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How to Support The Development Of Teachers' Practical Knowledge: Comparing Different Conditions

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Abstract

Student teachers often experience difficulties in relating theories taught in teacher education institutes to the actual teaching practice. In this study, we present a guided reflection procedure that aims to support student teachers in developing knowledge based on their practical experiences and linking this with research-generated knowledge. Twenty-one student teachers at a university in Estonia implemented the procedure. They each recorded their lesson, selected two incidents for further reflection, and carried out an oral and written reflection. We investigated differences in student teachers' practical knowledge i) as revealed in oral and written reflections; ii) across different teacher education curricula; iii) depending on the conditions of oral reflection. The findings suggest that the procedure supports the development of practical knowledge.

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1. Introduction

Teacher education programs in Europe and beyond have been criticized in the past for leaving a "gap" between theory (i.e. research-generated knowledge) and practice (see e.g. Kansanen et al., 2000; Korthagen, 2001; Korthagen, Loughran, & Russell, 2006; Meijer, 2010). As a result, student teachers as well as newly qualified

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teachers often experience difficulties in relating theories taught in teacher education institutes to teachers' practical work in classrooms (Grossman, Hammerness, & McDonald, 2009; Meijer, 2010). In response, great emphasis is placed in teacher education programs on bridging this gap by supporting the development of different types of knowledge, for example research-generated knowledge and practical knowledge (Meijer, 2010) and linking them together.

1.1. Teacher's practical knowledge

In an effort to highlight teaching as professional work, researchers in the 1980s focused on the knowledge demands of teaching, arguing that teaching requires a great deal of knowledge that is specific to the work of teaching (see e.g. Grossman et al., 2009; Loughran, 2010). Researchers became interested in specific knowledge that underlied teaching and which even teachers themselves had difficulty in articulating. Particularly decisive was Shulman's (1987) conception of pedagogical content knowledge, according to which specialized knowledge related to teaching a subject, was important in addition to subject matter knowledge and general pedagogical knowledge. Supporting this type of teachers' knowledge construction is necessary in pre-service teacher education programs. Consequently, student teachers need to be supported in developing knowing-in-action (Schön, 1983) or a code of practice (Mena, García, & Tillema, 2011a) and extracting "patterns" from the concrete activities in order to develop a theory of action. Such abstraction can contribute towards finding potentially effective strategies, rules or principles for practice as already proposed by Shulman (1987). Although initially the focus was solely on developing knowledge based on practice, later authors also stressed the importance of relating this type of knowledge to research-generated knowledge (see e.g. Meijer, 2010). Several scholars (Brown, Collins, & Duguid, 1989; Leinhardt, 1988) suggested that knowledge should be investigated in the situation in which it is being used. Teachers' practical knowledge is socially mediated within the immediacy of action setting. In other words, teachers' cognitions and actions should be investigated while teachers are teaching, because, during teaching, knowing and acting are inseparable. Reflection assignments are often employed to support developing practical knowledge based on own experiences and linking it with research-generated knowledge.

1.2. Reflection in teacher education

Reflection can generally be defined as a cognitive process carried out in order to learn from experiences through individual inquiry and collaboration with others (Benammar, 2004; Dewey, 1933; Mezirow, 1991; Moon, 2004; Schön, 1983). In addition, the teacher reflection has been considered a dominant activity for developing practical knowledge and linking it with educational theories in teacher training programs (see e.g. Korthagen 2001, 2004; Korthagen & Vasalos, 2005; Korthagen & Wubbels, 1991, 2000; LaBoskey, 2010). In teacher education reflection on action (Schön, 1983) is commonly practiced and the aim of reflection should be the integration of theory and practice so that future practice may become informed practice (Thompson & Pascal, 2012). However, the results of reflection assignments implemented in the teacher education context are often disappointing (see e.g. Abou Baker El-Dib, 2007; Lee, 2005; Mena, Sanchez, & Tillema, 2011b). One of the problems is that a majority of students' reflections result in mere descriptions of practice and not a critical evaluation or re-framing of their understandings. For example, Mena, García, and Tillema (2013) stated that student teachers mainly presented descriptive knowledge of what they had done and it seemed to be difficult for student teachers to extract rules and artefacts from their experiences which is the ultimate goal of reflection. The problem is how to extract meanings from experience (Husu, Toom, & Patrikainen, 2008). Therefore, student teachers need support in extracting "patterns" from the classroom activities in order to develop a theory of action. These patterns are essential to finding effective strategies, rules and principles for practice.

1.3. Supporting reflection in action in teacher education

To engage in reflection on experiences, an individual's active participation is required (see e.g. Moon, 2004; Procee, 2006; Schön, 1983). Moreover, several authors agree that reflection needs to happen in community in interaction with others (see e.g. Benammar, 2004; Dewey, 1933; Leijen, Valtna, Leijen, & Pedaste, 2012; Procee,

2006). This enables individuals to share and learn from experiences and ideas from others' perspectives, (re)interpreting and developing their own perspectives further. Some evidence has been provided that peer feedback can help students move beyond the evaluation and explanation of an experience and raise the overall quality of student's reflections (Leijen et al., 2012). Moreover, reflective discussion with experienced teachers provides insight into the thoughts or arguments that experienced teachers have concerning their teaching, which student teachers have found to be informative and useful for thinking about their own teaching (Meijer, Zanting, & Verloop. 2002). Insight into the content and nature of teachers' practical knowledge can lead to a better understanding of the complexities of teaching and, as such, can contribute to knowledge of the relationship between educational theories and teachers' practice (Meijer, 2010). Similarly Mena et al. (2013) concluded that student teachers should be supported and mentored in order to raise their reflections beyond a descriptive level and to make it practical knowledge. The guided reflection procedure (Husu et al., 2008; Korthagen & Vasalos, 2005; Sööt & Leijen, 2012) and the stimulated recall procedure (Meijer et al., 2002) have been found to be potentially effective methods for developing practical knowledge. In the course of the current study, the guided reflection procedure which contains oral and written reflection assignments proposed by Husu et al. (2008) was further developed (see section 2.2.) and tested among student teachers at a university in Estonia. More specifically, we addressed the following research questions: (1) What practical knowledge types student teachers communicated in their oral and written reflections? (2) Are there differences in created practical knowledge between students in different teacher education curricula? (3) How do the groups in three oral reflection conditions (reflecting alone, reflecting with a peer, and reflecting with a school supervisor) differ in terms of created practical knowledge?

2. Method

2.1. Participants

Twenty-one student teachers (all female; 16 students aged 22-24, four students aged 25-30, one student aged 49) from three teacher education curricula (eight students following the curriculum of teacher of several subjects in basic school, six students following the class teacher curriculum, and seven students following the kindergarten teacher curriculum) carried out the guided reflection procedure in the course of their regular curricular activities during school practicum. Students following the subject teacher curriculum carried out their first teaching assignments during the school practicum. Students following the two other curricula had more teaching experience; they carried out their final teaching practice (kindergarten teacher curriculum students) or a major teaching practice in an age group (class teacher curriculum students).

2.2. Guided reflection procedure

As described earlier, the premise of the guided reflection procedure is to develop such pedagogical practices in teacher education that are effective in enabling student teachers to construct professional agency and acquire such knowledge and skills they need when they enter teaching profession. Theoretically, the model is based on Deweyean (Dewey, 1933) definition of reflection as a systematic and rigorous way of thinking, and it emphasizes student teacher's personal learning objectives, interaction with others, spoken and written reflections, and time used for prolonged reflection. The procedure consists of three stages.

Stage one: Selecting incidents for reflection. A lesson (or a part of a lesson in the case of students following the subject teacher curriculum) taught by student teachers was recorded. Two days after the recoding, student teachers viewed the whole recorded lesson and selected two critical incidents for further reflection. One incident had to be positive; student teachers had to find an aspect that they were very satisfied with. The second incident was called a challenge, students were asked to identify an aspect that they wished to develop further.

Stage two: Oral reflection took place a week after student teachers had selected the critical incidents. In their reflections, students were guided by the following questions, which were developed based on the theoretical framework outlined earlier (see sections 1.1., 1.2., 1.3.):

- 1. What is happening? 1.1. What can you see/hear yourself doing? 1.2. What can you see/hear the pupils doing? 1.3. Is there a relationship between what you are doing and what pupils are doing?

- 2. Why do you think this is happening? 2.1. What pupils' behaviors are caused by your behavior? 2.2. Which behavior of yours is caused by the pupils' behavior? 2.3. What makes the incident a critical incident for you?
- 3. Relating the incident to theory. 3.1. Which teacher role does the incident relate to? 3.2. How does literature support your causal explanation under 2 (in case of a positive incident)? 3.3. What suggestions does literature offer towards solving your problem (in case of a challenging incident)?
- 4. What have you learned from this event so far? How will you make use of those things that you have learned from this event?

This stage was carried out in three conditions: with a supervisor (seven student teachers), with a peer student (five student teachers), and alone (nine student teachers). Students were divided into different groups of oral reflection according to their preferences.

Stage three: Written reflection took place one to two weeks after the oral reflection. During this stage student teachers reflected on the critical incidents in an individual writing assignment answering the following questions:

- 1. Relating the incident to theoretical principles. 1.1. Which teacher's role does the incident relate to? 1.2. How does literature support your causal explanation in oral reflection (in case of a positive incident)? 1.3. What suggestions does literature offer towards solving your problem (in case of a challenging incident)?
- 2. What will be your future action? 2.1. What will be your future action regarding this incident? 2.2. What do you hope to achieve by this action? 2.3. What personal principle underlies your choice of action?
- 3. How will you make use of those things that you have learned from this event?

2.3. Data collection and analysis

Data was collected during the above described oral and written reflection stages. The oral reflections were audio recorded and fully transcribed. Qualitative content analysis procedure was employed for analyzing the transcripts and written reflections and it consisted in following steps. In first order, written reflections were analyzed by two researchers following a pre-defined coding scheme containing six categories. Four types of knowledge (recall, appraisal, rule, and artefact) were distinguished based on Mena et al. (2013) and two types (practical and theoretical reasoning) were added. Firstly, direct reproductions of what had been experienced (e.g., *I did three activities on reading*) were coded as recalls. Secondly, evaluations or value judgments of the action that were being recalled (e.g., *Kids finally remained in silence at the auditorium*) were coded as appraisals. Thirdly, methodological strategies that student teachers extracted from their experiences (e.g., *We teachers should use different rewards*) were coded as rules or practical principles. Fourthly, instruments and physical supports teachers envisaged from what they have experienced (e.g., *I would do a reward table in my workbook: give sweets to those who are sitting down*) were coded as artefacts. Fifthly, practical arguments that student teachers gave for their claims based on their experiences (e.g., *I called the pupil by name during the lesson because it was the only possible way to gain her attention*) were coded as practical reasoning. Sixthly, theory-related arguments that student teachers gave for their claims based on their experiences (e.g., *I asked questions related to the math task, because I know that it is one way to guide pupil within her zone of proximal development*) were coded as theory-related reasoning.

The predefined categories were adopted and further defined in collaboration with two researches. All units of thought from written reflections were discussed and coded after both researchers had agreed on a specific code. Each unit was given one code. Altogether 405 units were coded. All coded units were re-analyzed by another researcher to check for consistency and as a result 134 units were selected for further debriefing with two researchers. In the process of discussing these codes, 31 units were added (some initial units of analysis were divided into smaller units) and four units were left uncoded. Agreement regarding the type of practical knowledge was reached for all 436 coded units. Moreover, the type of practical knowledge in oral reflections was analyzed by one researcher. Each unit was given one code. Altogether 621 units were coded. Finally, all 1057 coded units were re-analyzed by the researcher to check for consistency within categories.

Following the coding procedures, chi-square tests were used to find out whether there were differences regarding the division of created practical knowledge types between oral and written reflections, the three conditions of oral reflection groups and between the three curriculum groups.

3. Results

3.1. The types of created practical knowledge in student teachers' oral reflections and written reflections

A chi-square analysis was used to find out how the presented types of practical knowledge differ in student teachers' oral reflections and written reflections. The test showed that oral reflections and written reflections are differently associated with created practical knowledge type ($\chi^2 = 99$, $p < 0.01$). This indicates that the groups differ in terms of created practical knowledge types. The oral reflections can be characterized by more frequent presentation of recalls (standardized residual 2.0), appraisals (standardized residual 2.1) and practical reasoning (standardized residual 2.4). The written reflections can be characterized by more frequent presentation of rules or practical principles (standardized residual 3.3), artefacts (standardized residual 3.0) and theoretical reasoning (standardized residual 3.9). This indicates that oral and written reflection assignments might trigger different types of knowledge as also presented by Husu et al. (2008). In the current study the oral reflection assignment resulted in more descriptions of practice, value judgments and practical reasoning while the written assignment questions seemed to trigger practical knowledge such as rules and artefacts and seemed to facilitate theoretical reasoning in relation to the concrete practical experiences.

3.2. The types of created practical knowledge in different curriculum groups

Differences in presented types of practical knowledge between three curriculum groups were analyzed using a chi-square test. The analysis showed that the curriculum groups are differently associated with created practical knowledge type in the reflections (oral and written reflections together) ($\chi2 = 32$, $p < 0.01$). This indicates that the groups differ in terms of created practical knowledge types student teachers presented in the oral and written reflections. The group of kindergarten teachers can be characterized by more frequent presentation of artefacts (standardized residual 2.0) and they expressed less frequently practical reasoning (standardized residual -1.8). The group of class teachers can be characterized by more frequent presentation of practical reasoning (standardized residual 1.7). The group of subject teachers can be characterized by more frequent presentation of recalls (standardized residual 2.3) and they expressed less frequently theoretical reasoning (standardized residual -1.8). Subsequently, we analyzed the practical knowledge in oral reflections. The chi-square test showed that the curriculum groups are differently associated with created practical knowledge type in the oral reflections ($\chi2 = 25$, $p < 0.01$). This indicates that the groups differ in terms of created practical knowledge types in the oral reflections. The group of kindergarten teachers can be characterized by more frequent presentation of artefacts (standardized residual 3.0). The group of class teachers can be characterized by more frequent presentation of theoretical reasoning (standardized residual 1.2) and they expressed less frequently artefacts (standardized residual -1.5). The group of subject teachers can be characterized by more frequent presentation of recalls (standardized residual 1.8) and they expressed less frequently artefacts (standardized residual -1.7) and theoretical reasoning (standardized residual -1.3). Finally, we tested differences within written reflections. The chi-square analysis showed that the curriculum groups are differently associated with created practical knowledge type in the written reflections ($\chi2 = 24$, $p < 0.05$). This indicates that the groups differ in terms of created practical knowledge types student teachers presented in the oral reflections. The group of kindergarten teachers can be characterized by more frequent presentation of appraisals (standardized residual 1.6) and theoretical reasoning (standardized residual 1.1) and they expressed less frequently practical reasoning (standardized residual -1.4). The group of class teachers can be characterized by more frequent presentation of practical reasoning (standardized residual 2.2). The group of subject teachers can be characterized by more frequent presentation of recalls (standardized residual 1.3) and they expressed less frequently theoretical reasoning (standardized residual -1.2). These findings show that students with prior pedagogical experience (kindergarten teachers and class teachers curricula students) reported more artefacts, theoretical or practical reasoning in oral and written reflections in comparison with students without prior pedagogical experiences (subject teachers curriculum students). These findings suggest that students without prior pedagogical experience might experience difficulties in constructing practical knowledge based on experiences and might require further guidance. The same results came out from a previous study (Leijen et al., 2014) where we analyzed students' own perceptions of the usability of the developed guided reflection procedure.

3.3. The types of created practical knowledge in different groups of oral reflection conditions

A chi-square analysis was used to find out how the presented types of practical knowledge differ between groups based on the chosen oral reflection condition. Firstly we looked whether there were differences between reflections without separating oral and written reflections. The test showed that the three conditions (self-reflection, peer-reflection and reflection with supervisor) are differently associated with created practical knowledge type in the oral and written reflections ($\chi 2 = 23$, $p < 0.05$). This indicates that the groups differ in terms of created practical knowledge types in the oral and written reflections. The self-reflection condition can be characterized by more frequent presentation of appraisals (standardized residual 1.4) and theoretical reasoning (standardized residual 1.4) and expressed less frequently rules and practical principles (standardized residual -2.1). The peer reflection condition can be characterized by more frequent presentation of rules and practical principles (standardized residual 1.8) and they expressed less frequently theoretical reasoning (standardized residual -1.4). The third condition, group which chose reflection with a mentor teacher, expressed less frequently appraisals (standardized residual -2.2). Secondly, we investigated differences within the oral reflections. The chi-square test showed that the three groups are differently associated with created practical knowledge type in the oral reflections ($\chi 2 = 18$, $p = 0.05$). The groups seem to differ in terms of created practical knowledge types student teachers presented in the oral reflections. The self-reflection group can be characterized by more frequent presentation of artefacts (standardized residual 1.2) and fewer rules or practical principles (standardized residual -2.2). The peer-reflection group presented more frequently rules and practical principles (standardized residual 2.2) and less frequently practical reasoning (standardized residual -1.2) and recalls (standardized residual -1.1). The group who reflected with a supervisor expressed fewer appraisals (standardized residual -1.3). Finally, we analyzed differences within written reflections. We found that the three groups are differently associated with created practical knowledge type in the written reflections ($\chi 2 = 30$, $p < 0.05$). This indicates that the groups differ in terms of created practical knowledge types. The self-reflection group made appraisals more frequently (standardized residual 2.8) and expressed rules or practical principles less frequently (standardized residual -1.4). The peer-reflection group made fewer appraisals (standardized residual -1.9). The group who reflected with a school supervisor presented artefacts (standardized residual 1.3) and rules or practical principles more frequently (standardized residual 1.1) and displayed fewer appraisals (standardized residual -2.3) and instances of practical reasoning (standardized residual -1.3). These findings show that, in comparison to other groups, students who carried out oral reflection with a supervisor displayed practical knowledge most frequently (namely rules and artefacts) in their written reflection. This finding is in line with observations of previous authors (e.g. Meijer, 2010) who showed that experienced teachers can help novice teachers in developing practical knowledge based on concrete experiences.

4. Conclusion

Drawing on several authors, (e.g. Grossman et al., 2009; Kansanen et al., 2000; Korthagen, 2001; Meijer, 2010) the study aimed enhancing the relevance and meaningfulness of the pre-service teacher education, so that beginning teachers would be better prepared for actual classroom practice. For this reason, we adapted a three stage guided reflection procedure (Husu et al., 2008) for supporting student teachers' development of knowledge from their practical experience linked to research-generated knowledge. More specifically, we aimed to aid student teachers in developing knowing-in-action (Schön, 1983) or a code of practice (Mena et al., 2011a) and extract "patterns" from the concrete activities that contribute towards finding potentially effective strategies, rules, or principles for practice (Schulman, 1987). This was the main focus of the oral reflection stage. In addition, we supported student teachers to relate such practical knowledge to educational theories taught in university programs. This was mainly encouraged at the written reflection stage. The results of the current study showed that during the oral reflection the narrative knowledge, such as recalls, appraisals, and practical reasoning, were more frequently presented in comparison to written reflections. In contrast, written reflections included more frequently communication of practical knowledge (rules, principles, artefacts) and theoretical reasoning. These findings suggest that while the oral reflection stage allowed detailed revisiting of the concrete incident, the written reflection stage permitted students to move on to more abstract level and extract more generalized knowledge from the concrete experience. In addition, based on previous studies, we developed three conditions for the oral reflection stage in the guided refection procedure.

Drawing on the work of Meijer (2010), one group carried out a stage in reflection procedure with a school supervisor, and following the results of Leijen et al. (2012), we incorporated peer-reflection activities for another group. The third group carried out the reflection activities by themselves, which is a common format for reflection in teacher education programs. The results of the study showed that, in comparison to other groups, students who carried out oral reflection with a school supervisor displayed practical knowledge more frequently (namely rules and artefacts) in their written reflection. This finding suggests that the developed procedure is especially fruitful for articulating generalized practical knowledge in case the oral reflection is carried out with an experienced school supervisor, as also proposed by Meijer (2010). Finally, we also investigated whether the extent of students' prior pedagogical experience might be related to the outcomes of oral and written reflections. The results of the study showed that the group of students who had no prior pedagogical experience reported more frequently recalls in both oral and written reflections in comparison to other students who reported more practical knowledge (artefacts) and practical or theoretical reasoning at both stages of reflection. This finding indicates that the developed guided reflection procedure could be more suitable for students who already have some teaching experience, as also indicated by Leijen et al. (2014). However, since we only compared the students from three curricula, these possible differences regarding prior pedagogical experience should be confirmed in further studies.

Acknowledgement

References

Abou Baker El-Dib, M. (2007). Levels of reflection in action research. An overview and an assessment tool. *Teaching and Teacher Education, 23*(1), 24-35.

Benammar, K. (2004). *Conscious action through conscious thinking - reflection tools in experiential learning*. Public seminar. Amsterdam: Amsterdam University Press.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18*(1), 32-42.

Dewey, J. (1933). *How we think*. Buffalo, NY: Prometheus Books.

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, reimagining teacher education. *Teachers and Teaching: Theory and Practice, 15*(2), 273–289.

Husu, J., Toom, A., & Patrikainen, S. (2008). Guided reflection as a means to demonstrate and develop student teachers' reflective competencies. *Reflective Practice: International and Multidisciplinary Perspectives, 9*(1), 37-51.

Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). *Teachers' pedagogical thinking. Theoretical landscapes, practical challenges*. New York: Peter Lang.

Korthagen, F. A. J. (2001). A broader view of reflection. In F. A. J Korthagen, J. Kessels, B. Koster, B. Lagrwerf, & T. Wubbels (Eds.), *Linking practice and theory: The pedagogy of realistic teacher education* (pp. 231-238). Mahwah, NJ: Lawrence Erlbaum Associates.

Korthagen, F. A. J. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education, 20*, 77-97.

Korthagen, F. A. J., & Vasalos, A. (2005). Levels in reflection: Core reflection as a means to enhance professional growth. *Teachers and Teaching: Theory and Practice, 11*(1), 47-71.

Korthagen, F. A. J., & Wubbels, Th. (1991). *Characteristics of reflective practitioners: towards an operationalization of the concept of reflection*. Paper gepresenteerd op het congres van de American Educational Research Association, Chicago. ERIC-nr. ED 334 183.

Korthagen, F. A. J., & Wubbels, Th. (2000). Are reflective teachers better teachers? In G. M. Willems, J. H. J. Stakenborg, & W. Veugelers (Eds.), *Trends in Dutch teacher education* (pp. 131-141). Leuven/Apeldoorn: Garant.

Korthagen, F. A. J., Loughran, J., & Russell, T. (2006). Developing fundamental principles for teacher education programs and practices. *Teaching and Teacher Education, 22*, 1020–1041.

LaBoskey, V. K. 2010. Teacher education and models of teacher reflection. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International encyclopedia of education* (vol. 7; pp. 629–34). Oxford: Elsevier.

Lee, H.-J. (2005). Understanding and assessing preservice teachers' reflective thinking. *Teaching and Teacher Education, 21*(6), 699-715.

Leijen, Ä., Allas, R., Toom, A., Husu, J., Mena, J., Meijer, P., Dubravka, K., Pedaste, M., & Krull, E. (2014). Guided reflection for supporting the development of student teachers' practical knowledge. *Procedia – Social and Behavioral Sciences, 112*, 314-322.

Leijen, Ä., Valtna, K., Leijen, D. A. J., & Pedaste, M. (2012). How to determine the quality of students' reflections? *Studies in Higher Education, 37*(2), 203-217.

Leinhardt, G. (1988). Situated knowledge and expertise in teaching. In J. Calderhead (Ed.), *Teachers' professional learning* (pp. 146-168).

London: Falmer Press.

Loughran, J. (2010). *What expert teachers do: Enhancing professional knowledge for classroom practice*. London, New York: Routledge.

Meijer, P. C. (2010). The teacher education knowledge base: Experienced teachers' craft knowledge. In E. Baker, P. Peterson, & B. McGaw (Eds.), *International Encyclopedia of Education*, 3rd Edition (vol. 7; pp. 642-649). Oxford: Elsevier.

Meijer, P. C., Zanting, A., & Verloop, N. (2002). How can student teachers elicit experienced teachers' practical knowledge? Tools, suggestions, and significance. *Journal of Teacher Education, 53*(5), 406-419.

Mena, J. M., García, M. L., & Tillema, H. H. (2011a). *Revealing practical knowledge through deliberate reflection in student teaching*. Paper presented at the 14th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI), August 30 – September 3, Exeter, United Kingdom.

Mena, J. M., García, M. L., & Tillema, H. H. (2013). Student teacher reflective writing: what does it reveal? *European Journal of Teacher Education, 36*(2), 147-163.

Mena, J. M., Sanchez, E., & Tillema, H. H. (2011b). Promoting teacher reflection: What is said to be done. *Journal of Education for Teaching, 37*(1), 21-36.

Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Francisco, CA: Jossey-Bass.

Moon, J. A. (2004*). Reflection in learning and professional development*. New York: Routledge.

Procee, H. (2006). Reflection in education: A Kantian epistemology. *Educational Theory, 56*(3), 237-362.

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

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.

Sööt, A., & Leijen, Ä. (2012). Designing support for reflection activities in tertiary dance education. *Procedia - Social and Behavioral Sciences*, *45*, 448-456.

Thompson, N., & Pascal, J. (2012). Developing critically reflective practice. *Reflective Practice: International and Multidisciplinary Perspectives, 13*(2), 311-325.