their own work and shape their work in the school contexts in which they work. Researchers have indicated that teachers' professional agency is a key capability for advancing student learning,

and for their continuing professional development and school development (Toom et al., 2015).

In this study, we assume that professional agency has a purpose, meaning that teachers' professional agency is always aimed at something, an area of work. Professional agency does not exist simply as such, but has an influence on teachers' work context. An interesting work context in which teachers can achieve professional agency aimed at school development is teacher research (Frost & Durrant, 2002; Yuan & Burns, 2017). Research provides teachers with the opportunity to systematically study and innovate school practices, for example, by developing the curriculum. Up till now, in-depth knowledge about teachers' professional agency in the context of a PhD study has been lacking, while these insights could help shape and develop current teacher preparation programs and continuing professional development programs.

[☆] This work was supported by The Netherlands initiative for Education Research NRO [grant number 405-14-403].

* Corresponding author.

E-mail address: helma.oolbekkinkmarchand@han.nl (H. Oolbekkink-Marchand).

Recent research in the area of teachers' professional agency has focused, for example, on professional agency in the context of educational innovations (Vähäsantanen, 2015), boundary crossing between school and work settings (Vähäsantanen et al., 2009), teacher attrition (Trent, 2017), and social justice (Pantić, 2017). These studies all indicated the importance of teachers' professional agency for their professional work and maintenance of professional identities and provided new insights on what constitutes teacher agency, showing over and over again the importance of the contribution of personal and social resources to the achievement of professional agency. Or, as Edwards (2015) put it, the importance of the dialectic between person and practice. Although both personal and social resources have been studied as such, up till now insights into the interplay between personal and social resources have been scarce, while such resources are crucial in understanding the achievement of agency. As Schaap et al. (2019) indicated, it is not only the social resources, but the personal interpretation of these resources that is important, and even the personal influence on the shape of these social resources.

In these studies, also, it has not always been clear what the purpose of teachers' professional agency is. Therefore, in this study, we chose to focus on professional agency in relation to school development. Various studies have indicated the positive outcomes of teacher research for their personal professional development, indicating that teacher research contributes to an increase in teachers' knowledge of (school) practices, to the personal development of an inquiry stance, and so forth. (e.g., Leuverink & Aarts, 2021; Meijer et al., 2013; Oolbakkink-Marchand et al., 2014). However, these and other studies have also indicated that contributing to school development is problematic; often teacher research is not disseminated in the school and has a limited impact on school practices (e.g., Berger et al., 2005). This is the case even though the aim of teacher research is often to change school practices, and the assumption is that change would come better from teachers than from outsiders (Halsall et al., 1998).

In this study we aim to deepen our understanding by studying in what ways teachers are able to achieve agency for school development within the context of a government-funded professional development program in The Netherlands: the teacher PhD scholarships. We study teachers' professional agency for school development in the context of their PhD research in schools, and we aim to gain insight into the interplay between personal and social resources in relation to the achievement of professional agency.

The PhD scholarship program provides ambitious and experienced teachers with government funding to carry out a part-time four-year research program resulting in a PhD, while at the same time keeping their job as a teacher. Teachers apply individually for this scholarship by writing a research proposal for research on subject matter related or a subject matter didactic theme. The aim of the PhD scholarship is twofold. First, it aims at closing the divide between educational research and educational practice, since the teachers themselves are leading actors in creating relevant knowledge. The second goal is to increase the number of teachers in schools who can model an inquiry habit of mind and show an evidence-based approach to educational practice.

2. Theoretical framework

Today, it is widely accepted that teachers have great influence when it comes to the quality of student learning (Priestley et al., 2015). Consequently, *teachers' professional agency* has regained increased interest among policy makers, educational organizations and researchers (Vähäsantanen, 2015). Such different scholars agree that professional agency provides teachers with the power to (1) influence and give direction to school organizations; (2)

improve the professional dialogue between teachers and school leaders about school development; and (3) increase their level of control in the classroom, which has a positive influence on educational quality and achievement.

Nevertheless, empirical evidence is lacking on how professional agency is manifested through teachers' (research) work and which personal and social resources play a role. Teachers' professional agency "remains an inexact and poorly conceptualized construct in much of the literature" (Priestley et al., 2015 p. 1). The role of professional agency seems underrepresented or under-researched in the literature on educational innovation, especially in relation to professional development and school improvement.

Teacher research is seen as an important vehicle for addressing the research-practice gap (Bakx et al., 2016). In this way, teachers are not positioned as conceivers of knowledge but they play an active role in knowledge creation, which may lead to a more 'research rich teaching profession' and especially to relevant knowledge for educational practice (White, 2021). In the context of teachers' PhD research, this may be seen as specific forms of agency, which Maclellan (2017, pp. 253–269) described as *epistemic agency* and *agency as autonomy*. Agency as autonomy refers to the way teachers experience themselves as having a choice in how to act in their specific school context. And also understanding that their autonomy is a "balance of individual freedom and the external constraints of other persons and specific situations" (Maclellan, 2017, p. 9). Epistemic agency consists of both knowledge-related actions and process-related actions. Knowledge-related actions involve, for example, collecting information and sharing ideas and knowledge. And process-related actions involve setting goals and agreeing on plans, addressing problems that emerge, and so forth. Maclellan (2017, p. 259) referencing (Damşa, Kirschner, Andriessen, Erkens, & Sins, 2010) stated that, "While the epistemic (knowledge-related) dimension leads to the creation of the knowledge object or conceptual artefact, agentic conduct through regulative (process-related) action is necessary to bring the desired outcome to fruition". In addition, in a study by Heikkilä et al. (2020), epistemic agency was understood as "adopting an active and productive stance towards knowledge" (p. 1) and was considered important insofar as it is one of the defining characteristics of a teacher's work. In the context of this study, we adapted the definition by Eteläpelto et al. (2013) to include both agency as autonomy and epistemic agency as essential processes which are part of achieving professional agency in the context of teachers' PhD research. We consider autonomy as agency as the process of interpretation of the possibilities teachers have in this context to contribute to school development. Epistemic agency refers to process and knowledge-related actions aiming to influence school development (Maclellan, 2017). We understand teachers' professional agency as being "practiced when teachers with a PhD project feel the autonomy to exert influence, make informed choices [and adopt an active and productive stance towards knowledge] in a way that affects their work within and beyond schools, and/or their professional identities (Eteläpelto et al., 2013, p. 61; Heikkilä et al., 2020, p. 1, in brackets)."

Achieving professional agency is a dynamic process that is personally constructed through many forms of interaction with the constraints of a given context (Lipponen & Kumpulainen, 2011). Recent literature seems to agree that teachers' professional agency: 1) results from the interplay of personal and social resources; 2) is dynamic in the sense that it may change over time; and 3) has a purpose, in the sense that it influences both work context and teachers' professional identity.

First, the interplay between personal and social resources has been stressed in research. For example, in the ecological view on professional agency: "Actors always act by means of their

environment rather than simply in their environment [so that] the achievement of agency will always result from the interplay of individual efforts, available resources and contextual and structural factors as they come together in particular and, in a sense, always unique situations' (Biesta & Tedder, 2007, p. 137). In the subject-centered socio-cultural perspective developed by Eteläpelto and colleagues (Eteläpelto et al., 2013), personal and social resources were described as "analytically separate but mutually constitutive" (p. 62). Personal resources (e.g., professional identity, professional competences) and social resources (e.g., power relations, material circumstances) influence each other and both contribute to an individual's achievement of professional agency.

Second, scholars have agreed that professional agency can change over time; it is characterized as being dynamic in nature. The achievement of agency may vary due to both changes in work environments, work cultures, and so forth, and changes in personal circumstances. Agency, according to Eteläpelto et al. (2013), is temporally constructed. Similarly, Priestley and colleagues (Priestley et al., 2015) viewed professional agency as a temporal process. Their ecological model of agency consists of three dimensions, taking into account the past or iterative dimension, the present or practical evaluative dimension, and the future or projective dimension. With regard to the iterative dimension, past achievements, understandings and actions are important and are selectively reactivated. Iterative aspects that contribute to teacher agency are personal values, personal capacity and beliefs rooted in past experiences, but also in the day-to-day interactions with colleagues in schools. The projective dimension points at teachers' intentions to bring about a future that is different from the past and the present. The practical-evaluative dimension is concerned with the present, in which agency can be acted out, influenced by both past and future (Leijen et al., 2019; Priestley et al., 2015).

Third, the literature stresses the importance of the purpose of professional agency. Teachers may have different purposes, using their influence to change different practices both within and beyond classrooms and schools. This influence may also result in a transformation of their professional identity. In the definition employed by Eteläpelto and colleagues, this double influence was described as both influences on work and work communities and the renegotiation of professional identities (Eteläpelto et al., 2013). In this study, we focus on teachers' professional agency for school development, for example, aimed at improving instructional practices and outcomes at the school level (Borman et al., 2003). However, influences on student learning and the school organization may also be part of school development (e.g., Cajkler et al., 2014; Frost & Durrant, 2002; Katz & Earl, 2010). As Imants and van der Wal said, "teachers play a central role: they interact with the content of these [e.g., professional development] programs, as well as with the school and classroom work environments in which these programs are assumed to be effectively introduced" (2019, p. 2). The influence of teachers' professional agency as such is part of the definition of teacher agency. In previous studies on teacher research, it was shown that this influence extends beyond the classroom. For example, Meijer et al. (2013) found that teachers share knowledge both inside and outside the school, and some teachers described a culture change in schools as a result of practitioner research.

Researchers have acknowledged the importance of an inquiry stance for teachers, opportunities to learn to do (practitioner) research and an enabling school culture for teacher research (Darling-Hammond, 2017). An inquiry stance for teachers as an important way to improve the quality of education was addressed in the seminal work, *Inquiry as Stance*. By Cochran-Smith and Lytle (2009). Transforming teaching and learning is only possible if practitioners consider every site of professional practice as a

potential site of inquiry. Recent research has addressed how teachers differ in their inquiry stance and how this requires a specific approach in order to cultivate teachers' inquiry stance (Dunn, 2021, pp. 1–15). In a recent study by White (2021), enabling conditions for growing a research-rich teaching profession were identified, which acknowledges the importance of giving teachers the opportunity to develop their expertise in research and the possibility to conduct their own research in schools. Teachers can be involved in different forms of 'practitioner research', which constitutes a "conceptual and linguistic umbrella to refer to a wide array of educational research modes, forms, genres and purposes" (Cochran-Smith & Lytle, 2009, p. 38). Cochran-Smith and Lytle distinguished between action research, teacher research, self-study, the scholarship of teaching and using practice as a site for research, which are carried out by classroom teachers (K-12) or higher education-based teachers, and have in common that the practitioner is a researcher and that this research involves systematicity. In this context, teacher research can also be supported by a PhD scholarship, which may differ to some extent or have different accents compared to these forms of practitioner research. First, teachers were awarded a scholarship by the Dutch Research Council based on their own personal research proposal. This scholarship gives them ample opportunity to work on their PhD studies (two days a week for five years). The teachers themselves are owners of the scholarship and not the schools in which they work. The schools do give their consent and agree to support these teachers by making sure they have sufficient time to work on their PhD studies. Second, a PhD research project requires teachers to meet academic standards (for example, for publishing), requires a high degree of systematicity, involves a long period of time, and at a minimum involves crossing boundaries between school and university. The subject of the research can be related to the immediate didactic work of teachers, but can also be about highly specialized subject matter knowledge.

This study aims to gain more insight into the process of achieving professional agency for school development in the context of a PhD scholarship.

The central research questions in this qualitative and exploratory study are:

- 1) In what ways do teachers achieve professional agency for school development in the context of having a PhD scholarship?
- 2) How can the interplay between personal and social resources affecting teachers' achieving of professional agency in the context of having a PhD scholarship be characterized?

3. Method

As we aimed to gain in-depth insight into teachers' achievement of professional agency *in the context* of their PhD studies, we chose to carry out a qualitative multiple case study (Hamilton & Corbett-Whittier, 2012; Yazan, 2015). In line with Merriam, we consider that "cases are phenomena of some sort occurring in a bounded context" (Merriam, 1998, p. 27). In this study, we consider the cases to be the situations of the teachers with a PhD scholarship in the specific context of school development. We chose the multiple case study method because we want to gain insight into the way teachers achieve professional agency in the context of their PhD studies on multiple research subjects and into the interplay between personal (e.g., motivation for a PhD) and social (e.g., school culture) resources.

3.1. Context

This study was undertaken with secondary education teachers participating in a national PhD program in The Netherlands. This government-funded program offers individual teachers the possibility of undertaking PhD study in combination with their job as a teacher. This means they get the opportunity to work on their PhDs two days a week, for five years, supervised by university professors. Teachers can apply for this funding by writing a research proposal that is critically reviewed by an expert panel. School leaders are involved in the sense that they put their signature on the research proposal. A professor from a university is also involved in the funding proposal and plays an important role in the supervision of the research project. In this context, teachers cross boundaries between school and university, which may have an impact on the professional agency they achieve (Bakx et al., 2016).

3.2. Participants

The participants in this study were 11 secondary school teachers (7 male; 4 female teachers) who were working on a PhD through a PhD scholarship. These teachers were part of a larger study that involved 20 experienced secondary education teachers with a PhD scholarship. Since this study aimed to focus on teachers with a PhD scholarship and how these teachers achieve professional agency in relation to school development, 11 teachers were selected (i.e., purposive sampling) from this larger study who described some sort of impact of their PhD studies on school development, for example, development of curriculum materials for other teachers in the school. These teachers were in different phases of their PhD research (some teachers had just started their PhD research, others had been working on their PhD for a few years and some had almost finished their PhD), taught different school subject (for example, chemistry or history), and had different amounts of experience as a school teacher (varying between 5 and 20 years; see also Table 1). The topics of their PhD studies could be characterized as more subject specific (e.g., climate change) or as related to pedagogy for their school subject (for example, chemistry didactics). The names used in the Table are all pseudonyms.

3.3. Data collection

All teachers ($n = 11$) were interviewed using a semi-structured interview guide. The development of the interview guide made use of the central concepts of this study, namely: 1) professional agency as autonomy for school development, 2) actions influencing school development, 3) personal and social resources. To gain insight into the three concepts, teachers were asked to first describe their own school context and personal professional history, after which respondents were asked to elaborate on their professional agency as

autonomy for school development, their actions influencing school development in the context of their PhD, and resources that supported them. For all three concepts, respondents were invited to share specific examples from their own practice, indicating, for example, what process-related actions they undertook to contribute to a form of school development and what resources contributed to these actions.

The interview guideline for the teachers was piloted before it was used in this study to gather data. Pilot interviews were held with two secondary teachers who were doing a PhD in another national PhD program. The pilots resulted in minimal changes in the interview guideline.

All teachers were interviewed in Dutch at the schools where they worked. Informed consent was obtained for participation and the audio recording of the interviews. The interviews took about 45 min, were audiotaped and transcribed verbatim. After transcription of the interview, a member check was conducted: A meeting was planned with each individual participating teacher during which the transcript was summarized and the participant was invited to make remarks, to indicate whether changes had occurred or to add new examples of practices. Three participants added examples, the other participants had no remarks or comments.

3.4. Data analysis

In this study, we carried out exploratory qualitative data analysis using the following stepwise procedure. After transcription of the interviews, the interviews were closely read by the two members of the research team (first and second authors) and a student assistant. This close reading was followed by a discussion in the entire research team about the unit of analysis for the interviews. Following the research questions, a unit of analysis was defined as a part of the interview that began when a new topic was introduced by either the interviewer or the participant and ended before a new topic began. After this, all interviews were divided into units of analysis and the units were placed in a descriptive matrix. Following Miles et al. (2018), the descriptive matrix was used to gather first-level descriptive data from the cases in the study. The rows in the matrix consisted of the cases (participants) in this study, while the columns represented the central concepts of the study. In the matrix, the interview excerpts (the units of analysis) for each participant were grouped according to the following central concepts of the study: 1) agency as autonomy, 2) epistemic agency, and 3) personal and social resources. We understood agency here as autonomy or the possibilities teachers perceive to influence and make choices in the school context. Epistemic agency consists of informed actions aiming to exert influence on school development. These are both knowledge and process-related actions teachers describe influencing school development. And finally

Table 1
Participants.

Participant	Years of teaching experience	Subject taught	Topic of PhD	Phase of PhD project
Peter	5	Greek/Latin	Latin epos	Start
Tom	11	History	Ancient history	End
John	unknown	Greek/Latin	Latin poetry	Start
Maria	9	Biology	Climate change	Start
Karen	unknown	Physics	Physics pedagogics	Start
Harry	14	History, Latin	Dutch historian	Middle
Harold	20	Physics, mathematics	Cosmic radiation	End
Jean	15	Arts	Dutch artist	Middle
Gerry	13	Dutch language	History of Dutch language	End
Caitlin	12	Physical education	Assessment & student motivation	Start
Henry	10	Chemistry	Chemistry pedagogy	Start

the personal and social resources as the perceived influences on teachers' professional agency. Using the matrix, each of the interview excerpts was closely read across all cases and discussed by the researchers. Next, short summaries were made of the text in each cell of the matrix, staying as closely to the original interview transcript as possible. This resulted in two or three sentences for each concept and case. The summaries enabled the researchers to gain an overview of the data and to compare across the cases.

In the next step, a coding scheme was developed, in an iterative process involving the central concepts of the study as main categories. Sub-codes were developed using the process of open coding (Corbin & Strauss, 2008). An overview of the main and sub-codes can be found in Table 2 (professional agency), Table 3 (impact on school development) and Table 4 (personal and social resources). All interview excerpts in the matrix were coded using this coding scheme (see Tables 2–4). Next, the cases were studied according to the three central concepts: agency as autonomy (Table 2), epistemic agency (Table 3), and personal and social resources for professional agency (Table 4). To illustrate the results, quotations were added for each of the main codes and sub-codes. The quality of analyses was ensured by collaborative coding and discussing differences to obtain consensus. In order to illustrate the interplay of personal and social resources in relation to the achievement of teachers' professional agency, three cases were selected from the matrix, and case descriptions were constructed. As the intention in focusing on these cases was to illustrate the interplay of teacher agency and

resources, three participants with various forms of achievement of agency were selected. One participant had 'bounded agency', one participant had 'restricted agency' and one participant had 'extensive agency'. Each case description was based on the data for one participant and contained three parts: 1) the teacher's professional background, 2) characterization of the teacher's professional agency and personal and social resources, and 3) analytic/interpretative remarks on the interplay of these resources, based on the first two parts.

4. Results

The results section consists of two parts. First, the results for each research question will be described for all participants. Second, case descriptions of three participants will be provided to illustrate the interaction and connection of the two research questions.

4.1. Achieving professional agency as autonomy

The results for our first research question (In what ways do teachers achieve professional agency for school development in the context of having a PhD scholarship?) show that achievement of professional agency as autonomy can be characterized as 'bounded', 'restricted', or 'extensive' (see Table 3). Teachers achieve extensive professional agency when they experienced and used the

Table 2
Agency as autonomy*.

Agency as autonomy	Description	Teachers (Pseudonyms)	Quotation
Bounded	Teachers experience some possibilities of achieving professional agency for school development. Teachers experience the amount of possibility as 'neutral' (neither positive nor negative).	Peter, Caitlin, Henry, Jean	"Because I am doing research at the university (...) I have the possibility to talk about this with students. (...) I asked permission at school to attend a conference, which was granted. (...) I do not know how it is formally organized, but they (school management) do not ask about it." (Peter)
Restricted	Teachers experience restricted possibilities of achieving professional agency for school development. Teachers perceive this restriction as a hindering limitation.	Karen, Harry, Harold	"At this moment, I do not [experience possibilities to contribute to school development]. I talk to some colleagues about it within my subject matter department, because my topic is closely related to our physics curriculum." (Karen)
Extensive	Teachers experience and use ample professional agency and know how to deal with possible boundaries/restrictions.	John, Maria, Tom, Gerry	"Definitely [as an answer to the question 'are there options to contribute to school development]. For instance, we develop and teach a new subject, called 'big history', and also, well, all other things that are related to science/research I am involved in somehow." (Maria)

*n = 11.

Table 3
Epistemic agency*.

Informed actions influencing School Development ^a	Description	Teachers (Pseudonyms)	Quotations
Actions aiming to exert influence on curriculum development	Teachers describe different knowledge-and process-related actions to encourage curriculum development for example developing course content for colleagues, new subjects or contributing to curriculum innovation.	All	"I contributed a lot to the development of the elective subject, 'Science.'" (Harold)
Actions aiming to exert influence on research culture	Teachers describe knowledge and process-related actions to encourage a research culture at the school for example encouraging student research, using evidence to inform discussions.	Gerry, Jean, Harold, Maria, John, Tom, Peter	"My research skills increased and because of that I am better able to help students with their research projects. (...) And also, I am better able to see things from an abstract level/with an analytical view, not only when it is research related but also when it is related to team discussions or curriculum development or whatever." (Gerry)
Actions aiming to exert influence on students' attitude towards research	Teachers describe knowledge and process-related actions to encourage students 'attitude to research for example by speaking about new topics or creating enthusiasm for research/subjects.	Harold, John, Peter	"It is not possible to translate everything from a PhD directly to something that students understand or find interesting, but, well, you can transfer the enthusiasm." (Harold)

*n = 11.

^a Teachers can have multiple sub-codes for informed actions aiming to influence school development.

opportunities to contribute to school development. In other cases, teachers experienced limited possibilities to contribute to school development, in which cases the achievement of professional agency is described as restricted. And finally, some teachers achieved professional agency that can be characterized as 'bounded', meaning they experienced some possibilities within the boundaries of the school to contribute to school development. As can be seen in the table, achievement of agency varies among these teachers, and no one of these forms is seen more than the others in these cases.

In addition, we found three ways in which the teacher's informed actions influenced the school organization (epistemic agency), which are described in Table 4 below. Teachers mainly described influencing curriculum development. Teachers also indicated that there was an impact on the research culture at the school and on students' attitude towards research.

The results for our second research question (What personal and social resources contribute to teachers' achievement of professional agency in the context of having a PhD scholarship?) can be found in Table 4. We found that both personal and social resources influence teachers' achievement of professional agency for school development. We found three personal resources conducive to teachers' professional agency: personal ambition to develop as a teacher, motivation to contribute to school development, and professional development. Some of these teachers identified multiple personal resources, for example, Tom and John. Across our cases, most teachers mentioned teachers' motivation to contribute to school development. Social resources conducive to achieving teacher agency were colleagues' interest, stimulating school culture and school facilities. The teachers in our cases also mentioned multiple social resources. Most often, teachers mentioned school facilities and infrastructure as conducive to their professional agency for school development.

4.2. Achieving professional agency for school development: the cases of Harry, Caitlin and Tom

In the three cases below, we describe teachers' achievement of professional agency in the context of their PhD studies, and show in what way the interplay between personal and social resources contributes to their achievement of agency.

Table 4
(Perception of) Personal and Social Resources for Professional Agency.

Resources	Description	Teachers	Quotations
Personal resources			
Personal ambition to develop as a professional within the school	Teaching does not fulfil enough, which gives teachers incentives to look for new challenges (such as contributing to school development).	Tom, John, Karen	"I wanted to challenge myself. (...) PhD research provides me with the opportunity to dive deep into the physics." (Karen)
Motivation to contribute to school development	Teachers have a personal motivation to contribute to school development.	Tom, John, Maria, Harold, Jean, Gerry, Henry, Caitlin	"I find research important (...) and I find it important that, in secondary education, teachers talk [with students] about research, (...) that is included in the curriculum." (Tom)
Professional development	Teachers want to develop professionally as a teacher.	Karen, Harry, Jean, Caitlin	"When I am teaching, then I only develop my teaching and the curriculum, but I also want to develop myself in the subject matter. (...) And in the future, for example, I would also like to teach at a university of applied sciences." (Jean)
Social resources			
Interest of colleagues	Colleagues show interest in research.	Peter, John, Henry	"Well, there are many colleagues who are interested [in my research] (...) during informal conversations in the breaks, for instance." (John)
School culture	The school is a place that stimulates research and one's own initiative.	Peter, Maria, Karen, Caitlin, Henry	"I just proposed an idea (...) they [school management] are really easy, because I just presented my idea and said yes, they liked it very much." (Maria)
School facilities/ infrastructure	The school facilitates doing research by providing time and space.	John, Maria, Karen, Harry, Harold, Jean, Caitlin	"I asked school management whether I could stop teaching students for some time and just develop exams and work on my PhD in order to make a good start with my PhD [and they agreed]." (Harold)

4.2.1. Harry – restricted agency

Harry was a history and Latin language teacher in a secondary school in The Netherlands. He had 14 years of teaching experience. Ever since his graduation from university, Harry considered doing a PhD. About his personal resources, Harry stated: "There is this deep curiosity within me that drives me to maximally develop myself as a professional." He was very curious about history, wanted to develop himself as a professional and called himself a "content-focused teacher." He stated that doing a PhD will make him a better teacher. His PhD research focused on a Dutch historian and his influence in society. He was in the middle of his PhD studies. Harry perceived opportunities for himself to try out new things in his classroom and to go to conferences related to his PhD research. Harry's social resources were limited to formal school facilities and infrastructure to conduct his PhD: His school granted him permission to do a PhD, but otherwise the school did not know what to expect. The school management was not really interested in his PhD, and some colleagues wondered whether his PhD was relevant at all. Harry was disappointed by the lack of interest at school. Despite the lack of interest from the school management and most of his colleagues, Harry tried to contribute to school development by organizing school-wide lectures on research methods to stimulate student research. Harry stated: "I am disappointed about that and my disappointment increased when the school management did not respond in any way on the input I provided them."

The perceived interplay between Harry's personal and social resources can be described as 'not aligned'. Harry was a teacher who was intrigued by his subject (History) and wanted to develop himself. His school was not specifically interested in his PhD or his ideas, about which Harry was disappointed and frustrated. Harry perceived that the school let him be and allowed him to develop the history curriculum, but was not interested further. Despite these unfavorable circumstances, Harry tried to contribute to school development.

4.2.2. Caitlin – bounded agency

Caitlin was an experienced physical education teacher in a secondary school. She was in the beginning of her PhD study on the role of assessment in student motivation. After graduating from the teacher education department, she wanted to continue studying. Caitlin told us: "After graduation I always thought, I want to continue

studying', but I enjoyed teaching so much that I kind of rolled into this job as a teacher and stayed." Caitlin had always been focused on ways to improve education. The Master of sports degree she completed and her PhD offered opportunities for her to improve education in her own subject area. One of her personal resources was that she was very motivated, both for doing research and for translating research to her own practice and school practice.

Caitlin said to the school leader that she could give input on pedagogy in practice based on expertise she was developing in her PhD project and then the school leader invited her to prepare breakfast sessions. Caitlin explained: "You could say it is all my initiative, but that is not completely true because the school stated that they want my contribution [to school development]." She organized breakfast sessions for her colleagues about pedagogy in practice in which she used insights from her PhD studies. Along with these breakfast sessions, she also discussed the outcomes of the breakfast sessions in a school-wide meeting. She also used the preliminary insights from her study in her classes with students. She tried to apply different theories in her lessons, and this had a positive influence on (the motivation of) students. Caitlin stated: "I really enjoy contributing [to school development]."

When she started her PhD research, she found that the school had no expectations of the outcomes. They were, however, open to supporting her and to helping her work on her PhD. For example, she had regular conversation with her school leader, out of interest in what she does. Although there were no expectations, she was given the opportunity to contribute to school development.

The perceived interplay between the personal and social resources in the case of Caitlin can be described as 'complementary'. She had a strong motivation to contribute to school development and made an offer to the school leader to share her expertise, who consequently invited her to organize breakfast sessions in which she shared with her colleagues the expertise gained from her research.

4.2.3. Tom – extensive agency

History teacher Tom had been a teacher for 11 years. He was in the last phase of his PhD project, which focused on ancient history and archeology. "I always wanted to do a PhD because I am interested in archeology and because you can endlessly refer to it during your lessons." He initially applied for the PhD scholarship, but then his proposal was not funded. The next year, Tom tried again and received the funding.

Tom contributed in various ways to school development; he was involved in developing curriculum for a new subject called 'Orientation to Science'. Tom took the initiative to create this new subject in order to try to solve a problem experienced at school: Students are not interested at all in what happens in society. Tom stated: "We are trying to motivate students to become more aware of societal issues and research. However, a research culture is lacking at this school and there is a lack of research attitude among colleagues." Tom contributed to the research culture at his school by developing a new subject, organizing research-minded activities for students and teachers. Tom was very motivated to do research, and saw and created plenty of opportunities to contribute to school development. In other words, Tom had many personal resources for contributing to school development. Concerning Tom's social resources, the results showed that Tom was not compensated formally for the new subject and activities he developed, but informally his school leader gave him fewer duties/tasks, which Tom thought was fine. He perceived ample opportunities to connect his PhD to his teaching and to contribute to school development at different levels in the school. Tom discussed his thoughts and actions with his school leader and felt supported by his school leader. Tom was also asked by the school leader to be involved in

policy development at the school.

The perceived interplay between Tom's personal and social resources can be described as 'stimulating'. Tom's use of his personal resources to contribute to school development was appreciated and stimulated by the school leader, who supported Tom's ideas and activities and invited Tom to contribute by being involved with the school policy, although the support remained informal.

4.2.4. Reflection on the interplay of resources in the three cases

The three cases of Harry, Caitlin and Tom illustrate three different ways of achieving professional agency, actions influencing school development and interplay between personal and social resources. The case of Harry can be characterized as restricted agency for school development. His case shows, on the one hand, that teachers like Harry will find a way to achieve professional agency to contribute to school development irrespective of the school support and school culture. On the other hand, this case also shows how a lack of interest from the school (management and colleagues) resulted in a disappointed teacher who did not contribute to school development to his full potential. The case of Caitlin can be characterized as bounded agency for school development; Caitlin took the initiative, as she was very motivated for sharing her expertise and contributing to school development and her initiatives were supported. For example, she asked the school leader to contribute to the breakfast sessions and he supported her in doing that. The school environment overall was supportive for what Caitlin did in the sense that they showed interest in her work and gave her opportunities. Caitlin used the opportunities offered by the school within the boundaries or professional development form chosen by the school. It seems that the school did not invite Caitlin to contribute to school development. Tom experienced plenty opportunities to contribute to school development; in other words, Tom's agency can be characterized as extensive. Tom was supported by his school leader, but there was no supporting research culture. Formal compensation for the activities Tom engaged in was missing. Despite all this, Tom managed to stay positive, work on his PhD and was *the go-to* person for initiating and creating a research-minded school. Harry achieved restricted agency and felt hindered by the lack of interest from his school leader, as a result of resources that were not aligned. Caitlin achieved bounded agency thanks to the interaction with her school leader and the interplay between resources in her case seems aligned. Tom, on the other hand, engaged in many activities related to school development and was informally supported by his school leader; the interplay between personal and social resources in his case seems stimulating.

5. Discussion

In this study, we aimed to gain insight into the ways teachers achieve professional agency in the context of having a PhD scholarship. We conceptualized professional agency using the definition by [Eteläpelto et al. \(2013\)](#) and adding insights about agency as autonomy and epistemic agency from [MacLellan \(2017, pp. 253–269\)](#). This study took place in the context of teachers' pursuit of a PhD, which might give them the feeling of autonomy and the opportunity for knowledge-related and process-related actions as an intrinsic part of their research. Reflecting on the outcomes, we realize the importance of specifying professional agency in a teachers' PhD context as consisting of two processes. Our results show that both a feeling of autonomy and informed actions play a role in achieving professional agency in the context of a PhD scholarship. The interplay between resources we found influences both the feeling of autonomy and performing informed actions influencing school development. Especially if resources are

complementary or stimulating this seems conducive to achieving teacher agency for example in the case of Caitlin who was motivated to contribute to school development and was supported by the schoolleader. Our attempt in this study to characterize the interplay conducive to achieving agency (e.g., not aligned, complementary, and stimulating) seems to be a relevant theoretical outcome. This adds to our understanding of interplay, which always comes together “in a sense, always in a unique situation” (Biesta & Tedder, 2007, p. 137), but can also be characterized as, for example, non-aligned, which may lead to more in-depth insight into the interplay in different situations.

Our findings showed three manifestations of teacher agency as autonomy in relation to school development and in the context of PhD studies: restricted, bounded and extensive. Teachers described that they acted within boundaries or that they felt these boundaries restricted them from realizing the impact of their research in the school. Alternatively, teachers described that they acted and went beyond boundaries to realize an impact in the school organization. These findings add nuance to previous research findings in which agency was characterized as a continuum, indicating either weak or strong manifestations of agency, or low or high manifestations of agency (Eteläpelto et al., 2015; Vähäsantanen, 2015). We also found a characterization of agency as bounded which indicates that teachers experience autonomy within the boundaries and possibilities of their school context. This finding is partly in line with previous research on innovative teachers in which agency was also characterized as bounded (Oolbekkink-Marchand et al., 2017) and teachers described experiencing a space to act within a certain boundary. In a study by Vähäsantanen and colleagues (Vähäsantanen et al., 2009), both extensive and restricted agency were described in the context of teachers’ boundary crossing between school and working life.

In our study, different informed actions aiming to influence school development were found: informed actions for curriculum development, research culture and students’ attitude towards research. We found that most teachers contributed to the curriculum in their school, either in direct relation to the topic of their PhD study or more generally in relation to student inquiry in the curriculum. Another explanation can be found in the duration of teacher research projects and the type of research teachers undertook. In this context of having a PhD scholarship, a five-year trajectory with both scientific and practice-oriented ambitions, it may be that teachers have more time and structural support from the university encouraging them to have an impact on school development.

In previous research on teachers’ agency, different personal and social resources have been both postulated theoretically and found empirically (e.g., Oolbekkink-Marchand et al., 2017; Pantić, 2015; Vähäsantanen, 2015). Our findings show that the main resources teachers perceive as contributing to their professional agency are both personal and social. Motivation to contribute to school development is the main personal resource teachers describe, which contributes to the manifestation of professional agency, especially as teachers are eager to have an impact on school development with their research. We did not find indications that self-efficacy was an important personal resources for teachers although this could be expected based on research showing the importance of self-efficacy in relation to agency (MacLellan, 2017). Self-efficacy as the idea that teachers can knowingly effect change in the school context would seem relevant for teachers with a PhD who might feel more or less confident in their role as a researcher as opposed to their role as a teacher. One explanation could be that self-efficacy is often perceived as a general construct, but that it needs specification for the context of experienced teachers doing a PhD. One could think of for example self-efficacy for leadership or

self-efficacy in the role as boundary-crosser between school and university. Further, such specific ways of self-efficacy could affect the way how teachers perceive school infrastructure and culture in relation to school development, two main resources we have identified. For example, relatively low levels of self-efficacy could hinder teachers in making full use of the available resources in school.

The cases we described show no explicit relation between the manifestation of teachers’ professional agency and the actions aimed to influence school development; in other words, teachers with extensive agency and restricted agency can both contribute to some form of school development within or beyond boundaries. However, it does seem that restricted agency limits teachers from using the possibilities in the environment to their full potential, as seen in the case of Harry, who did not receive any response on the input he provided to his school leader. These cases do show the intricate interplay between personal and social resources and teachers’ achievement of agency in the context of their PhD studies. These cases show, on the one hand, the importance of social resources, such as the support of a school leader, for achieving agency, but they also show that social resources are in themselves not enough. Likewise, they show the importance of personal resources, but also that these personal resources in themselves are not enough. The cases indicate an intricate interplay between the person of the teacher and their resources and the resources in the context, showing that achieving agency is indeed deeply personal and social. In the case of teachers’ PhD research, teachers’ personal motivation is not enough, nor is a favorable school environment, it is the interplay between the personal resources and the interpretation of the social resources by the teacher that contributes to professional agency for school development.

This study has limitations, as we chose to conduct a qualitative multiple case study and we purposively selected 11 teachers in whom we found indications of informed actions for school development. Of course, the small sample is a restriction, and more research in different research contexts is necessary to gain further insight into teachers’ professional agency both in the context of having a PhD scholarship and also in other practitioner research contexts. This may lead to other insights on, for example, the contributing resources and the possible impact on school development. In addition, more empirical research is needed on the intricate interplay between personal and social resources in the achievement of teacher agency. Studies up till now have mainly focused on describing resources, but not so much on the interplay between person and practice or the dialectic between person and practice (Edwards, 2015). In future studies, mixed methods approaches may be valuable, in which, for example, observations of relevant school practices are combined with in-depth interviews or with social network analysis and in which multiple data sources are gathered over a longer period of time. We also decided to interview the teachers and we used these insights as our main source. In future research, a more ecologically valid picture can be obtained when colleagues, school leaders and maybe students are interviewed to gain more insight into the context and structure in which professional agency is achieved, on the one hand, but also to gain more insight into the perceived impact of research on school practice. Finally, to obtain more insight into the interplay of personal and social resources and the dynamic of professional agency, longitudinal research is necessary. Studying teachers in their respective school contexts using multiple data sources over a longer period of time can provide us with more in-depth insights into possible patterns in the interplay of personal and social resources over time.

Our study can contribute to practice, as it provides teachers who are doing research with insights into the possible influences on

school development achieved through performing research, and it can also help them to reflect on their role as agents in their respective school contexts and the possible resources they have and make use of. School leaders can profit from the insights this study provides into the importance of the school organization and school culture as conducive to realizing influence on school development. It can also help them reflect on their role and the influence they can have by actively inviting teachers to exercise their agency (e.g., Louws et al., 2020). Finally, policymakers or funders of teacher research can help build teacher capacity not only by providing them with funding, but also by helping them to reflect on the research impact in their specific school contexts, and their possible role and influence in active relation to their school leaders.

6. Conclusion

Overall, our study provided more insight into teachers' professional agency for school development in the context of having a PhD scholarship. In the specific context of a PhD scholarship, we found that both a feeling of autonomy (agency as autonomy) and informed actions (epistemic agency) play a role in achieving professional agency for school development. As such, we elaborated further on the work of MacLellan (2017). Our study confirms that agency as autonomy and epistemic actions are both necessary for achieving teacher agency. We can add to MacLellan that agency as autonomy can be experienced both as extensive, bounded or restricted. We can also add that informed actions were either related to enhancing curriculum development and the research culture in schools and that such actions were related to teachers' attitude towards research. Both specifications were the result of an intricate interplay between personal and social resources which we characterized in our study as: not aligned, complementary and stimulating. We found that the personal interpretations or perceptions of resources by teachers play a crucial role and can lead to these different kinds of interplay (Imants & Van der Wal, 2019). This attempt may contribute to the conceptualization and empirical investigation of interplay of resources for achieving agency in future studies, which is often theoretically assumed but empirically scarcely investigated (e.g., Vähäsantanen, 2015). As such, this study provides more empirical and conceptual insights into what teacher agency is and how it manifests in the context of having a PhD scholarship and in relation to school development.

CRedit author statement

Helma Oolbekkink-Marchand: Conceptualization, Methodology, Data-Analysis, Writing, Reviewing and Editing Anna van der want: Formal analysis, Writing, Editing Harmen Schaap: Conceptualization, writing, editing Monika Louws: Editing, reviewing Paulien Meijer: Reviewing.

Declaration of competing interest

The authors confirm that there is no conflict of interest with regards to this study.

References

Bakx, A., Bakker, A., Koopman, M., & Beijjaard, D. (2016). Boundary crossing by science teacher researchers in a PhD program. *Teaching and Teacher Education*, 60, 76–87. <https://doi.org/10.1016/j.tate.2016.08.003>

Berger, J. G., Boles, K. C., & Troen, V. (2005). Teacher research and school change: Paradoxes, problems, and possibilities. *Teaching and Teacher Education*, 21(1), 93–105. <https://doi.org/10.1016/j.tate.2004.11.008>

Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132–149. <https://doi.org/10.1080/02660830.2007.11661545>

Borman, G. D., Hewes, G. M., Overman, L. T., & Brown, S. (2003). Comprehensive school reform and achievement: A meta-analysis. *Review of Educational Research*, 73(2), 125–230. <https://doi.org/10.3102/00346543073002125>

Bouwman, M., Runhaar, P., Wesselink, R., & Mulder, M. (2017). Fostering teachers' team learning: An interplay between transformational leadership and participative decision-making? *Teaching and Teacher Education*, 65, 71–80. <https://doi.org/10.1016/j.tate.2017.03.010>

Cajkler, W., Wood, P., Norton, J., Pedder, D., & Xu, H. (2014). Teacher perspectives about lesson study in secondary school departments: A collaborative vehicle for professional learning and practice development. *Research Papers in Education*, 30(2), 192–213. <https://doi.org/10.1080/02671522.2014.887139>

Cochran-Smith, M., & Lytle, S. L. (2009). *Inquiry as stance: Practitioner research for the next generation*. Teachers College Press.

Corbin, J., & Strauss, A. (2008). Strategies for qualitative data analysis. *Basics of Qualitative Research. Techniques and procedures for developing grounded theory*, 3.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education*, 40(3), 291–309.

Dunn, R. (2021). *Teacher inquiry: Towards a typology of a teacher's inquiry disposition*. Professional Development in Education.

Edwards, A. (2015). Recognising and realising teachers' professional agency. *Teachers and Teaching*, 21(6), 779–784. <https://doi.org/10.1080/13540602.2015.1044333>

Eteläpelto, A., Vähäsantanen, K., & Hökkä, P. (2015). How do novice teachers in Finland perceive their professional agency? *Teachers and Teaching*, 21(6), 660–680. <https://doi.org/10.1080/13540602.2015.1044327>

Eteläpelto, A., Vähäsantanen, K., Hökkä, P., & Paloniemi, S. (2013). What is agency? Conceptualizing professional agency at work. *Educational Research Review*, 10, 45–65. <https://doi.org/10.1016/j.edurev.2013.05.001>

Frost, D., & Durrant, J. (2002). Teachers as leaders: Exploring the impact of teacher-led development work. *School Leadership & Management*, 22(2), 143–161. <https://doi.org/10.1080/1363243022000007728>

Halsall, R., Carter, K., Curley, M., & Perry, K. (1998). School improvement: The case for supported teacher research. *Research Papers in Education*, 13(2), 161–182. <https://doi.org/10.1080/0267152980130204>

Hamilton, L., & Corbett-Whittier, C. (2012). *Using case study in education research*. Sage.

Heikkilä, M., Hermansen, H., Iiskala, T., Mikkilä-Erdmann, M., & Warinowski, A. (2020). Epistemic agency in student teachers' engagement with research skills. *Teaching in Higher Education*, 1–18.

Imants, J., & Van der Wal, M. M. (2019). A model of teacher agency in professional development and school reform. *Journal of Curriculum Studies*, 52(1), 1–14. <https://doi.org/10.1080/00220272.2019.1604809>

Katz, S., & Earl, L. (2010). Learning about networked learning communities. *School Effectiveness and School Improvement*, 21(1), 27–51. <https://doi.org/10.1080/09243450903569718>

Leijen, A., Pedaste, M., & Lepp, L. (2019). Teacher agency following the ecological model: How it is achieved and how it could be strengthened by different types of reflection. *British Journal of Educational Studies*, 68(3), 295–310. <https://doi.org/10.1080/00071005.2019.1672855>

Louwerink, K. R., & Aarts, A. M. L. (2021). Changes in teachers' professional behavior through conducting teacher research. *Journal of Educational Change*, 1–24.

Lipponen, L., & Kumpulainen, K. (2011). Acting as accountable authors: Creating interactional spaces for agency work in teacher education. *Teaching and Teacher Education*, 27(5), 812–819. <https://doi.org/10.1016/j.tate.2011.01.001>

Louws, M., Zwart, R., Zuiker, I., Meijer, P., Oolbekkink-Marchand, H., Schaap, H., & van der Want, A. (2020). Exploring school leaders' dilemmas in response to tensions related to teacher professional agency. *Professional Development in Education*, 46(4), 691–710.

MacLellan, E. (2017). *Shaping agency through theorizing and practicing teaching in teacher education*. The SAGE handbook of research on teacher education.

Meijer, P. C., Oolbekkink, H. W., Meirink, J. A., & Lockhorst, D. (2013). Teacher research in secondary education: Effects on teachers' professional and school development, and issues of quality. *International Journal of Educational Research*, 57, 39–50. <https://doi.org/10.1016/j.ijer.2012.10.005>. August.

Merriam, J. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). Jossey-Bass Publishers.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2018). *Qualitative data analysis: A methods sourcebook*. Sage.

Oolbekkink-Marchand, H. W., Hadar, L. L., Smith, K., Helleve, I., & Ulvik, M. (2017). Teachers' perceived professional space and their agency. *Teaching and Teacher Education*, 62, 37–46. <https://doi.org/10.1016/j.tate.2016.11.005>

Oolbekkink-Marchand, H. W., van der Steen, J., & Nijveldt, M. (2014). A study of the quality of practitioner research in secondary education: Impact on teacher and school development. *Educational Action Research*, 22(1), 122–139. <https://doi.org/10.1080/09650792.2013.854175>

Pantić, N. (2015). A model for study of teacher agency for social justice. *Teachers and Teaching: Theory and Practice*, 21(6), 759–778. <https://doi.org/10.1080/13540602.2015.1044332>

Pantić, N. (2017). An exploratory study of teacher agency for social justice. *Teaching and Teacher Education*, 66, 219–230. <https://doi.org/10.1016/j.tate.2017.04.008>

Priestley, M., Biesta, G., Philippou, S., & Robinson, S. (2015). The teacher and the curriculum: Exploring teacher agency. In D. Wyse, L. Hayward, & J. Pandya (Eds.), *The SAGE handbook of curriculum pedagogy and assessment* (pp. 187–201).

- Sage.
- Priestley, M., Edwards, R., Priestley, A., & Miller, K. (2012). Teacher agency in curriculum making: Agents of change and spaces for manoeuvre. *Curriculum Inquiry*, 42(2), 191–214. <https://doi.org/10.1111/j.1467-873X.2012.00588.x>
- Schaap, H., Louws, M., Meirink, J., Oolbakkink-Marchand, H., Van Der Want, A., Zuiker, I., Zwart, R. C., & Meijer, P. (2019). Tensions experienced by teachers when participating in a professional learning community. *Professional Development in Education*, 45(5), 814–831.
- Toom, A., Pyhältö, K., & Rust, F. O. (2015). Teachers' professional agency in contradictory times. *Teachers and Teaching*, 21(6), 615–623. <https://doi.org/10.1080/13540602.2015.1044334>
- Trent, J. (2017). Discourse, agency and teacher attrition: Exploring stories to leave by amongst former early career English language teachers in Hong Kong. *Research Papers in Education*, 32(1), 84–105. <https://doi.org/10.1080/02671522.2016.1144215>
- Vähäsantanen, K. (2015). Professional agency in the stream of change: Understanding educational change and teachers' professional identities. *Teaching and Teacher Education*, 47, 1–12. <https://doi.org/10.1016/j.tate.2014.11.006>
- Vähäsantanen, K., Saarinen, J., & Eteläpelto, A. (2009). Between school and working life: Vocational teachers' agency in boundary-crossing settings. *International Journal of Educational Research*, 48(6), 395–404. <https://doi.org/10.1016/j.ijer.2010.04.003>
- White, S. (2021). Generating enabling conditions to strengthen a research-rich teaching profession: Lessons from an Australian study. *Teaching Education*, 32(1), 47–62. <https://doi.org/10.1080/10476210.2020.1840545>
- Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *Qualitative Report*, 20(2), 134–152.
- Yuan, R., & Burns, A. (2017). Teacher identity development through action research: A Chinese experience. *Teachers and Teaching: Theory and Practice*, 23(6), 729–749. <https://doi.org/10.1080/13540602.2016.1219713>