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Meaningful learning in teacher education, Characteristics of

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1 Introduction

“Teacher education is where all students of teaching should learn to challenge their deeply held views of teaching and learning; so often implicit in practice but so rarely articulated, confronted and examined (Loughran, 2006, 42).”

From the cognitive perspective, meaningful learning is often understood in terms of the cognitive development and the changes in a learner’s cognitive structure that occur when the knowledge being learned is relevant to the learner’s existing knowledge and shares significant concepts and aspects with that knowledge. The perspective of the interpreter thus affects the meaning-making process and the construction of meaning involves the interpretation of new information and experiences by connecting them with prior knowledge. In addition, experiences that challenge former knowledge allow new questions to arise and are thereby potentially meaningful.

From the perspective of social theories of learning, meaningful learning is defined in broader terms, referring to “the learner’s personal and cultural interpretation of all the events, activities, circumstances, and interactions which he or she encounters throughout his or her participation in an educational program, in terms of how important and valuable they are. The interpretation is made through connection to and interaction with one’s existing knowledge, experiences, beliefs, values, as well as other cultural and social factors” (Okukawa, 2008, p. 47). A meaningful learning experience refers thus to those learning processes and various events, activities and circumstances that students regard as having a special meaning to them, being personally valued and rich (Kostiainen et al., 2018).

Yet, together with the students' experiences, meaningful learning experiences also rely on the teacher educators' ability to be receptive to experiences that precede their own understanding about learning about teaching about teaching (Loughran, 2006). What is essential here, is that it is not only the experience itself that makes the difference, in terms of developing the pedagogy of teacher education what is significant is learning *through* the experience and reflection and sharing of reflection among the teacher education community. Meaningful learning experiences have great potential to change and challenge existing, often simplistic conceptions of teaching and learning. It is thus the goal of teacher education to provide possibilities for new ideas and inspirations to be tested and practiced.

2 Characteristics of and favorable conditions for meaningful learning in teacher education

Generating meaningful learning in the context of teacher education is of particular importance due to the influence of teacher education on preservice teachers' understanding of what it means to learn. Meaningful learning involves a number of diverse process characteristics. These characteristics of meaningful learning occur when learners are engaged in (1) *authentic practices*, and (2) *active and intentional*, (3) *reflective* and, (4) *relational processes*.

(1) *Authentic practices*. Meaningful learning requires meaningful tasks drawn from authentic, or technology-enhanced (e.g. simulated, virtual/augmented reality, game-based environments), contexts or experiences. Authentic problems have the potential to create more transferable understanding due to their contextual meaning. Teaching practice and the tasks and practices carried out by the student teachers in the classroom thus both play an essential part in enhancing meaningful learning in teacher education. However, due to the individual and personal nature of meaningful learning experiences, teacher education should include and trial a broad range of course designs and authentic practices that aim at enabling and facilitating meaningful learning (Kostiainen et al., 2018). Authentic practices means not seeing teaching as simply doing, but considering teaching in teacher education as intentionally and carefully created, structured and theory-based to engage student teachers in learning for understanding, not learning by rote (Loughran, 2006). For the student teachers, theoretical understanding should be thus a built-in component in learning designs.

Authentic practices can be created through teaching practices and joint projects with local schools. In addition, learning tasks and themes, be they located in face-to-face or technology-enhanced learning environments, provide possibilities to create authenticity. For example, case-based instruction tailored to the particular interests of the participants, or simulations that focus, for example, on certain micro-teaching activities or collaborative problem solving that are not possible to practice otherwise may create opportunities for meaningful learning to occur.

(2) *Active and intentional processes.* Learning to be meaningful requires active individual agency and goal-orientation. That is, the learner intentionally chooses to learn (Loughran 2006) and actively integrates new knowledge with prior knowledge. Here, motivation and engagement play a central role: educational programs that are based on individual learners' characteristics and promote learners' engagement and agency are likely to provide fertile ground for meaningful learning experiences to grow. In this regard, a sense of ownership is crucial and, therefore, processes that are self-directed and purposeful with emotional commitment and that resonate with the learner's values are essential in providing high-quality and meaningful learning over the course of teacher education. The possibility to experience a broad spectrum of emotions is seen to enhance meaningful learning, which necessitates that the learning processes undertaken should not restrict the range or depth of possible emotions (e.g. feelings of safety, authenticity, trust, struggle and wonder) (see Kostianen et al., 2018).

Active and intentional processes can be acquired through the systematic design of course themes and contents that relate to the core teaching and learning phenomenon and that differ in depth and length in respect to the nature of the theme or content. For example, themes such as "Understanding oneself as a group member" or "School as a part of society" may require diverse learning methods to be included in the course designs. Also, in the course designs, student teachers should be empowered to be active and critical thinkers and be encouraged to express new ideas and inspirations. The student teachers should also be empowered and prepared to be primarily responsible for their own learning. Moreover, the course assignments should be designed to challenge the participants, which can increase their motivation to invest in the assignments. Teacher educators should encourage and support students to be sensitive to the "problematics" of teaching and to avoid simple solutions to complex problems, even though it is more difficult and highly challenging (Loughran 2006).

(3) *Reflective processes.* Learning experiences become meaningful through reflective processes. Through reflection, any situation in which the student teachers are able to deepen, analyze and concentrate their thinking has the potential to become a meaningful learning experience. Through reflection, the students can build and rebuild the relationship between learning and themselves and, in this way, better understand what their learning experience means for them (Okukawa, 2008; Loughran, 2006). The pedagogical relevance of reflection is rooted in the variety of viewpoints that can be explored, including the relationship between teaching and learning, and how these partner each other to develop meaningful practice and result in the growth of knowledge and understanding. Without reflection, problematic practices that student teachers may encounter risk becoming simplified and routinized, for example (Loughran, 2006). Such simplified and routinized assumptions are not always apparent to us but are often implicit rather than intentional in our actions. Thus, reflective processes help the student teacher to be conscious about and to confront the assumptions underlying their actions.

Furthermore, in reflection, challenging oneself is key: it is essential to understand that meaningful learning can also be an inconvenient and troubling experience and can elicit awkward feelings, strong emotions and cognitive dissonance (Kostiainen et al., 2018). This includes experiencing difficulties and failures. In the process of building teacher identity, all such learning experiences (including negative ones) that transform our understanding, conceptions and attitudes as teachers are considered meaningful. In the process of learning about teaching, it is important to assist student teachers to face their failures and uncover the possible reasons behind them and, thereby, to highlight the underlying potential for learning and growth (Loughran, 2006).

Enabling reflective processes involves the use of tasks that allow theoretical knowledge to become an immediate tool in the process of understanding, explaining and reflecting on the student teacher's own behavior, reactions and emotions. This is important for allowing the students to reflect on their initial actions and thinking regarding how to teach.

Reflective processes can also make visible varying and often contrasting experiences and interpretations of given learning situations, thereby challenging one's own thinking and understanding. In this sense, what is learned through reflection is as valuable as reflection itself (Loughran, 2002).

(4) *Relational processes*. The relational dimension relates to the need for interaction, collaboration and enthusiasm in and between teacher educators, student teachers and the teaching process (Okukawa, 2008). Student engagement is molded through teacher educator–teacher student interaction and the role that the teacher educator takes. Interaction, discussion, collaboration, sharing and enthusiasm in and between teaching staff, students and the teaching process allow student teachers to better recognize, for example, the pedagogical reasoning that underpins the teaching processes that the students are experiencing (see Loughran, 2006). The experience of equality of all participants throughout the course of teacher education studies, including reflection with teacher educators and training school teachers as well as with co-students, is crucial. For example, student teachers can experience comfort and support when they recognize that the teacher educators are struggling with similar difficulties in their teaching as they are. Relational processes thus set the stage for learning communities to develop and, in this sense, offer support and enhance student engagement.

Enabling relational processes to flourish is strongly reliant on the teacher educator's ability to create an atmosphere and methods conducive to meaningful learning. Teacher educators with strong presence, who are approachable and have a strong commitment to their work, can promote student engagement. Close and immediate relations with the teacher educators and other students, even when not always comfortable or simple, can give meaning to the students' learning experience (Okukawa, 2008). In addition, through collaborative learning designs or tasks students may create a collective teacher identity and learn from each other. For example, sharing authentic cases of problems and dilemmas that the teacher educators and fellow students have faced in their teaching can be liberating and empowering (Loughran 2006).

In addition, taking an unusual role in the group that causes the participant move beyond their preconceptions can be important for individual learning. Immediate feedback that sheds new light on oneself can be also valuable in this regard. Informal discussions taking place outside the formal learning context can also create an arena for meaningful learning to occur. Furthermore, in order to foster and enhance relational processes, teacher educators need to purposefully examine their teaching in order to understand their influence on the nature of their interactions with the students.

How to better understand meaningful learning in teacher education?

As well as seeking to identify the characteristics of meaningful learning experiences in teacher education, this paper also explores how to create favorable conditions for enabling meaningful learning to flourish in teacher education. To better understand meaningful learning and teacher education, and also to acknowledge the dual role of teacher educators in terms of teaching and teaching about teaching, the dual role of student teachers' in terms of learning and learning about teaching as well as the cognitive and emotional dimension of teacher education are seen as essential.

Dual role of teacher educators. Accordingly, when compared to any other similar practice-oriented higher education, such as doctors teaching medicine, the profession of teacher educator is unique. That is, teacher educators not only teach about teaching, but also serve as role models of the profession for their students (Korthagen, 2004; Loughran, 2006). When focusing on the very essence of the practice and pedagogy of teacher education, these dual, complex roles of teaching and teaching about teaching cannot be overlooked (Loughran 2006).

Teaching and the actual pedagogy that the teacher educator applies and relies on cannot be restricted to the action of teaching or demonstrating good teaching, but directly influences learning, and vice versa. It is therefore important that teacher educators think carefully about their own teaching and their thinking behind their teaching. Teaching about teaching means unpacking teaching in ways that give students access to the pedagogical reasoning underpinning it, as well as the uncertainties and problematics of practices, which are fundamental to understanding teaching and the teaching profession in general (Loughran, 2006). Teacher educators should therefore explicitly verbalize the often tacit knowledge, norms and values that are involved in teaching in order to enhance their teaching about teaching, as these might influence the development of the student teachers' own development. By examining and reflecting on their own teaching, teacher educators thus demonstrate the central role of reflection as a critical part of teaching practice.

Teaching about teaching requires supervising the student teachers' reflection processes in order to focus their attention on the essential contents of reflection (Korthagen, 2004). This aspect of teaching about teaching involves, as a teacher educator, being able to capture the particular aspects of teaching that the student is concerned about, while at the same time identifying the

competence or lack thereof that is causing these concerns and providing the necessary support for the student to overcome these obstacles and improve their thinking and behavior.

Dual role of student teachers. Similar to the experiences of teacher educators, for student teachers, the academic discipline of teacher education differs compared to other practice-oriented disciplines, such as medicine and law, in that the students have prior experiences of the school environment and learning practices in general. While student teachers do not view things through the same lens as the teacher educator, they do nevertheless need to experience the tension, dilemmas and problems of practice in order to be able to learn through practice (Loughran, 2006).

The dual role of the student teacher becomes visible in the competing agendas regarding learning about the content to be taught and learning about teaching. Addressing both of these important agendas is, however, highly demanding, and focusing merely on the content being taught is much easier and convenient, based on the student teacher's previous role as a learner (Loughran, 2006). However, when developing professional identity, it is crucial to examine one's personal and professional self and personal functioning based on both of these two interrelated identities. When learning about teaching, in order for student teachers to be able to construct a relation between themselves and what they are learning it is essential for them to understand what their learning experiences actually mean for them (see Okukawa, 2008).

Cognitive and emotional dimension in teacher education. Traditionally, a division between cognitive and emotional dimensions has been at the core of higher learning, even though the affective and emotional dimensions of learning processes have been shown to be important in acquiring meaningful learning experiences in teacher education (Kostiainen et al., 2018). However, narrowing the attention to the cognitive domain in teacher education can hinder recognizing and responding to one's emotions, feelings and reactions. The transition from student to teacher involves the realization that some changes are quite personal (Loughran, 2006) and that coming to know oneself also involves coming to know one's emotional self (Korthagen, 2004).

The process of learning about teaching requires student teachers to learn how to balance these diverse aspects (cognitive and emotional) and also their behavioral responses that form who she or he is and how she or he acts. Personal qualities, such as empathy, tolerance and flexibility

to name but a few, are not normally included in the official list of teacher competencies, even though these are essential qualities of any teacher when we consider that the person is at the core of the learning process. The epistemic knowledge related to teaching, however, does not necessarily encompass the feelings and experiences related to learning about teaching.

To conclude, in order to enhance student teachers' meaningful learning, teacher education needs to pay attention to the balance between the cognitive and emotional dimensions in teaching and learning about teaching. In other words, teacher education should extend beyond producing merely epistemic knowledge of education and pedagogical practices and carefully explore the human emotions and relations at work in meaningful learning and, in so doing, correct the persisting imbalance, since the emphasis in most university courses is in the opposite direction (Kostiainen et al., 2018).

Furthermore, to foster meaningful learning, teacher education needs to be aware of the boundaries traditionally set between theory and practice, to acknowledge that they are not fixed and immovable, and to reflect on the purposes behind them (Loughran, 2006). In this sense, meaningful teacher education is not an enclave, isolated from the surrounding world, but rather has a responsibility to provide and create authentic and contextualized practices that resonate with the actual problems we face in education and in society. As these contextual anchors are likely to vary in the ever-changing world, teacher education needs to remain current and in touch with developments in education and society.

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Cross-references

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