Development of an Inquiry Stance? Perceptions of Preservice Teachers and Teacher Educators Toward Preservice Teacher Inquiry in Dutch Primary Teacher Education

Lidewij van Katwijk1,2, Ellen Jansen1, and Klaas van Veen1

Abstract
This study aims to gain insight into the perceived purpose and value of preservice teacher inquiry in Dutch primary teacher education by teacher educators and preservice teachers at the undergraduate level; it also assesses the implementation of teaching and learning activities, and learning outcomes associated with teacher inquiry. In the Netherlands, inquiry competence in primary teacher education develops over a 4-year period, resulting in students' completion of capstone projects using practitioner inquiry. The authors combine a survey with focus groups of teacher educators and preservice teachers from eight institutes. They find differences between preservice teachers' perceptions of the implementation of inquiry competence and teacher educators' visions and perceptions of such implementation. All participants, students and educators, believe inquiry to be valuable and perceive learning outcomes of inquiry to be enriching, yet about half of the preservice teachers do not expect to undertake inquiry in their future teaching jobs.

Keywords
curriculum, preservice teacher education, practitioner inquiry

Introduction
The need for teachers who work inquiry-based, raise questions, and continuously improve teaching by researching their own practice seems to be growing (Baan et al., 2020; Cochran-Smith & Lytle, 2009; Darling-Hammond, 2017). Therefore, in recent decades, Dutch bachelor's-level teacher education programs have paid attention to preservice teacher research. To enhance and influence preservice teachers' affective and cognitive attitudes about research and developing their research skills, teacher education is assumed to play a crucial role (e.g., Aspfors & Eklund, 2017; Maaranen, 2009; Munthe & Rogne, 2015; Van der Linden et al., 2012). Darling-Hammond's (2017) comparative study of teacher education in various countries shows that a research-based orientation, combined with an inquiry approach to practical preparation, enhances teacher effectiveness.

To date, studies of preservice teacher research have focused on graduate degree programs, such as research-based teacher education programs in Finland, which aim to provide teachers with an understanding of research practice and give them the ability to make rational, theory-based decisions (e.g., Aspfors & Eklund, 2017; Munthe & Rogne, 2015; Puustinen et al., 2018; Råde, 2019; Toom et al., 2010). Only a few studies have reported on the achievements and implementation of preservice teacher research in undergraduate programs (e.g., Dunn et al., 2008; Guilbert et al., 2016; Reis-Jorge, 2007; Van der Linden et al., 2012, 2015). Experiences with undergraduate research integration can help undergraduate students prepare for a profession that demands continuous learning and deliberate adjustment to changing contexts (Griffioen, 2019; Healey & Jenkins, 2009; Munthe & Rogne, 2015).

In the Netherlands, more than 90% of primary teacher education occurs at the bachelor’s level in universities of applied sciences (UASs); there is a strong focus on teaching practice. About 10 years ago, as a result of the Bologna declaration, the European Commission established the European qualification framework (European Commission, 2018) and the primary teacher education curriculum was reformed to include research activities. However, a systematic evaluation of the assumed value of preservice teacher research for
teacher quality has not yet taken place. International literature on preservice teacher research shows clearly positive impacts of research training, such as the production of newly qualified teachers who engage in critical reflection, use research competence in practice, and adapt their teaching to students’ needs (e.g., Aspfors & Eklund, 2017; Cochran-Smith et al., 2009; Kovalczuk-Wałęziak et al., 2019). However, authors also identify costs, such as time invested, difficulties with sustainability, continual need to nurture partnerships with schools, and added demands on already crowded curricula (e.g., Cochransmith & Lytle, 2009; Kovalczuk-Wałęziak et al., 2019; Ulvik, 2014). A document analysis of policy documents and program descriptions of Dutch primary teacher education showed that intended learning outcomes of preservice teacher research—especially the development of an inquiry stance—are not aligned fully with described teaching activities and assessments (Van Katwijk, Jansen, & Van Veen, 2019). This lack of alignment may lead to disappointing results in learning outcomes (Biggs & Tang, 2011). Accordingly, the aim of our study is to gain insight into the purpose and value of preservice teacher research in undergraduate primary teacher education, assess its implementation in teaching activities, and identify its learning outcomes, as perceived by students and teacher educators.

**Theoretical Framework**

**Purpose of Preservice Teacher Research and Inquiry**

To gain insight into the purpose and value of preservice teacher inquiry for primary teacher education, we must distinguish between “research” and “inquiry” although many descriptions of teacher education programs use the terms interchangeably (Munthe & Rogne, 2015). We consider preservice teacher research as a form of practitioner inquiry (e.g., Borko et al., 2007; Cochransmith et al., 2009; Munthe & Rogne, 2015; Zeichner & Noffke, 2001), a conceptual umbrella that “refers to a variety of educational research modes . . ., including action research, teacher research, narrative inquiry, . . . and the use of teaching as a context for research,” and is conducted by practitioners (Cochran-Smith et al., 2009, p. 18). We prefer to use the term “inquiry” rather than “research,” although no such distinction exists in the Dutch language. According to Reid (2004), “Inquiry is a process of systematic, rigorous and critical reflection about professional practice, and the contexts in which it occurs, in ways that question taken-for-granted assumptions. Its purpose is to inform decision-making for action” (p. 4). Inquiry involves educators pursuing their “wonderings,” using insights from previous research about practices, and exploring alternatives systematically, using basic research knowledge and skills. However, the use of more complicated quantitative and qualitative research methods and scientific international literature, as well as the construction of knowledge applicable to other researchers—which is essential to research—is optional for inquiry (Munthe & Rogne, 2015; Reid, 2004).

The aim of Dutch primary teacher education programs is to educate preservice teachers to become practitioners who use intentional, systematic methods as learning strategies to inquire into their own practices (Borko et al., 2007; Cochransmith et al., 2009). Previous research indicates that preservice teacher inquiry, which is similar to action research, may be a basis for future professional development (Ponte et al., 2004); ideally, preservice teachers should be driven by curiosity and knowledge about educational problems in particular contexts to improve their own educational practices (Jacobs et al., 2015; Van Katwijk, Berry, et al., 2019). The aim of preservice teacher inquiry in primary teacher education is to educate teachers to take an inquiry stance and thereby produce inquiring teachers (Cochran-Smith & Lytle, 2009) who are curious and critical—that is, teachers whose work is inquiry-based (Baan et al., 2020; Toom et al., 2010; Uiterwijk-Luijik et al., 2019).

To develop an inquiry stance, or to be able to work inquiry-based, preservice teachers are assumed to develop five related competencies (Van Katwijk, Berry, et al., 2019): (a) basic research knowledge (e.g., methodology); (b) knowledge about current research in the discipline (e.g., Aspfors & Eklund, 2017; Baan et al., 2020; Dana & Yendol-Hoppey, 2014; Jacobs et al., 2015; Munthe & Rogne, 2015; Sachs, 2016); (c) development of (basic) research skills, including analyzing problems related to practice, undertaking literature reviews, collecting and analyzing data, and communicating results (Aspfors & Eklund, 2017; Hökkä & Eteläpelto, 2014; Munthe & Rogne, 2015); (d) ability to apply findings from previous research to practice (Aspfors & Eklund, 2017; Baan et al., 2020; Dana & Yendol-Hoppey, 2014); and (e) development of inquiry habit of mind (e.g., Earl & Katz, 2006).

Regarding the last competency, there are many interpretations of inquiry habit of mind; international literature includes a variety of similar descriptions and terms (e.g., Cochransmith & Lytle, 2009; Earl & Katz, 2006; Schön, 1983; Uiterwijk-Luijik et al., 2019). According to Earl and Katz (2006), an inquiry habit of mind is a way of thinking that seeks to gain profound understanding, reserve judgment, tolerate contradictions, have different perspectives, and ask questions. Collaboration with colleagues is essential to developing this habit of mind, framing questions, and understanding collected data (Kroll, 2005). Literature often uses the term “inquiry as stance” interchangeably with inquiry habit of mind (e.g., Jacobs et al., 2015; Uiterwijk-Luijik et al., 2019); however, Cochransmith and Lytle (2009) distinguish them, with inquiry as stance referring to a way of looking, acting, and having a habitual, continuous attitude. When teachers take an inquiry stance, they act as reflective practitioners (Schön, 1983), pose questions or “wonderings,” use findings of previous research and scientific knowledge in
their practice, and share new insights (Dana & Yendol-Hoppey, 2014). In this research, we consider inquiry as stance similar to inquiry-based work (Baan et al., 2020; Uiterwijk-Luijk et al., 2017) and inquiry habit of mind as a crucial component. The Dutch primary teacher education program describes the development of inquiry habit of mind as one of the most important purposes and values of preservice teacher inquiry (Van Katwijk, Jansen, & Van Veen, 2019). Its characteristics include being critical, curious, and willing to share; seeking to innovate and improve; and wanting to achieve deep understanding (Van der Rijst, 2009).

**How to Develop Inquiry Competence**

Compared with the volume of literature on teaching research skills to graduate students, there is scarce literature that focuses on teaching preservice teacher inquiry competence to undergraduates (Dunn et al., 2008; Munthe & Rogne, 2015). Healey and Jenkins’s (2009) general model of undergraduate research and inquiry has two axes: vertical (i.e., from students as participants to students as audience) and horizontal (i.e., from focus on research content to focus on research processes; see Figure 1). This division leads to four main types of undergraduate engagement with research and inquiry: (a) research-tutored (i.e., engaging in research discussions), (b) research-based (i.e., undertaking research and inquiry), (c) research-led (i.e., learning about current research in the discipline), and (d) research-oriented (i.e., developing research and inquiry skills). All four ways are valid and valuable, and curricula should contain elements of all of them (Healey & Jenkins, 2009). The development of preservice teachers’ inquiry competence fits into this model (Figure 1). To develop an inquiry habit of mind, students should participate actively in either research-tutored or research-based activities.

These inquiry competencies are intertwined in practice; for example, it is not possible to inquire without using research knowledge or skills. However, the distinction between the competencies is functional with regard to teaching and learning related to preservice teacher inquiry. Which teaching and learning activities are suitable for teaching and stimulating to work inquiry-based? Table 1 displays the program
teaching and learning activities that literature identifies as effective in engaging preservice teachers in inquiry and developing inquiry competence.

**Study Context**

Our study focuses on Dutch primary teacher education that leads to a professional bachelor degree. Because preservice teacher inquiry has become a compulsory element in these programs, the programs now pay much attention to intensive research-skill professional development of teacher educators, teaching about research and inquiry, and supervision of preservice teachers’ projects (Geerdink et al., 2016). Although Dutch institutes of teacher education are free to design their own curricula according to nationally determined teaching standards, a previous document analysis of preservice teacher inquiry in the programs shows strong similarities in teaching activities and assessment (Van Katwijk, Jansen, & Van Veen, 2019). Approximately, one third of the Dutch primary teacher education program is directly related to practice; it concludes with a practical period of 20 weeks, during which preservice teachers teach autonomously 3 days a week. Students spend about 20 to 30 European Credit Transfer System (ECTS) in total on preservice teacher inquiry in a teaching–learning trajectory over 4 years. As their final capstone activity (9–15 ECTS), they undertake preservice teacher inquiry projects that are directly connected to their own practices, for example, design research or action research. Most of these inquiries are small in scale and involve qualitative design, limited quantitative data, and use of practice-based literature, such as handbooks and professional literature (Baan et al., 2019). With regard to described teaching activities and assessments, all institutes focus on research skills (i.e., Quadrant IV, research-oriented), despite citing the development of an inquiry habit of mind (Quadrants I + II, research-tutored and research-based) as their main purpose (Van Katwijk, Jansen, & Van Veen, 2019).

**Research Questions**

To gain insight into the purpose and value of preservice teacher research in Dutch primary teacher education, we used the curriculum model of Van den Akker (2003) as analytical framework. This model distinguishes intended, implemented, and attained curricula. The intended curriculum describes the purpose and value, the implemented curriculum is the teaching program as interpreted by its users, and the attained curriculum consists of learning experiences as perceived by learners (preservice teachers) and the resulting learning outcomes (Van den Akker, 2003). A

---

**Table 1. Overview of Teaching and Learning Activities for Developing Inquiry Competence, in Relation to the Model of Healey and Jenkins (2009).**

| Inquiry competence | Model of Healey and Jenkins | Teaching/learning activity |
|--------------------|-----------------------------|-----------------------------|
| Inquiry habit of mind | Research-tutored and research-based Quadrants I + II | Preservice teachers practice with argumentation, decision-making, and justification while problem-solving (Toom et al., 2010) |
|                     |                             | Reflection on the process and outcomes of research and inquiry (Aspfors & Eklund, 2017; Dunn et al., 2008; Reis-Jorge, 2005; White et al., 2016) |
|                     |                             | Working in pairs, critical friends, or groups; communities of inquiry (Dobber et al., 2012; Van der Linden et al., 2012) |
|                     |                             | Organization of formal conferences in which preservice teachers present their inquiries to peers, teacher educators, teachers, and members of school boards (Schulz & Mandzuk, 2005) |
| Research application | Research-based Quadrant II | Inquiry-based classes, practicing with small inquiries (Munthe & Rogne, 2015; Schulz & Mandzuk, 2005) |
|                     |                             | Capstone inquiry project (e.g., Aspfors & Eklund, 2017; Dunn et al., 2008; White et al., 2016) |
|                     |                             | Inquiry collaboration between universities and schools (Aspfors & Eklund, 2017; Cochrán-Smith & Lytle, 2009; Schulz & Mandzuk, 2005) |
| Research knowledge  | Research-tutored Quadrant I | Technical training in research methodology (Aspfors & Eklund, 2017; Dunn et al., 2008; Reis-Jorge, 2005; Toom et al., 2010; White et al., 2016) |
| Knowledge about     | Research-led Quadrant III   | Reading literature (Munthe & Rogne, 2015) |
| research in domain  |                             | Familiarizing preservice teachers with findings of previous research (Ulvik & Riese, 2016) |
|                     |                             | Use of research examples from practice and authentic learning tasks (Van der Linde et al., 2015) |
|                     |                             | Lectures based partly on own research (Aspfors & Eklund, 2017; Munthe & Rogne, 2015; Toom et al., 2010) |
| Research skills     | Research-oriented Quadrant IV | Practical training in research methodology (Aspfors & Eklund, 2017; Dunn et al., 2008; Reis-Jorge, 2005; Toom et al., 2010; White et al., 2016) |
|                     |                             | Academic writing course (Munthe & Rogne, 2015; Råde, 2019) |
document analysis about the purpose and value of preservice teacher research showed a lack of constructive alignment (Biggs & Tang, 2011). Institutes for teacher education aim to develop an inquiry stance although the teaching activities and assessment forms are focused on research skills (Van Katwijk, Jansen, & Van Veen, 2019). Perceptions of teacher educators and preservice teachers can shed light on the actual implementation and learning outcomes of preservice teacher inquiry, which may give cause to improve the curriculum. Therefore, we formulated the following research questions:

**Research Question 1 (RQ1):** What is the purpose and value of preservice teacher inquiry in primary teacher education according to preservice teachers and teacher educators?

**Research Question 2 (RQ2):** How is the development of the inquiry stance of preservice teachers implemented in teacher education programs as perceived by preservice teachers and teacher educators?

**Research Question 3 (RQ3):** What are the most important learning outcomes from preservice teacher inquiry according to preservice teachers and teacher educators?

**Method**

**Design of the Study**

We used a survey followed by focus groups for deeper explanation (Figure 2). This combination of both qualitative and quantitative data provides a better understanding of the research problem (Cohen et al., 2013). We compared the findings with a previous study—a document analysis, with policy documents and program descriptions of 19 out of 25 Dutch institutes—which resulted in insights in intended learning outcomes, teaching methods, and assessments of preservice teacher inquiry (Van Katwijk, Jansen, & Van Veen, 2019).

**Participants**

We invited teacher educators and preservice teachers from eight institutes for primary school teacher education in the Netherlands to participate in the focus group sessions. We selected the eight institutes for the focus groups based on a variety of focus on inquiry competences in their program descriptions (Van Katwijk, Jansen, & Van Veen, 2019).

To improve reliability, we used responses of an additional 50 teacher educators and 329 preservice students from 11 different institutes to fill out the online questionnaire (without participating in the focus groups), using the electronic learning environment of the institutes. The response rate was very low (<5%), possibly as a result of research fatigue and the workload of preservice teachers just before graduation. Table 2 contains an overview of participants in the survey and focus groups.

In total, 359 preservice teachers completed the questionnaire about their perceptions of preservice teacher inquiry; 30 of these students participated in the focus group sessions.

**Data Collection**

The recruitment of all focus group members took place by coordinating teacher educators of the institutes that had no interest in the outcome of this study. The participation was voluntary; our only requirement was that the students were in the final phase of their studies. The teacher educators in the focus groups were asked to participate in these sessions because of their teaching tasks related to development of inquiry competencies or their task as supervisor of preservice teacher inquiry. Some teacher educators also played roles in curriculum design.

Before the focus group sessions took place, we asked all participants to complete a “perception preservice teacher inquiry” questionnaire. Due to time constraints, not every teacher educator was able to meet this requirement. Completing the survey helped participants focus on their own perceptions of preservice teacher inquiry before sharing them with the focus group. The survey questions were focused on conducting preservice teacher inquiry (see the appendix). During the focus group sessions, we could ask in-depth questions about their survey answers, as well as their perception about development of the inquiry stance.

The focus group sessions helped us understand the perceptions of teacher educators and preservice teachers and obtain multiple perspectives on preservice teacher inquiry (Puchta & Potter, 2004). The first author conducted the focus group sessions in 2016 and 2017. No participant was in a hierarchical relationship with her; no one benefited from certain answers. The sessions for preservice teachers were approximately 60
min in length, and the sessions for teacher educators were 90 min in length.

Because the first author was a teacher educator at Institute G, we were able to collect survey data during 4 years, which explains the high numbers (see Table 2). However, these data were collected by independent colleagues and analyzed anonymously.

The participants of the survey provided written informed consent and all participants of the focus groups provided verbal informed consent.

**Data Analysis**

**Survey.** Our questionnaire was inspired by a questionnaire used in previous research on student perceptions, attitudes, and research behavior in their future profession (Van der Linden et al., 2015); it consisted of four open questions about the students’ research questions, their most important learning gains, the weak and strongpoints of their programs, and 35 Likert-type scale questions. We chose a 6-point Likert-type scale ranging from 1 (totally disagree) to 6 (totally agree) to avoid a neutral option. We negatively formulated eight items and applied reverse scoring in the analysis, such as “Conducting research is a compulsory component of the degree program but I do not understand how it is useful for a teacher.”

We conducted a principal component analysis, with oblimin rotation in SPSS 25, of the 35 Likert-type scale items according to our expectation that the factors would be correlated. We used a cutoff value of .40 for the factor loadings (Field, 2019). This exploratory analysis revealed four factors for interpretation. Table 3 shows Cronbach’s alphas retrieved from the reliability analysis. See the appendix for the factors with factor loadings.

In all analyses, we compared preservice teachers with teacher educators. We tested whether the data from Institute G showed differences over time and also whether the focus group participants, as well as the participants from G, deviated from other respondents. None of these t tests showed significant differences, neither between the different institutes nor between the years within Institute G (p > .05). Therefore, our data provide insights from a broad scope of Dutch teacher educators and preservice teachers.

For the first research question, we analyzed the average scores on the Value and Future scales. The Value scale consisted of items related to cognitive attitudes (e.g., research is deepening) and affective attitudes (e.g., research is nice) toward preservice teacher inquiry. The Future scale indicates use of inquiry competence in the future and perceptions of the role of research/inquiry in the profession. For the second research question, we analyzed two open questions about the strongest and weakest points of the program. This question was only asked in the survey for teacher educators and the online student survey, which was otherwise identical to the paper version. We clustered the answers.
inductively and calculated the percentages of how often the answers appeared. A total of 80 preservice teachers and 75 teacher educators answered these questions. To answer the third research question about learning outcomes, we compared their average scores and frequencies on the Inquiry Competence and Ease scales. The former indicated a respondent’s ability to undertake preservice teacher inquiry, and the latter related to a respondent’s perception of the ease of preservice teacher inquiry. To analyze the open question on the most important personal learning outcomes, we used the five inquiry competencies in our theoretical framework. A total of 299 preservice teachers and 83 teacher educators answered this question.

Focus groups. During the semi-structured focus group sessions, we used an interview scheme, guided by our research questions and questionnaire items. After we transcribed the focus group recordings verbatim, we conducted a qualitative content analysis in ATLAS.ti, using a coding scheme based on the theoretical framework and the main findings of the survey (Friese, 2014). For example, to analyze perceived purpose and value of preservice teacher inquiry in the curriculum, we studied the first responses to the question, “Why do you think research is in the primary teacher education curriculum?” We analyzed responses according to the inquiry competencies of research knowledge, knowledge about current research, research skills, application of research, and inquiry habit of mind.

We used both within-case analysis (i.e., within focus groups, within the group of preservice teachers, and within the group of teacher educators) and cross-case analysis (i.e., between those groups; Miles et al., 2014). Furthermore, we compared the focus group answers with survey findings related to the Value and Future scales. Moreover, we asked focus group participants about their perceptions of the methods used to teach them how to undertake preservice teacher inquiry projects over the 4 years of teacher education and how to develop inquiry habit of mind. Some new codes corresponding to frequently mentioned issues, such as experienced supervision, emerged from the data although we did not specifically ask students about the most important things they had learned from their preservice teacher inquiry. Therefore, we compared their reports with related survey data, according to the Ease and Inquiry Competence scales and the open question about the most important learning opportunity associated with preservice teacher inquiry. We checked for differences across focus groups and compared statements between teacher educators and students (i.e., cross-case analyses).

We tested the reliability of our data in multiple ways: First, to prevent interpretation bias, we recorded the focus group sessions and transcribed the recordings. We sent the transcripts to the focus group participants for member checks and made some requested changes. Second, as authors, we discussed the coding scheme among ourselves, and then with a group of teacher educators. To enhance credibility and reach complete agreement, we also involved two independent researchers in the coding discussion to discuss the within-case and cross-case analyses. The discussion regarded topics such as indicators for an inquiry habit of mind. Third, we used direct quotes from the focus groups in the “Results” section to illustrate and support our findings.

We integrated the quantitative data from the survey and qualitative data from the focus groups for each research question, and then compared the answers from preservice teachers with those of teacher educators.

Results

Purpose and Value of Preservice Teacher Inquiry

Table 4 displays quantitative results of the survey; it shows that both preservice teachers and teacher educators regard preservice teacher inquiry as valuable ($M = 4.4$ and $M = 4.7$, respectively, on the 6-point scale). Among preservice teachers, 85% provide a positive score on the Value scale ($M > 3.5$), including 22% who even provide a very positive score ($M > 5$). Similarly, 93% of teacher educators show a positive score ($M > 3.5$), and 32% provide a very positive score ($M > 5$). Both groups agree that preservice teacher inquiry is interesting, enriching, and a good way for professional development.

The Future scale shows lower mean values (3.7 for preservice teachers, 3.6 for teacher educators); 55% of preservice teachers indicate intentions to use inquiry competencies in their future profession. From the teacher educators, 45% expect that preservice teachers will use their inquiry competencies in a future job. Compared with the percentages on the

| Table 4. Descriptive Statistics for Value and Future Scales. |
|-------------------------------------------------------------|
| PSTs $n = 355$   | $M$ (SD) | Positive$^a$ | Very positive$^b$ |
| Scale Value Future | 4.5 (.80) | 85% | 22% |
| TEs $n = 97$    | $M$ (SD) | Positive$^a$ | Very positive$^b$ |
| Scale Value Future | 4.7 (.64) | 93% | 32% |

Note. Results based on items with 6-point scales ranging from 1 (I fully disagree) to 6 (I fully agree). PSTs = preservice teachers; TE = teacher educators. $^aM > 3.5$. $^bM > 5$. |
Value scale, these are very low. Qualitative data are needed to explain this difference.

We sought confirmation and explanation of these survey results from focus group members. To gain insight into the perceived purpose and value of preservice teacher inquiry, we asked, “Why do you think preservice teacher inquiry is part of the teacher education program?” The answers from both preservice teachers and teacher educators are consistent with the findings of the survey: All participants rate preservice teacher inquiry as important. They went further to detail their thoughts about its purposes, citing inquiry habit of mind or characteristics linked to inquiry habit of mind as critical:

Why? To develop the inquiry habit of mind; everything is evolving; schools and children learn, and keep changing, also society, now again with those 21st century skills . . . I think you should always adapt to what the children need and therefore you have to think about what you should adjust. (PST_E4)

We interpreted this response as applying to an inquiry habit of mind, wanting to innovate, and being critical/reflective. Similarly, the following response,

I hope we educate teachers who are (1) open to anything and everything—children, the group . . . (2) looking for improvement and innovation of education and looking for solutions where there are problems, but also looking at what is going on with the children, and (3) I would like to deliver teachers with a reflective and questioning attitude . . . that they keep asking the question: “What am I doing this for?” (TE_A1)

was interpreted as having an inquiry habit of mind, being curious, wanting to innovate, and being critical/reflective.

Both preservice teachers and teacher educators mention various aspects of having inquiry habit of mind: tending to be critical; taking various perspectives; wanting to understand, share, achieve, innovate, and reflect; and being curious. A slight difference between preservice teachers and teacher educators arises in their perceptions of the value of preservice teacher inquiry connected to these aspects; when describing having an inquiry habit of mind, teacher educators most often mention being critical/reflective and curious in relation to the value of preservice teacher inquiry, such as

We like to educate positive, critical teachers with knowledge who can question their own practice. (TE_C3)

So, to combine this critical stance with curiosity. (TE_A5)

Instead, preservice teachers emphasize the quality of wanting to share:

In your internship you also learn to ask and talk to colleagues. That is also due to that research—the freedom to discuss about education with a colleague. (PST_B1)

[In reaction to PST_B1]: You also make a shift from intern to colleague. You can get that position earlier through research. (PST_B3)

as well as wanting to achieve and to innovate:

. . . at some point you think that current education doesn’t fit with society, doesn’t fit with the children anymore or that doesn’t fit me anymore; we have learned a way to bring about change. I think that’s the most valuable thing there is! (PST_E3)

In addition to developing an inquiry habit of mind, preservice teachers and teacher educators agree about being able to apply research skills to improve their own educational practice, linking theory and practice, and being empowered:

They won’t follow the methods or school policy slavishly. (TE_B3)

[A teacher educator responds]: We teach our students preservice teacher inquiry to assess their bachelor thinking abilities . . . we educate for a complex profession. (TE_A9)

About half the participants in the student focus groups confirm they do not expect to continue conducting research or inquiry in their future jobs. They mention three main reasons: (a) the formal learning process of preservice teacher inquiry is too time-consuming and difficult, and report writing in particular is a barrier; (b) they are focused on, and looking forward to, teaching, which is their reason for choosing teacher education, so they expect to need all their energy for it; and (c) there is a lack of research culture in most primary schools. Preservice teachers engage in practice teaching at three or four different schools; most of them mention that they have not met teacher colleagues who are undertaking practitioner inquiry. However, they emphasize they would prefer to work at schools with colleagues who show an inquiry habit of mind so they can share experiences and gain practical knowledge:

Without an inquiry habit of mind, it’s not possible to stay up-to-date. The school where I am going to work organizes each week professional development; I like that! (PST_G 2)

Only one focus group of teacher educators failed to reach consensus about the value of inquiry habit of mind to their program. Moreover, the focus group of preservice teachers at their institute did not have an immediate answer to the “why” question:

Actually I have no clue why preservice teacher inquiry is in the program . . . I think that is regulated by law or nationally . . . ? (PST_A3)

Preservice Teacher Inquiry in the Program

We found differences between preservice teachers and teacher educators in their perceptions of how teacher
education programs organize and teach the development of preservice teacher inquiry competence. Our survey included open questions about the strong and weak points of preservice teacher inquiry in the program. Most participants who answered these questions indicated one or two points to be strong and one or two points to be weak. The emerging themes of answers were (a) research skills, (b) teaching–learning trajectory, (c) inquiry habit of mind, (d) integration of research in all teaching modules, (e) quality of the supervisor, (f) link to practice, (g) knowledge, (h) own topic, (i) too time-consuming, and (j) miscellaneous.

Both teacher educators and preservice teachers indicate that a strongpoint of the teacher education program is that they learn how to conduct research (research skills). The other answers show differences in opinions between teacher educators and preservice teachers: Participants from both groups frequently mention the structure of the teaching–learning trajectory in their answers to these open questions. However, one third of teacher educators identify this as a strongpoint and more than 40% of preservice teachers identify it as a weak point. Teacher educators and preservice teachers also disagree with regard to inquiry habit of mind: 16% of preservice teachers identify it as a strongpoint, whereas 10% of teacher educators state it should be improved.

Teacher educators also mention topics other than preservice teachers. Teacher educators mention integrating research and inquiry in all subjects (e.g., math, science, art, and pedagogy); some of them identify it as a strongpoint (11%), whereas others seek improvements in this integration (16%). Furthermore, some identify miscellaneous points such as internal communication about preservice teacher inquiry as a weak point, and mention research knowledge of teachers in primary schools as a weakness. Some other teacher educators note tension between the form of assessment in the cornerstone activity and the nature of inquiry as stance.

Preservice teachers regard the quality of supervisors as important, identifying it as both a strong (31%) and a weak point (31%), depending on their own experience with a supervisor.

Again, we compared the survey findings with focus group findings. In six of the eight student focus groups, preservice teachers do not recognize the teaching–learning trajectory; they perceive that they are required to conduct research only in the final part of their teacher education and that they lack preparation. They perceive that they received almost no feedback about their inquiry competencies or writing skills prior to their capstone projects:

In the educational structure of the program, I missed some things . . . We heard that cycle all the time, but it was made practically unusable for me, so I had to do that myself . . . I learned the most this year (year 4). (PST_G2)

However, teacher educators perceive a balanced teaching–learning trajectory, from the first year to graduation, as described by the program:

If you look at the design of preservice inquiry in the study program, you see that the teaching–learning trajectory has been designed in such a way that it has a logical connection everywhere with the rest of the program: sometimes with the educational theme, sometimes with a subject like math. (TE_G5)

Teacher educators also point out that some of their colleagues are not aware of the entire teaching–learning trajectory or of the requirements of other years or subjects.

Although, in the survey, preservice teachers identify inquiry habit of mind as important (i.e., strongpoint), in the focus group sessions they were not able to identify activities in teacher education that contribute to the development of their own inquiry habits of mind. Instead, they indicated that other aspects of their teacher education and their lives in general (e.g., study periods abroad) are responsible for developing such habits of mind. Yet teacher educators mentioned examples of teaching activities they use to develop students’ inquiry habits of mind, such as assignments in which they asked preservice teachers to observe the inquiry habits of mind of pupils during integrated classes of science, technology, engineering, arts, and mathematics (STEAM classes) or give constructive feedback on the research plans of other preservice teachers.

Analogous to the survey, all student focus group participants mentioned the importance of high-quality supervisors. In their programs, supervision varies between and within institutes, according to the organization, group, or individual format; meeting frequency (from every week to never); and focus (i.e., methodology or subject). Preservice teachers indicated to prefer supervisors with research experience to supervisors with substantive knowledge about their inquiry subject. Although the institutes offer both formal and informal forms of professional development to supervisors, all preservice teachers perceive substantial differences in the quality of the supervisors, which in turn directly influence students’ motivation and perceived learning outcomes.

**Perceived Learning Outcomes**

In both the survey and focus group sessions, we asked preservice teachers and teacher educators about perceived learning outcomes. From the survey, we analyzed responses to the *Inquiry Competence* and *Ease* scales (Table 5), as well as answers to open-ended questions about the most important learning outcome. The findings for *Inquiry Competence* show that teacher educators and preservice teachers agree that students learn how to undertake inquiry projects; in all groups, more than 90% of the ratings are positive \( M > 4.6 \) on the 6-point scale.

With regard to the *Ease* scale, the results for preservice teachers and teacher educators were the same \( M = 2.6 \), and more than 85% of all respondents regarded preservice teacher inquiry as difficult. Among focus group participants,
preservice teachers indicated taking pride in successfully completing their preservice teacher inquiry for which writing emerged as the most difficult part, leading to feelings of frustration and dislike:

... and that causes a lot of stress ... But the report kept coming back [from the supervisor] ... and rewriting again and again ... frustrating! (PST_A1)

Nevertheless, students recognize that writing is important in the process of becoming a teacher:

Also, for example, with the preliminary investigation, you do see things happening, but if you have to draw a conclusion ... you have to write something about it, then you start to think better about that went. And what can I really get out of it. (PST_F4)

Teacher educator participants also link the difficulty level of inquiry work to the pride of the students who complete it:

No friction, no shine! (TE_B3)

Our analysis of the open question about the most important learning outcome shows that 46% of preservice teachers (n = 299) mention research skills (Table 6):

... to see how to get a deeper level in inquiry and to use literature in a better way, also for research methods. (PST_D)

Moreover, 40% of preservice teachers indicate that they have gained increased knowledge about the study topic:

Knowledge about reading comprehension and where to find new information about the topic. (PST_G1)

This knowledge often is combined with application of the findings in practice. About one quarter of the respondents mention an inquiry habit of mind or related characteristic.

Teacher educators (n = 83) also answered the survey question about the most important learning outcomes, and 70% of the answers related to aspects of an inquiry habit of mind, including critical thinking. Furthermore, 40% of these educators mentioned research skills, and 23% identified “the ability to link theory and practice” as most important learning outcome of preservice teacher inquiry.

The findings from the focus group sessions thus show many similarities in perceptions between preservice teachers and teacher educators about learning outcomes. Preservice teachers learn to think deeply, look critically, work systematically, link theory and practice, and feel empowered and proud because of their achievements. Approximately, half the preservice teachers report that they do not expect to conduct research or inquiry ever again although all are convinced that they have become better teachers because of the inclusion of preservice teacher inquiry in the program.

Discussion

In this discussion section, we compare our findings with those of previous research, including the results of a previous study of preservice teacher inquiry in the intended curricula of Dutch primary teacher education (Van Katwijk, Jansen, & Van Veen, 2019).

The first research question focuses on how the purpose and value of preservice teacher inquiry is perceived. The finding that all participants believe that preservice teacher inquiry is interesting and important, contrasts with previous research in which preservice teachers and teachers expressed somewhat negative attitudes (e.g., Joram, 2007; Puustinen et al., 2018; Ulvik, 2014). Our findings of positive perceptions may be because preservice teachers are being proud of their achievements, are feeling empowered, and believe that preservice teacher inquiry contributes to their quality as teachers; they regard an inquiry habit of mind (e.g., being critical and curious, and willing to share and innovate) as the most important purpose of preservice teacher inquiry. This finding is in line with some prior findings (e.g., Cochrane-Smith & Lytle, 2009; Earl & Katz, 2006; Jacobs et al., 2015) and with the intended curriculum of Dutch institutes for primary teacher education (Van Katwijk, Jansen, & Van Veen, 2019).

However, preservice teachers’ perceptions of the implementation of the development of inquiry competence differ from teacher educators’ visions and perceptions of how inquiry competence is being taught. First, preservice teachers do not recognize the teaching–learning trajectory, as outlined in program descriptions (Van Katwijk, Jansen, & Van Veen, 2019). Some preservice teachers feel that they had to start their capstone inquiry projects without preparation from earlier years, that is, they do not recognize the teaching activities in Healey and Jenkins’s (2009) Research-oriented quadrant. Teacher

---

**Table 5. Descriptive Statistics of the Inquiry Competence and Ease Scales.**

|        | PSTs n = 358 | TEA n = 97 |
|--------|--------------|------------|
|        | M (SD)       | Positive | Very positive |
| Scale  | Inquiry Competence | 5.0 (.70) | 96% | 48% |
| Scale  | Ease         | 2.9 (.67) | 15% | 1% |
|        | Inquiry Competence | 4.6 (.57) | 96% | 15% |
| Scale  | Ease         | 2.6 (.69) | 9%  | 0% |

Note: Results based on items with 6-point scales ranging from 1 (I fully disagree) to 6 (I fully agree). PSTs = preservice teachers; TE = teacher educators. *M > 3.5; **M > 5.
educators, in contrast, identify the teaching–learning trajectory for inquiry competences as a strongpoint of the program, in all four quadrants of the model (Healey & Jenkins, 2009). Authors of previous studies have emphasized the need for discussion and debate within faculties about the role of preservice teacher inquiry because the impact of inquiry is limited when it is restricted to only some courses or inconsistently taught (e.g., Cochran-Smith et al., 2009; Munthe & Rogne, 2015; Puustinen et al., 2018; Schulz & Mandzuk, 2005). The participating teacher educators, who supervised the preservice teachers during their capstone inquiry project, were rarely involved in the first years of the teacher education program and therefore they were not able to link required inquiry competences to previous experiences of their students. A debate between teacher educators about the purpose and value of preservice teacher inquiry and about the implementation during the entire program is needed to ensure that preservice teachers recognize the intended teaching–learning trajectory. Attention to inquiry competences, including an inquiry habit of mind, should explicitly be part of every course and all fieldwork experiences during the teacher education program.

Second, preservice teachers perceive that the program focuses on research skills, whereas teacher educators tend to believe that it encompasses a broader inquiry habit of mind. Few preservice teachers in our study were able to identify teaching activities that had stimulated their inquiry habit of mind although teacher educators mentioned various examples from their own teaching practices. In line with previous studies, teacher educators indicated that they stimulated reflection on the process and outcomes of research and inquiry (Aspfors & Eklund, 2017; Dunn et al., 2008; Reis-Jorge, 2005; White et al., 2016) and emphasized working with critical friends or groups (Dobber et al., 2012; Van der Linden et al., 2012). Van der Rijst et al. (2013) also refer to differing perceptions between teachers and undergraduate students with regard to the focus of research and inquiry; for students to appreciate the intangible elements of research, such as developing an inquiry habit of mind, teacher educators may need to emphasize those elements in their communications with students. Cochran-Smith et al. (2009) note that preservice teachers in their study engaged in aspects of inquiry as spelled out in the scoring rubric rather than engaging in inquiry as an integral part of teaching, which is similar to perceptions of teacher educators in our sample. This finding is also in line with the results of our previous document analysis (Van Katwijk, Jansen, & Van Veen, 2019).

To achieve constructive alignment, teacher education programs should reconsider their current methods of assessing inquiry competence (Biggs & Tang, 2011).

Third, preservice teachers in both our survey and the focus group sessions stressed the importance—and shortage—of good supervisors. Although all participating institutes have invested in professional development on research and research-supervision (Geerdink et al., 2016), research-related teaching is rarely based on teachers’ own research, which could be stimulating for students (Aspfors & Eklund, 2017; Munthe & Rogne, 2015; Toom et al., 2010). Moreover, teacher educators identified few primary school teachers with research knowledge, which may be causing a lack of coherence in programs (Canrinus et al., 2017).

Our analysis of learning outcomes (i.e., RQ3) shows that both preservice teachers and teacher educators believe that preservice teachers have learned how to inquire. However, preservice teachers identify research skills and content knowledge as the most important learning outcomes, whereas teacher educators mention inquiry habit of mind as most important. These findings are in line with the findings of previous investigations of the description of inquiry competence in the Dutch primary teacher education programs, which show that research skills are well described in intended learning outcomes, teaching activities, and assessments, whereas inquiry habit of mind, despite being identified as an important learning outcome, is rarely mentioned in teaching activities or assessment (Van Katwijk, Jansen, & Van Veen, 2019).

Both teacher educators and preservice teachers identify the link to theory and practice as a learning outcome. Aspfors and Eklund (2017), as well as Puustinen et al. (2018) report that preservice teachers in master’s programs often have difficulties connecting theory and practice, despite laudable ambitions to establish such connections. The positive perceptions of the bachelor’s students in this study could be related to the fact that being taught in teacher inquiry is often their first introduction to educational research in the context of a teacher education program that is strongly practice-oriented. This in contrast to university-based teacher education master’s programs, where students already have a master’s degree in a discipline and are familiar with scientific research.

### Limitations

Although our study yields interesting and relevant outcomes, it has several limitations. First, all study participants...
were engaged in primary preservice teacher education in the Netherlands at the undergraduate level at UASs. Therefore, the educational context is specific, and generalizations require caution. Second, our findings arise from self-reports and perceptions of preservice teachers and teacher educators (e.g., Schwarz, 1999). Survey data related to the Value scale may show a slight social desirability bias because undertaking preservice teacher inquiry is a compulsory component of teacher education and therefore may be seen as important. The Inquiry Competence scale measures whether preservice teachers are able to undertake inquiry although the participating preservice teachers had graduated and therefore should be able to do so. We used multiple methods to diminish these biases, verifying the perceptions reported in the survey by asking deeper questions in the focus group sessions. Third, this study is merely a snapshot of a changing system; continued research related to the impact of preservice teacher inquiry on inquiry-based work and the research culture in primary schools should be longitudinal. Studying the application and development of inquiry competences of newly qualified teachers over time in particular would be an interesting direction for further research.

Despite these limitations, this study contributes to the existing body of knowledge on preservice teacher research and inquiry. Ample research on practitioner research and inquiry in various countries focuses on inservice teachers (e.g., Cochran-Smith & Lytle, 2009; Sachs, 2016), teacher educators (e.g., Jacobs et al., 2015; Tack & Vanderlinde, 2014), or preservice teachers in postgraduate programs (e.g., Aspfors & Eklund, 2017; Darling-Hammond, 2017; Råde, 2019; Toom et al., 2010). However, few studies focus on teaching preservice teacher inquiry competences to students in a professional bachelor’s degree program, such as in our context (e.g., Dunn et al., 2008; Munthe & Rogne, 2015). Our findings confirm to a large extent results in postgraduate and inservice context. Therefore, this study endorses the value of preservice teacher inquiry in bachelor’s programs as well.

**Conclusion**

This evaluation of preservice teacher inquiry into the Dutch primary teacher education curriculum, canvassing the views of both students and teacher educators, offers positive results overall. Preservice teachers have positive attitudes toward preservice teacher inquiry. Cognitively, they believe it is important and useful, and, affectively, they think it is an interesting component of teacher education. They also feel, in alignment with teacher educators, that preservice teacher inquiry is difficult but rewarding. Moreover, both preservice teachers and teacher educators truly believe that they are developing inquiry competence. These findings suggest that the implementation of preservice teacher inquiry provides valuable training for newly qualified teachers, leading them to have an inquiry stance and conduct inquiry-based work (e.g., Baan et al., 2019; Cochran-Smith et al., 2009).

However, half the preservice teachers in our study do not expect to undertake inquiry projects in their future jobs, which is similar to results of other studies. The findings of this study show two main reasons for this, which may lead to implications for teacher education in general: The formal way in which preservice teacher inquiry is taught and assessed should be changed into a clearer teaching–learning trajectory, starting in the first year of teacher education, with teaching activities in all four quadrants of the Healey and Jenkins model. Communication about the teaching–learning trajectory could improve so that all colleagues are aware of teaching activities and requirements for inquiry that take place outside their own subjects or years. Furthermore, explicit attention to the development of inquiry habit of mind is needed, as well as a reconsideration of the current methods of assessing inquiry competences.

Because students experience a lack of a culture of inquiry in most primary schools, more collaboration in inquiry projects between schools and teacher education institutes is desirable. This includes a further professional development of teachers in inquiry and supervision of inquiry projects as well as the use of research by teachers in primary schools.

**Appendix**

### Scales and Items of the Survey on Preservice Teacher Inquiry

| Scales and Items | Factor loading |
|------------------|----------------|
| 1. Perceived value of preservice teacher inquiry (n = 7) | |
| Conducting research is nice. | .433 |
| Conducting research is interesting. | .623 |
| Conducting research is useful. | .500 |
| Conducting research is enriching. | .618 |
| Conducting research is deepening. | .499 |
| Conducting research is instructive. | .517 |
| Conducting research is boring | .461 |
| 2. Expectation of using inquiry competence in one’s future profession (n = 11) | |
| Conducting research is part of the job description of a teacher. | .731 |
| Research fits naturally into the work of a teacher. | .691 |
| I think research is a good way for me to increase my level of professionalism. | .469 |
| I would really like to conduct research in my future job. | .735 |
| I prefer to apply to a school where I get the space to do research. | .715 |
| I will conduct research in my future job to improve practice. | .740 |

(continued)
Appendix. (continued)

| Scales and Items                                                                 | Factor loading |
|---------------------------------------------------------------------------------|----------------|
| I will look for colleagues to conduct research together.                        | .823           |
| I do not think I will conduct research in my future job as a teacher.           | .578           |
| Conducting research is too time-consuming.                                      | .624           |
| Preservice teacher research is a useless compulsory TE component.               | .477           |
| I do not think I will conduct research to resolve a problem in future.          | .721           |
| 3. Perceived ability of inquiry competence (n = 6)                               |                |
| I have learned how to design research.                                          | .774           |
| I feel capable of conducting research.                                          | .890           |
| I have acquired knowledge of the topic I researched.                            | .786           |
| I am able to use knowledge from my research in my work as a teacher.            | .578           |
| I have learned enough to independently conduct research in practice.           | .764           |
| Research helps me to acquire systematic insight into practical problems.        | .414           |
| 4. Perceived ease of undertaking preservice teacher inquiry (n = 4)              |                |
| I think that conducting research is easy.                                        | .703           |
| I think that conducting research is difficult.                                   | .826           |
| I think that conducting research is time-consuming.                             | .490           |
| Conducting research is too difficult to do without supervision.                 | .605           |

*Items that were reverse-scored.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD
Lidewij van Katwijk https://orcid.org/0000-0001-6610-3158

References
Aspfors, J., & Eklund, G. (2017). Explicit and implicit perspectives on research-based teacher education: Newly qualified teachers’ experiences in Finland. *Journal of Education for Teaching, 43*(4), 400–413.
Baarn, J., Gaikhorst, L., van ’t Noordende, J., & Volman, M. (2019). The involvement in inquiry-based working of teachers of research-intensive versus practically oriented teacher education programmes. *Teaching and Teacher Education, 84*, 74–82.
Baarn, J., Gaikhorst, L., & Volman, M. L. (2020). The involvement of academically educated Dutch teachers in inquiry-based working. *Professional Development in Education, 46*, 21–34.
Biggs, J. B., & Tang, C. (2011). *Teaching for quality learning at university: What the student does*. McGraw-Hill Education.
Borko, H., Liston, D., & Whitcomb, J. A. (2007). Genres of empirical research in teacher education. *Journal of Teacher Education, 58*(1), 3–11.
Canrinus, E. T., Bergem, O. K., Klette, K., & Hammerness, K. (2017). Coherent teacher education programmes: Taking a student perspective. *Journal of Curriculum Studies, 49*(3), 313–333.
Cochran-Smith, M., Barnatt, J., Friedman, A., & Pine, G. (2009). Inquiry on inquiry: Practitioner research and student learning. *Action in Teacher Education, 31*(2), 17–32.
Cochran-Smith, M., & Lytle, S. L. (2009). *Inquiry as stance: Practitioner research for the next generation*. Teachers College Press.
Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. Routledge.
Dana, N. F., & Yendol-Hoppey, D. (2014). *Learning to teach and teaching to learn through practitioner inquiry*. Corwin Press.
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.
Dobber, M., Akkerman, S. F., Verloop, N., & Vermunt, J. D. (2012). Student teachers’ collaborative research: Small-scale research projects during teacher education. *Teaching and Teacher Education, 28*(4), 508–617.
Dunn, M., Harrison, L. J., & Coombe, K. (2008). In good hands: Preparing research-skilled graduates for the early childhood profession. *Teaching and Teacher Education, 24*(3), 703–714.
Earl, L. M., & Katz, S. (Eds.). (2006). *Leading schools in a data-rich world: Harnessing data for school improvement*. Corwin Press.
European Commission. (2018). *The European Qualifications Framework: Supporting learning, work and cross-border mobility*. http://www.ec.europa.eu. Retrieved April 2020.
Field, A. (2019). *Discovering statistics using IBM SPSS statistics: North American edition*. SAGE.
Friese, S. (2014). *Qualitative data analysis with ATLAS.ti*. SAGE.
Geerdink, G., Boei, F., Willemse, M., Kools, Q., & Van Vlokhoven, H. (2016). Fostering teacher educators’ professional development in research and in supervising student teachers’ research. *Teachers and Teaching, 22*(8), 965–982.
Griffioen, D. M. (2019). The influence of undergraduate students’ research attitudes on their intentions for research usage in their future professional practice. *Innovations in Education and Teaching International, 56*(2), 162–172.
Guilbert, D., Lane, R., & Van Bergen, P. (2016). Understanding student engagement with research: A study of pre-service teachers’ research perceptions, research experience, and motivation. *Asia-Pacific Journal of Teacher Education, 44*(2), 172–187.
Healey, M., & Jenkins, A. (2009). *Developing undergraduate research and inquiry*. Higher Education Academy.
Hökkä, P., & Eteläpelto, A. (2014). Seeking new perspectives on the development of teacher education. A study of the Finnish context. *Journal of Teacher Education, 65*(1), 39–52.
Jacobs, J., Yendol-Hoppey, D., & Dana, N. F. (2015). Preparing the next generation of teacher educators: The role of practitioner inquiry. *Action in Teacher Education, 37*(4), 373–396.
Joram, E. (2007). Clashing epistemologies: Aspiring teachers’, practicing teachers’, and professors’ beliefs about knowledge and research in education. Teaching and Teacher Education, 23(2), 123–135.

Kowalczyk-Walędziak, M., Lopes, A., Underwood, J., Daniela, L., & Clipa, O. (2019). Meaningful time for professional growth or a waste of time? A study in five countries on teachers’ experiences within master’s dissertation/thesis work. Teaching Education, 1–21.

Kroll, L. R. (2005). Making inquiry a habit of mind: Learning to use inquiry to understand and improve practice. Studying Teacher Education, 1(2), 179–193.

Maaranen, K. (2009). Practitioner research as part of professional development in initial teacher education. Teacher Development, 13(3), 219–237.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Qualitative data analysis. SAGE.

Munthe, E., & Rogne, M. (2015). Research based teacher education. Teaching and Teacher Education, 46, 17–24.

Ponte, P., Beijard, D., & Ax, J. (2004). Don’t wait till the cows come home: Action research and initial teacher education in three different countries. Teachers and Teaching, 10(6), 591–621.

Puchta, C., & Potter, J. (2004). Focus group practice. SAGE.

Puustinen, M., Säntti, J., Koski, A., & Tammi, T. (2018). Teaching: A practical or research-based profession? Teacher candidates’ approaches to research-based teacher education. Teaching and Teacher Education, 74, 170–179.

Räde, A. (2019). Professional formation and the final thesis in European teacher education: A fusion of academic and professional orientation. Education Inquiry, 10(3), 226–242.

Reid, A. (2004). Towards a culture of inquiry in DECS. Department of Education and Children’s Services.

Reis-Jorge, J. (2005). Developing teachers’ knowledge and skills as researchers: A conceptual framework. Asia-pacific Journal of Teacher Education, 33(3), 303–319.

Reis-Jorge, J. (2007). Teachers’ conceptions of teacher-research and self-perceptions as enquiring practitioners—A longitudinal case study. Teaching and Teacher Education, 23(4), 402–417.

Sachs, J. (2016). Teacher professionalism: Why are we still talking about it? Teachers and Teaching: Theory and Practice, 22(4), 413–425.

Schön, D. A. (1983). The reflective practitioner: How professionals think in action. Basic Books.

Schulz, R., & Mandzuk, D. (2005). Learning to teach, learning to inquire: A 3-year study of teacher candidates’ experiences. Teaching and Teacher Education, 21(3), 315–331.

Schwarz, N. (1999). Self-reports: How the questions shape the answers. American Psychologist, 54(2), 93–105.

Tack, H., & Vanderlinde, R. (2014). Teacher educators’ professional development: Towards a typology of teacher educators’ researcherly disposition. British Journal of Educational Studies, 62(3), 297–315.

Toom, A., Kynäslahti, H., Krofors, L., Jyrhämä, R., Byman, R., Stenberg, K., . . . Kansanen, P. (2010). Experiences of a research based approach to teacher education: Suggestions for future policies. European Journal of Education, 45(2), 331–334.

Uitterwijk-Luijk, L., Krüger, M., Zijlstra, B., & Volman, M. (2017). The relationship between psychological factors and inquiry-based working by primary school teachers. Educational Studies, 43(2), 147–164.

Uitterwijk-Luijk, L., Krüger, M., Zijlstra, B., & Volman, M. (2019). Teachers’ role in stimulating students’ inquiry habit of mind in primary schools. Teaching and Teacher Education, 86, 102894.

Ulvik, M. (2014). Student-teachers doing action research in their practicum: Why and how? Educational Action Research, 22(4), 518–533.

Van den Akker, J. H. (2003). Curriculum landscape and trends. Kluwer Academic.

Van der Linden, W., Bakx, A., Ros, A., Beijaard, D., & Van den Bergh, L. (2015). The development of student teachers’ research knowledge, beliefs and attitude. Journal of Education for Teaching, 41(1), 4–18.

Van der Linden, W., Bakx, A., Ros, A., Beijaard, D., & Vermeulen, M. (2012). Student teachers’ development of a positive attitude towards research and research knowledge and skills. European Journal of Teacher Education, 35(4), 401–419.

Van der Rijst, R. M. (2009). The research-teaching nexus in the sciences. Scientific research dispositions and teaching practice [Doctoral thesis]. Universiteit Leiden.

Van der Rijst, R. M., Visser-Wijnveen, G. J., Verloop, N., & Van Driel, J. H. (2013). Undergraduate science coursework: Teachers’ goal statements and how students experience research. Innovations in Education and Teaching International, 50(2), 178–190.

Van Katwijk, L., Berry, A., Jansen, E., & Van Veen, K. (2019). “It’s important, but I’m not going to keep doing it!”: Perceived purposes, learning outcomes, and value of pre-service teacher research among educators and pre-service teachers. Teaching and Teacher Education, 102868.

Van Katwijk, L., Jansen, E., & Van Veen, K. (2019). Ontwikkeling van kritische en nieuwsgierige leraren? Onderzoekend vermogen in leerlijnen onderzoek van lerarenopleidingen basisonderwijs [Development of critical and curious teachers? Inquiry competences in the research teaching-learning trajectories of primary teacher education]. Pedagogische Studiën, 96, 330–348.

White, S., Hepple, E., Tangen, D., Comelli, M., Alwi, A., & Abu Hassan Shaari, Z. (2016). An introduction to education research methods: Exploring the learning journey of pre-service teachers in a transnational programme. Asia-pacific Journal of Teacher Education, 44(1), 35–48.

Zeichner, K. M., & Noffke, S. E. (2001). Practitioner research. In V. Richardson (Ed.), Handbook of research on teaching (4th ed., pp. 298–330). American Educational Research Association.

Author Biographies

Lidewij van Katwijk is a researcher and teacher educator at the University of Groningen (RUG), and NHL Stenden University of Applied Sciences, Leeuwarden. Her research interests concern the purpose and value of preservice teacher research and implications for curriculum development.
Ellen Jansen is an associate professor in the Department of Teacher Education of the Faculty of Behavioural and Social Sciences at the University of Groningen. Her research interests concern research and development in higher education.

Klaas van Veen is a professor of educational studies in the Department of Teacher Education of the Faculty of Behavioural and Social Sciences at the University of Groningen. His research activities are primarily concerned with the pedagogy and effectiveness of teacher learning.