

INTERVIEW WITH DR. FRED KORTHAGEN, BY DR. GANG ZHU

Background questions

Could you please briefly tell me the trajectory of your research agenda on teacher education?

Thank you for this question, Dr. Gang Zhu. I feel grateful for this opportunity to give an overview of my research. During this interview I hope to elaborate on several parts of my work.

My research started more than 30 years ago and focused on reflection as a fundament for teacher education. In this context, I elaborated and deepened the concept of reflection, developed a model for reflection which supports teachers in their professional development, and studied the resulting learning processes and outcomes.

Together with a team of colleagues at Utrecht University in the Netherlands, I developed a teacher education program which builds on my reflection model. This is called a *realistic teacher education program*, because it focuses on the real issues and concerns that the student teachers develop during practical experiences. We did extensive research on the effects of this program on teachers and we demonstrated that a realistic teacher education program actually influences teacher behavior and does indeed bridge the gap between theory and practice.

More recently, we have developed an innovative approach to reflection called *core reflection*, which focuses on teacher identity, personal qualities, and purpose as the fundament for teacher growth. This has been a major focus of my research during the last fifteen years in combination with studies on the profession of teacher educators and the professional development of teacher educators and coaches.

Over the course of your academic career, which teacher education question has concerned you most? Which kind of teacher education problems are pressing in contemporary society?

Bridging the gap between theory and practice has always been the central theme of my work. It has been a recurrent issue in the international literature on teacher education for over a century. Many authors claim that the impact of traditional, theory-based teacher education on the actual practices of teachers is generally meager. (See two important review studies on this topic: Cochran-Smith & Zeichner, 2005; Wideen, Mayer-Smith, & Moon, 1998). Various explanations exist for this phenomenon, which are extensively discussed in my publication Korthagen (2010a). Various attempts have been made to change teacher education programs in a fundamental way based on these insights, particularly by putting practice first. However, in my view, bridging the gap between theory and practice is not so much a matter of where to start (with theory of practice), but rather of how to *integrate* theory and practice. This is still a pressing question, because teacher education should not only aim to really make a difference in the preparation of teachers, but also to set examples of effective educational practices.

What is the broad vision/goal of your teacher education research?

The central goal of my research has been to find solutions to this pressing question. We have shown that it is possible for teacher education to really make a difference and our research has shown what this requires: We have learned that it is important to focus on the triangle between theory, practice, and the person of the teacher (Figure 1), with structured reflection serving as the connection between these three aspects (Brouwer & Korthagen, 2005; Korthagen, 2010a; Korthagen et al., 2001). In order to strengthen this connection, the reflection should build on what the (student) teachers find important and want to learn (their *concerns*) rather than on theories chosen by the teacher educator. As Korthagen, Loughran, and Russell (2006) put it, we need a shift in focus from the curriculum to the learner. This is a characteristic feature of the realistic teacher education model.

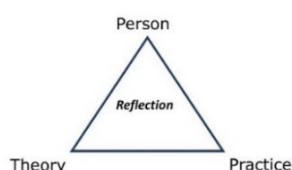


Figure 1: Reflection as the link between practice, theory, and person

In order to further explain the basic principles of a realistic teacher education program, we will first have to look at the topic of teacher learning. Only through a deeper understanding of this topic can we understand what is needed in the pedagogy of teacher education. In other words, a pedagogy of teacher education should build on insights on teacher learning.

Teacher learning

You conducted numerous studies on teacher professional learning. What is your view on this topic?

It is remarkable that teacher learning is a relatively new field of research and has nevertheless already yielded many new and important outcomes. Traditionally, researchers assumed that teacher behavior is primarily influenced by a teacher’s thinking. This is why teacher educators tried to put the ‘right’ theories into the minds of student teachers, looking at teacher learning as the accumulation of knowledge. However, this is exactly why a gap between theory and practice arises, for in reality teacher behavior is only partly grounded in rational thinking. In practice, many things happen simultaneously during a lesson, and at the same time there is a continuous pressure on teachers to act, as there is a need to keep the lesson going. This makes it impossible for a teacher to be aware of everything that plays a role at any specific moment and to make decisions in a well-considered, deliberate manner (Korthagen, 2017). This is especially true for beginning teachers who are still getting used to their profession. Therefore, much of teacher behavior is *immediate behavior*, that is behavior that is hardly reflected upon. Such behavior is mediated by the so-called intuitive-experiential body-mind system, which processes information rapidly. In Korthagen et al. (2001) I discussed empirical data suggesting that such automatic behavior is momentarily triggered in teachers by notions, feelings, values, needs, behavioral inclinations, and so forth, and often by complex combinations of these factors. They form an internal, unconscious conglomerate of cognitive, affective, motivational, and behavioral factors based on previous experiences. Korthagen and Lagerwerf (2001) called such a conglomerate *a gestalt* (Figure 2).

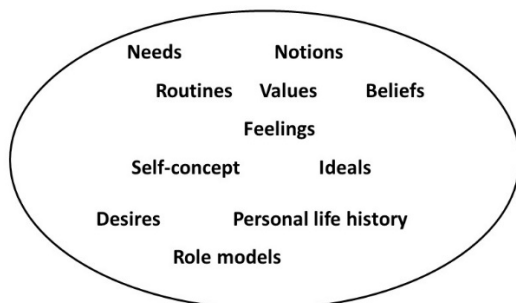


Figure 2: Some aspects that play a role in a gestalt, i.e. an unconscious whole triggered by an immediate situation and directing behavior

The gestalt concept was originally used to describe the organization of visual perceptions. Therefore, this implies a broadening of this classical concept. In this broader conceptualization a gestalt encompasses a broad variety of aspects (see Figure 2) evoked by a situation. In line with views proposed by Hargreaves (1998) and Sutton and Wheatly (2003), the gestalt concept helps to consider the cognitive, affective, motivational, and behavioral aspects of teacher’s functioning as thoroughly interrelated. This is in line with insights from brain research showing the close connections between various aspects of the internal processes in human beings.

This has important consequences for our view of teacher learning. Hoekstra (2007), who studied teacher learning through observations and interviews with teachers, concludes that for a long time we have focused too much on conscious thinking as the source of teacher behavior. In practice, teacher behavior appears to stem from a complex mix of cognitive, affective, and motivational sources within the teacher, which often remain largely unconscious. From this perspective, we can see that for a long time, teacher education has focused on the upper left area in Figure 3, while the blank boxes are just as important!

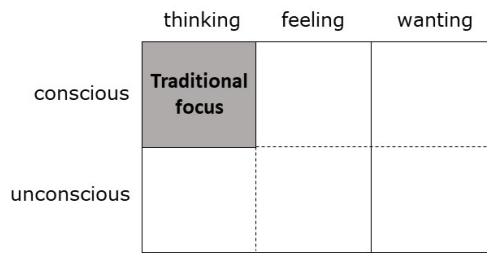


Figure 3: The sources of teacher behavior

The realistic approach to teacher education starts from the premise that *all* areas of Figure 3 are involved in the professional learning process and should therefore receive attention. This is why reflection on thinking, feeling, and wanting is so important in teacher development. Reflection makes teachers more aware of the various unconscious sources of their behavior and clarifies the relationships between thinking, feeling, and wanting. Teachers can also learn to reflect in a similar manner on the sources of their students' behavior, which leads to a better understanding of what is going on in a classroom, and thus to better teacher behavior.

You and your colleagues stated that meaning-oriented learning and deliberate practice may be expected to promote teachers' continuous professional development. How do you understand meaning-oriented learning and deliberate practice in teacher education? How can we enact these practices in teacher education?

When people reflect on an experience, they often tend to focus on the question 'What can I do (better) next time?' This is called *action-oriented reflection* and it often happens automatically, without being aware of it. Although a quick search for a solution often works well in simple, practical situations, it is often not effective in more complex situations such as most interpersonal problems. In such cases it is important to first develop a deeper understanding of the specific situation; in other words, it is important to apply *meaning-oriented reflection*. This requires a more thorough analysis: what aspects were essential for the situation to go well or to not go well? What influence did I (the teacher) have in this situation and what was the influence of others (for example, the students)? By considering these types of questions, the teacher will get a better understanding of the relationships between the phenomena that are manifesting in a specific situation. As a result, ideas about alternative actions in such a situation fit in better with what is going on and the new behavior will therefore be more effective. We call this *deliberate practice*, practice that is informed by a thorough reflection on the underlying processes taking place in both the students and the teacher.

For this process of meaning-oriented reflection, we developed the five-step ALACT model (Figure 4), named after the first letters of the steps.

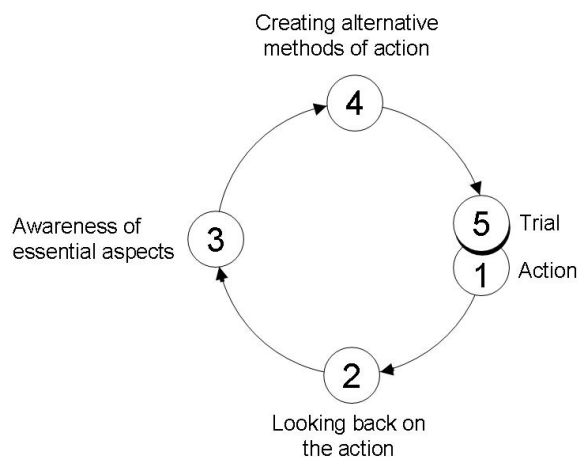


Figure 4: The ALACT model for reflection

In the case of action-oriented reflection step 3 is skipped. Research by Hoekstra (2007) has shown that, in the long run, action-oriented reflection contributes little to professional development. Meaning-oriented reflection does enhance professional development as it leads to deeper insights into the underlying phenomena that occur during the work of a teacher, particularly if relationships are established with theory.

You also examined teachers' informal learning from classroom teaching. From your perspective, what is the role of teachers' informal learning in teacher education, especially as compared with formal learning?

As I discussed before, a large part of teacher behavior and teacher learning in practice is grounded in a complex and often unconscious mix of cognitive, affective, and motivational dimensions. Therefore, I agree with authors such as Hargreaves (1998) that it is time for teacher education to move beyond a one-sided rational approach that focuses on formal learning. We should devote more attention to the realities of teachers' spontaneous, natural, informal learning during their teaching practices.

In our research team, we deliberately looked at the relationship between the development of teachers' professional behavior and their internal activities during their informal learning. One important result of this branch of research is that teachers differ in the way they learn informally and therefore, support for teacher learning should be differentiated. For example, teachers who have a natural tendency to experiment and collaborate, should be encouraged in those endeavors. Their learning should be facilitated by helping them find opportunities for interactions with peers and for reflection on practices.

For teachers who prefer to work on their own, we conclude that it is important for them to experiment with new practices in a safe learning environment while meaning-oriented reflection on classroom situations is promoted, with a focus on their immediate concerns (Hoekstra et al, 2009).

Most importantly, our research team found that productive informal learning is enhanced when a teacher develops *new practices*. If the teacher tries something new, he or she has to step out of routine behavior and thus leaves the personal comfort zone. Such situations enhance the teacher's reflection, particularly their *meaning-oriented reflection*. The idea of building on informal learning around new practices seems to show an important direction for teacher education.

Pedagogy of realistic teacher education

Drawing upon your extensive professional experiences, you proposed the pedagogy of realistic teacher education to address the deep-rooted gap between theory and practice in teacher education. What are the major assumptions and tenets of the pedagogy of realistic teacher education?

Realistic teacher education builds on the insights into teacher learning discussed so far. The pedagogy of realistic teacher education is grounded in the following tenets:

1. Working from real and important situations encountered by student teachers during teaching experiences in practical contexts;
2. Building on the concerns or needs of the student teachers;
3. Reflection by and interaction between the student teachers;
4. First comes theory with a small t (practical theory), which is linked to student teachers' concerns and needs;
5. Theory with capital T (formal academic theory) comes after theory with a small t;
6. An integrative program (program contents are blended);
7. Close cooperation between university-based and school-based teacher educators.

The importance of tenets 1 and 2 have been explained above. The essence of these tenets is that professional learning processes are most effective if they start from the student teachers' concerns rather than from the Theory. Student teachers' concerns arise during active involvement in practice, which can already start before the student teachers go to a school. For example, practical experience can start with the coaching of one student from a school once a week over six weeks, the so-called *one-to-one experience*. Another example is giving a mini-lesson to the peer group of student teachers, with the assignment being to make these peers actively engaged during the lesson. The advantages of such experiences is that they focus

the student teachers' attention on learning processes rather than on classroom discipline. Looking at tenet 3, it is important to use the five-step model for reflection as it promotes meaning-oriented reflection. We have already discussed that in practice thinking, feeling, and wanting play determine behavior, often in an unconscious way. Therefore, in step 2 of the reflection model, we use the so-called 'nine boxes' (see Figure 5) to deepen the reflection.

0. In what context did the experience take place?	
1. What did I do?	5. What did the students do?
2. What did I think?	6. What did the students think?
3. How did I feel?	7. How did the students feel?
4. What did I want?	8. What did the students want?

Figure 5: The nine boxes with questions helpful for step 2 of the reflection (concretizing questions)

Answering the nine questions in Figure 5 can help student teachers locate an essential friction (or harmony) between the various areas, in other words to arrive at step 3 (awareness of essential aspects). Student teachers can, for example, discover a difference between what they wanted (to do) and what they actually did. Often teachers come to realize that there was a discrepancy between what they wanted and what the students wanted. They can then build on this awareness and devise appropriate new courses of action (step 4).

Types of knowledge

Tenets 4 and 5 have to do with the type of knowledge offered to student teachers. As we have seen, teachers often have little time to think and thus need prompt and concrete answers to situations. Therefore, action-guiding knowledge (*practical knowledge*, also called *theory with a small t*) is rather different from the more abstract, systematized and general expert-knowledge that teacher educators often present to student teachers (*formal knowledge* or *Theory with capital T*). An important explanation for the limited impact of many teacher education programs is that they present Theory with capital T too early. In a realistic program the Theory with capital T comes later, after several rounds of practical experiences and in conjunction with theory with a small t (see Figure 6).

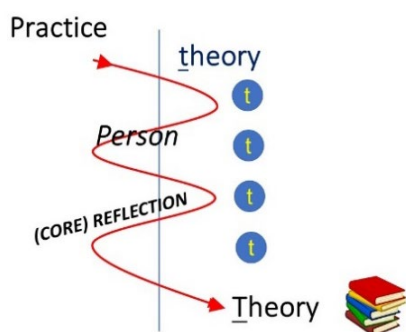


Figure 6: Alternating between practice and theory and the route from theory to Theory.

The tenets discussed up to this point have strong implications for the structure of a teacher education program. The realistic approach is not compatible with a program structure showing separate modules such as subject matter methods, general education, and psychology of learning, among others. Teacher knowledge that is assumed to function in practice is knowledge based on experiences and teaching experiences are not as fragmented as the structure of many teacher education programs would suggest. Therefore, tenet 6 states that in a realistic program, courses are blended so that there is actually only one integrated program. However, it is possible that at the end of the program there are separate and specialized courses in which the Theory with capital T can finally take center stage.

Finally, because of the intertwined nature of practice and theory, the realistic approach requires close cooperation between school-based teacher educators (and mentor teachers) and university-based teacher educators (tenet 7). Most importantly, they should agree on using a realistic approach to teacher education.

In your widely-acclaimed book *Linking practice and theory: The pedagogy of realistic teacher education* you insightfully proposed the onion reflection model of teacher development. Afterwards this model was widely accepted by researchers throughout the world. In China, many teacher education academics are familiar with this onion model. What are the theoretical backgrounds of this model? Do you want to elucidate on it?

The *model of levels of reflection*, also known as the *onion model*, has been developed for facilitating deeper reflection, particularly in moments when the teacher is going through step 3 of the ALACT model and is considering what was essential in a given situation. The onion model is shown in Figure 7.

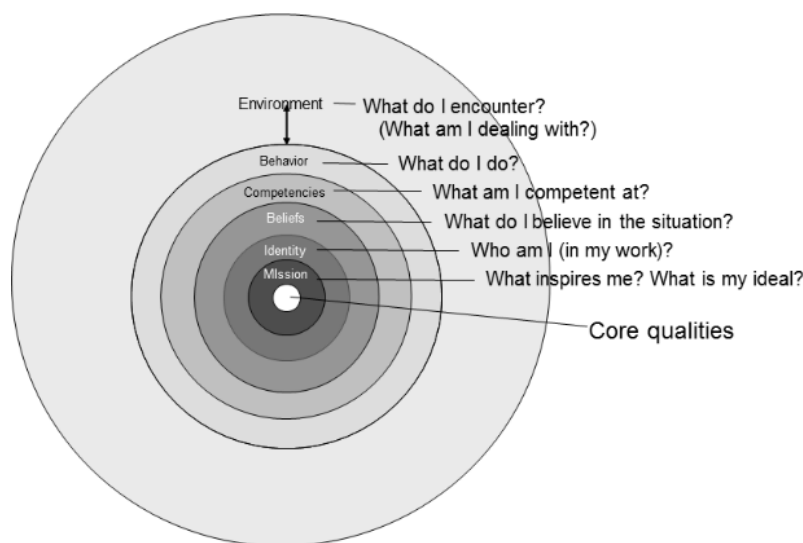


Figure 7: The onion model

This model describes various layers within a person. These layers can be ‘peeled back’ - just like an onion - in someone's reflection.

The layers of the onion model are:

1. The environment

The outer layer is about the environment in which the teacher operates: individual students, a class, colleagues, the school with its rules and habits, norms and values, the parents, but also education and society as a whole, including socio-political influences, and the developments taking place in society.

2. Behavior

A person behaves in a certain way when dealing with the environment. This behavior is what we look at in the second layer. Teacher behavior tends to be diverse; one moment a teacher is listening to a student, the next moment the teacher is giving an explanation or is asking questions or giving feedback while the students are working and so on. In other words, teachers have a broad behavioral repertoire, but recurring patterns can play a role in a person's behavior that can have a positive or negative effect on the students.

3. Competencies

What teachers do is influenced by their competencies (skills), such as subject-specific and pedagogical competencies. This layer is the first inner layer, which means that it is not directly observable by others; the environment and behavior of a person in that environment can be directly perceived from the outside, but competencies are expressed through behavior. Sometimes competencies are in fact available but do not show in behavior as a result of certain obstacles, that can come from inside or outside of the person.

4. Beliefs

Next we arrive at the layer of beliefs. For example, a teacher who thinks 'my students are not motivated enough' or 'this is risky' holds a certain belief. This layer is not about religious beliefs (which belong to the sixth layer), but about assumptions and personal theories that someone has about the concrete situation they are dealing with.

5. (Professional) identity

The fifth layer is the layer of identity. This concerns people's beliefs about themselves; in other words this layer is about (professional) *self-image*, also called *personal professional identity*. The beliefs people have about themselves in all sorts of situations are a common thread running through various work situations. This layer is characterized by thoughts such as: 'I am someone who ...' or any other such thought about oneself.

This layer is also concerned with the *professional role* that people believe they serve. For example, does the teacher see herself primarily as someone who has to transfer knowledge, or as someone in the foreground, or as someone who works in the background, or as a team player?

6. Mission

The layer of mission has to do with deeper motives, values, and ideals and is about sources of inspiration and one's passion for the work.

7. The core

The core of the onion model is about what makes someone unique. Here we locate *core qualities*; these are personal qualities such as decisiveness, patience, care, honesty, courage, optimism, flexibility, humor, accuracy, helpfulness, goal-directedness, and so forth. In my view, the potentially powerful influence of such core qualities on teachers' professional development is often overlooked.

Many teacher education programs focus on the outer layers, particularly on teacher behavior and competencies. However, all the onion layers influence each other, so it is important to give attention to *all* layers and their interrelatedness. This means that we view professional learning as *multi-level learning*, i.e. learning in which all the onion levels play a role.

We may then discover that the outer layers influence the more inward layers; a concrete situation that someone has to deal with (environment) evokes certain behavior or stimulates the need to improve behavior. This in turn promotes the development of a certain competency, which then determines how someone thinks about such situations (beliefs). Ultimately, a change in beliefs about the world might lead to a shift in beliefs that people have about themselves (identity). It is also possible that this creates new ideals and that certain core qualities of the person are strengthened.

In addition to these influences of the outward layers on the inward ones, there is also an influence of the inside on the outside. A person's core qualities influence the ideals of that person (the layer of mission) and their identity, and all those layers have an effect on the outer layers of the onion model. In short, there is constant interaction between all of the layers.

If the onion layers are in harmony with each other (we call this *alignment*), a powerful influence arises from the deeper onion layers to the outside.

The origins of the onion model

The onion model is a variant of what is often referred to, particularly in the literature on Neuro-Linguistic Programming, as *Bateson's model* (e.g. by Dilts, 1990) but this model was actually never formulated by Gregory Bateson. If we consider the layers from the outside in, we see that they largely correspond with the various areas that were emphasized throughout the history of teacher education, as I will explain now.

Until the beginning of the 20th century teachers mainly learned the profession in an apprenticeship relationship with an experienced teacher. The goal was getting to know common teaching practices in schools (*layer of environment*) and being able to copy the teacher's way of teaching (*layer of behavior*). During the 20th century, psychological, educational, and pedagogical knowledge grew and courses were developed through which prospective teachers learned academic knowledge and professional competencies based on research (*layer of competencies*). This gave the teaching profession more prestige. After the 1920's the psychological movement of behaviorism led to an emphasis on skills training (*the competency-based model*). The results of this approach turned out to be disappointing. It became clear

that the behavior of good teachers could not simply be translated into a list of skills. Moreover, such lists became unmanageably long and detailed.

Starting in 1980, researchers and teacher educators started to pay more attention to what lies underneath the skills and behavior of teachers, namely their beliefs (*layer of beliefs*). A person's beliefs determine the development of skills and behavior; this received little to no attention in the competency-based approach. This development went hand in hand with the emergence of an emphasis on reflection. Professional identity also started to receive more attention by the end of the 20th century (*identity layer*). The following statement by Hamachek (1999, p. 209) became a well-known summary of this development: "Consciously, we teach what we know; unconsciously, we teach who we are". Since the beginning of the 21st century, the layer of mission has also become more apparent in the literature on teaching and teacher education through an increased focus on the ideals and passion of teachers.

Finally, much attention has been paid to character strengths in the recent psychological literature (Peterson & Seligman, 2004), which we call *core qualities*. This topic has received little attention in the educational literature though there are exceptions such as our studies on core reflection and multi-level learning, which are discussed in Korthagen, Kim, and Greene (2013).

The various levels can be seen as different perspectives that can be used to look at how teachers function. Each perspective offers a different answer to questions regarding the essence of good teaching and the essential qualities of a good teacher, but it is also possible to employ various perspectives simultaneously.

Integrating the personal and the professional

In teacher education there has always been tension between attention to behavior and competencies (the 'outside' in the onion model) on the one hand, and attention to the more inward layers on the other hand. Recently there have been more attempts to integrate them, which is in line with my view that good teaching is determined by the degree of alignment between the onion layers. According to this view good teaching involves *the integration of the personal and the professional*. This clarifies the importance of consciously paying attention to all onion layers in teacher development and promoting multi-level learning. In various studies we have shown that this enhances effective teacher behavior (Hoekstra & Korthagen, 2011; Korthagen, Kim, & Greene, 2013). In this way undesirable tension between an emphasis on competence and an emphasis on the teacher as a person can be overcome.

The value of the onion model

The onion model is helpful for identifying which aspects influence a situation and how those aspects influence each other in the case of both negative and positive experiences. Therefore, the onion model is an additional instrument for reflection. It is particularly helpful for deepening step 2 and 3 of the ALACT model. The model draws more attention to the inner layers, which are often overlooked in more superficial reflections.

Another important function of the onion model is to support awareness of one's inner potential, especially ideals and core qualities. This happens more easily when the reflection focuses on positive experiences and successes because in such situations it is natural and attractive to consider the teacher's ideals and core qualities and to consider how this potential can be used more often.

A third advantage of the onion model is that it can help to detect inner obstacles. If someone experiences a problem, it is always due to friction between layers of the onion. For example, a person's behavior may not be in line with what is needed in their interaction with the environment or the belief someone holds in a situation might not align with a personal ideal, or someone could have a negative self-image, which means that their available core qualities are not really being utilized. In short, if someone experiences a problem it is often useful to consider where an obstacle occurs to the alignment between the onion layers.

Finally, the onion model helps to connect the personal and the professional development of teachers; therefore the model leads to an awareness of *personal professional identity*. In fact, one can become a better teacher if one connects their more personal layers (laying at the inside) with professional practice (which is related to the outer layers).

You state that teacher professional development has moved toward version 3.0. Specifically, you reveal that teacher learning takes place unconsciously and involves cognitive, emotional, and motivational dimensions. What do you think about the multi-level and multi-dimensional nature of teacher learning?

Summarizing my answers to previous questions, we may conclude that:

(1) many processes guiding behavior take place without conscious awareness and as a result, teacher learning is often *unconscious learning* unless the teacher reflects and makes the unconscious more conscious.

(2) within a teacher, the cognitive, affective, and motivational dimensions (corresponding to thinking, feeling, and wanting) that guide behavior are intertwined and therefore all teacher learning is inherently *multi-dimensional learning*.

(3) learning processes take place at various levels in the onion model; in other words, teacher learning is *multi-level learning*.

Taken together, these principles may look complex, and indeed, that is exactly my point. Teachers' learning processes are complex and dynamic. These processes have a multi-dimensional and multi-level nature, and often take place unconsciously. If we accept this as our starting point, it is possible to design an effective approach for supporting teacher learning. It is crucial that such an approach builds on the concerns and gestalts of the teacher and not on a pre-conceived idea of what this teacher should learn. This may also be an explanation for the reported positive outcomes of communities of learners in which teachers collaborate, such as small groups of teachers using the lesson study approach. Such communities often provide safe place to share one's real concerns and feelings that are grounded in everyday practices, and if the community functions well, genuine attention will be given to affective and motivational aspects in the person. Only then can effective learning take place.

Teacher reflection

The importance of teacher reflection has been highlighted by scholars such as John Dewey, Donald Schon, and Ken Zeichner. In your study, you found that teacher reflection should integrate rational and non-rational processes. Additionally, teacher reflection can draw upon different techniques, such as metaphors, drawings or paintings, or guided fantasies. What is your opinion on teacher reflection?

Firstly, many authors mention the danger of reflection remaining a vague concept, not only for teachers but also for teacher educators, and that in such a context an emphasis on reflection does not work well. Therefore, we need more elaboration on *ways to reflect: how* should one reflect in order to make reflection effective? This is the reason why we developed the step-by-step process model of reflection and the scheme with the nine boxes (Figure 5).

An overall definition

In order to avoid the aforementioned vagueness it is also important to precisely *define* reflection. The literature on reflection can be somewhat confusing as there are many different perspectives on this concept and a great variety of strategies and techniques exist. The differences are often related to differences in underlying views on education.

However, we get more clarity when examining the concept of reflection from the perspective of psychology, because this shows the similarities between the many different views on reflection. This brought me to the following definition: *Someone reflects when he or she tries to structure or restructure an experience, problem, or existing knowledge elements*. This means that reflection is aimed at changing a mental structure.

Most views on reflection can be brought together under this umbrella definition. The existing differences are determined by the pedagogical or educational perspectives from which the process of (re)structuring takes place, therefore by the lenses through which the person who reflects is looking.

In the case of routine practice, conscious (re)structuring seldom takes place. When someone repeats a routine pattern, this also influences the person's mental structures, but generally this means only that existing cognitive patterns become more ingrained. This process usually happens unconsciously and does not always lead to good teaching because there is a low level of awareness.

Reflection-on-action

Beginning teachers will usually reflect on what happened when they have a quiet moment, such as after a teaching situation or other situations. If someone has experience as a teacher and has become used to reflection it becomes easier to also reflect *during work situations*. This is called *reflection-in-action*.

Reflection-in-action makes it possible to adjust one's approach based on what is happening at that very moment. In such situations it is important for the teacher to keep the five reflection steps in mind as well as the nine boxes, although there may not be enough time in the moment to reflect as thoroughly as after an event (*reflection-on-action*). However, it remains important to use to the right side of the scheme with the nine boxes (Figure 5) even in the case of reflection-in-action. In other words, it is important to pay attention to what is happening inside the students.

From there, awareness may grow of what is essential in that moment and this enables the teacher to continue the lesson in an effective way.

Rational and non-rational aspects

I have already emphasized that we should take care not to overestimate the importance of rational thinking. It is important that reflection also deals with non-rational aspects within the teacher (see Figure 3) that are often overlooked. Therefore, we should also use strategies and techniques for promoting awareness of these non-rational aspects.

What instruments or methods can we use to enhance teachers' reflective practices?

There are so many techniques available that we could devote hours to discuss this question. For example, in Evelein and Korthagen (2015) alone we describe 78 techniques for promoting core reflection.

I will make a choice and mention a few powerful techniques, some with a more rational approach and some more 'holistic' techniques.

First, many teacher educators ask their student teachers to make *portfolios*. Portfolios are often very productive, as they cause the focus to shift from reflection on separate situations towards reflection on one's professional development as a whole, meaning that teachers have to take an overall stance on themselves. We have found that the outcomes of reflections in a portfolio are particularly interesting if we ask student teachers to use the onion model to structure their reflections. In the example of an inside out case, the teacher starts with a description of the core qualities that are characteristic of his or her teaching. What these qualities mean for teaching ideals or for the mission of the teacher is then considered. Next, one's personal professional identity and professional roles are reflected on. By way of illustration a number of concrete teaching situations can be used for a description of the teacher's professional view on these situations and their beliefs underlying the competencies used in the situations. The concrete behavior and the environment in which that behavior is deployed can then be described and shown; by means of video recordings, for example. Teaching materials, evaluations, photos, and other materials can also illustrate whether the teacher's behavior is consistent with their inner onion layers. Of course, *video recordings* of lessons are also great for promoting reflection, especially because nowadays almost everybody can use a smartphone for this purpose. Such recordings can help to give reflections a concrete and practical starting point and help to avoid the danger of talking about teaching situations in abstract terms. We know from research that teachers 'learn to notice' through the use of video, which means that they start to discover more details within the complexity of the educational process. This is further promoted by the use of a 'viewing guide', which is a framework that helps teachers to look at the videos in a more focused way.

It is important to note that conversations about videos are often drawn towards what is visible in a video recording and particularly the behavior of the teacher, essentially towards what can be observed at the outer layers of the onion model. Knowing this, it is important to also focus on aspects underlying the behavior on the deeper onion layers. It is also important to emphasize strong moments and actions in the video, because video recordings can tend to evoke the tendency in people to look at what is not going well and what can be improved.

It is also interesting to look at a few techniques that are less rationally-oriented, as they can offer an alternative path for gaining more awareness, for example:

1. *Drawings*. Teachers can be invited to make a drawing of a class, or more interestingly, a drawing of themselves in a class. Rough sketches are generally sufficient. The teachers can then compare their drawings in small groups, after which a group discussion about similarities and differences can follow. What is often striking in the drawings are things such as atmosphere, proximity to or distance from the students, the arrangement of tables and chairs, and the position of the teacher in the classroom (in front of the classroom, in the middle of it, close to students or farther away). This often reveals themes that the drawer was at first unaware of, but became more aware of through the drawing process and by comparing a drawing to those of others.

2. *Metaphors*. Metaphors are a useful tool for supporting reflection, particularly reflection on educational visions or professional identity. Metaphors can be introduced to (student) teachers through an assignment such as: 'Think up an image or a metaphor for your teaching. Think of metaphors such as a flower garden, an orchestra, an expedition, a racetrack, an entertainer, a tightrope walker, or a police officer.' Taking a look at the metaphors devised by teachers can be a fascinating way to start reflective conversations in a small or larger group, especially when looking at contrasting metaphors.

3. *Pictures*. Interesting reflection conversations take place when you offer teachers pictures as a metaphor for teaching or education. One can either use specific pictures of educational situations or more general pictures (such as postcards) with images such as a tree, a crossroads, a guitar, a fish bowl, a police man, a traffic sign, the building of a house, and so forth. Such images can make people more aware of their thoughts, feelings, and behavioral tendencies, which can then be discussed.

In Korthagen et al. (2001) we describe more holistic techniques.

You operationalized the concept of reflective practice and characterized reflective practitioners. In your opinion, what is the typical feature of reflective practitioners?

Your question reminds me of an article we published many years ago (Korthagen & Wubbels, 1995). I cite four characteristics of reflective (student) teachers that we found in our research:

1. A reflective person is capable of structuring situations and problems, and considers it important to do so.
2. A reflective student teacher uses certain standard questions when structuring experiences.
3. A reflective student teacher can easily answer the question of what he or she wants to learn.
4. A reflective student teacher can adequately describe and analyze his or her own functioning in the interpersonal relationships with others.

We also found seven correlates, which may be consequences of a reflective attitude or antecedents:

1. Reflective teachers have better interpersonal relationships with students than other teachers.
2. Reflective teachers develop a high degree of job satisfaction.
3. Reflective teachers also consider it important for their students to learn by investigating and structuring things themselves.
4. Reflective student teachers have previously been encouraged to structure their experiences, problems, etcetera (for example during their upbringing, previous schooling, or during a difficult time in life).
5. Reflective student teachers have strong feelings of personal security and self-efficacy.
6. Student teachers with teaching experience who have a high degree of self-efficacy, focus in their teaching on the students. When they have a low sense of self-efficacy, they focus on the self.
7. Reflective student teachers appear to talk or write easily about their experiences.

These characteristics and correlates are based on several empirical studies carried out in The Netherlands. Hopefully teacher educators in China will recognize these features from their own practices.

Teacher education program reform

What is the essence of a good teacher? How can we create a more stimulating environment for teacher education?

A good teacher is competent in the subject matter and its pedagogy and is able to show this in their teacher behavior. However, all the onion layers together determine the quality of a teacher. Therefore, I have defined a good teacher as a teacher in whom there is alignment between the various onion layers (Korthagen, 2004).

The onion model also shows the limitation of a competence-based view on good teaching. Teacher competence is often equated with skills, but core qualities are just as important.

I feel this is a welcome new perspective, as many authors agree that attempts to formulate lists of competencies, often consisting of dozens of sub competencies, still do not capture the essence of a good teacher. We have carried out some experiments among experienced teachers, student teachers, teacher educators, and people from outside education, in which we asked them to think of a good teacher they had experienced in their personal lives. We asked them to formulate an important characteristic of that teacher. We often heard answers such as open, honest, caring, inspiring, enthusiastic, stimulating, and supportive. These are characteristics quite different from those in most lists of teacher competencies.

You and your colleagues cogently developed fundamental principles for teacher education programs and practices. Could you please share your major findings?

Together with my Australian colleague John Loughran and my Canadian colleague Tom Russell I analyzed successful teacher education programs from three continents. Our group was able to formulate seven insights that are helpful for shaping effective teacher education. They should not be surprising in the light of what I have discussed so far. These insights are:

1. Learning about teaching involves continuously conflicting and competing demands.
2. Learning about teaching requires a view of knowledge as a subject to be created rather than as a created subject. (This means that the student teachers are involved in the process of building theory-with-a-small t.)
3. Learning about teaching requires a shift in focus from the curriculum to the learner.
4. Learning about teaching is enhanced through (student) teacher research.
5. Learning about teaching requires an emphasis on those learning to teach working closely with their peers.
6. Learning about teaching requires meaningful relationships between schools, universities, and student teachers.
7. Learning about teaching is enhanced when the teaching and learning approaches advocated in the program are modeled by the teacher educators in their own practice.

We elaborate and illustrate each of these principles in Korthagen, Loughran, & Russell (2006), so I refer to this publication for more details.

You and your colleagues empirically examined the effectiveness of teacher education programs. Could you please share your major findings and implications? In China, with the support of the government and educational administrations, we are reforming university-based teacher education programs. What can Chinese teacher educators learn from your studies?

We found that a realistic teacher education program can bridge the gap between theory and practice, has a clear impact on the teaching practices of the graduates of such a program, and leads to more job satisfaction in teachers (Korthagen, 2010b). Graduates of such a program are appreciative about their preparation and often state that they experienced a seamless connection between theory and practice. These findings contrast sharply with the research showing that traditional teacher education programs with a theory-based approach had little effect on teacher behavior in practice. We have come to conclude that an important cause of the limited impact of many teacher education programs may be that they focus too much on Theory with capital T and do not support their student teachers sufficiently in developing theory with a small t that is really helpful to them. This could mean that teacher educators themselves create the gap between theory and practice...

In addition, the onion model offers concrete guidelines for teacher educators. Our research has shown that this model supports teachers in building on their strengths, and helps them to become aware of and

overcome inner obstacles. This makes teachers more effective. Therefore, in my view, teacher educators should deliberately use the onion model and also ask their student teachers to use it in their reflections.

If one wishes to improve teacher education it is important to have a clear view of what makes a good teacher. The onion model counterbalances an over-emphasis on specific aspects as described in my historical overview. This overview showed that, depending on the decade in which teachers were educated, different aspects were considered most essential for good teachers. This clarified the dominating influence of certain scientific paradigms. From a more integrative perspective, good teaching may be characterized by a state of harmony between the various onion levels. This means that a teacher educator will ideally devote attention to all the levels, preferably in relation to one another, depending on the phase of the teacher education program, the developmental process of the individual student teacher, and the specific problem at hand. In other words, we propose a more holistic approach towards teacher development in which good teaching is not equated with competencies and which tries to find a realistic middle ground between views based on different paradigms.

How can we make teacher education programs more effective to address the gap between theory and practice in teacher education?

As I have discussed, the most important thing is that we take the concerns of student teachers seriously and offer them supportive instruments for reflection, such as the five-step model, the nine boxes, and the onion model. The theory we offer should be linked to the student teachers' concerns and their reflections on concrete practices. This view will cause a radical change in the structure of teacher education programs. As this approach implies a big shift in focus for many teacher educators, they will also need support in order to make a realistic program work. This is why I have invested much time and effort in the professional development of teacher educators world-wide by training them in the promotion of reflection and in building a realistic teacher education program. In my view, this is where all change in teacher education should begin.

You and your colleagues proposed a strength-based approach to teacher professional development. Could you please introduce this approach to us?

The essence of the approach is in making teachers aware of their core qualities and inspiration and supporting them in enacting these in practice and dealing with the obstacles that keep them from doing so. The underlying idea is that professional behavior becomes more effective and fulfilling when it is connected with the core qualities and ideals of a person.

If reflection is focused on such alignment, we call it *core reflection* (Korthagen, 2014). This leads to an emphasis on strengths, contrary to what is common in teacher education. Often people pay most of their attention to what is *not* going well. In psychology this is called the *negativity bias*. However, building on strengths is essential to all learning processes. When coaching a student teacher, small moments of success can be explored more deeply and the reasons for the success may receive thorough attention by looking at competencies and personal qualities that emerged. In this way, a teacher can become aware of such positive aspects, enabling this teacher to deliberately use them in future situations. This is called *strengths-based coaching*.

Positive psychology

There are indications from the field of positive psychology that reflecting on successful experiences is more effective than problem-oriented reflection (Fredrickson, 2009). This can be explained by the fact that a problem-oriented focus evokes negative feelings. They appear to narrow one's perspective and thereby hinder development.

Nowadays we know that positive feelings are essential in helping people grow, both professionally and personally. Positive feelings broaden perception and thinking. Fredrickson (2009) even states that it is necessary that someone has more positive than negative experiences in order for growth to take place. All this has led to a strengths-based approach in therapy, coaching, mental health care, youth care, business, and other social sectors. Also in education many people are aware that a strong focus on

problems is not effective. Schools are increasingly convinced that building on the qualities and talents of children yields better results than a one-sided focus on shortcomings or deficiencies and that a positive approach provides a better basis for cognitive development and student well-being.

Focusing on core reflection during initial and in-service teacher education can also make teachers more aware of the core qualities of their students, so that they are better able to direct students in making use of their own core qualities, both at school and throughout the rest of their lives. The topic that we touch on here, is identity development in children. This requires teachers to examine 'the core of the onion' both within themselves and in children.

How can we adopt teacher educator modeling as a means of changing the views and practices of future teachers?

As the old adage goes: 'Teachers teach as they are taught and not as they are taught to teach.' This insight leads to the *congruency principle*: teacher educators should model how to teach well, for example by building on strengths, connecting theory and practice, and using effective pedagogical measures. A useful way to promote congruency is *explicit modeling* (Loughran, 1996). Explicit modeling involves someone both exhibiting exemplary behavior and making this exemplary behavior explicit. For example, a teacher educator can explain to her student teachers that she wants to pay attention to thinking, feeling, and wanting because she strives to deepen the reflection process. If this teacher educator does indeed systematically pay attention to these aspects, the student teachers will then experience an example of the approach. This is more effective than only teaching theory about it.

There are four principles supporting explicit modelling that are summarized in the EELA model: show exemplary behavior, make this exemplary behavior exPLICIT to ensure that others notice the exemplary behavior, legitimize the exemplary behavior by linking it to theory, and promote application by inviting those involved to apply the same behavior in their work contexts. Lunenberg, Korthagen, and Swennen (2007) emphasize the importance of these four principles for promoting transfer of learning. Essentially, we should teach as we preach.

Do you have any other concerns or topics to share regarding educational research?

I appreciate the opportunity to share ideas based on my work. Readers who understand English may wish to go to my website www.korthagen.nl/en for more detailed information and background articles on everything I discussed here.

Regretfully, a language barrier makes it complicated to have international exchanges frequently, but I feel grateful for this interview. Thank you very much, Dr. Gang Zhu, for your thoughtful questions and your offer to translate the interview.

I recently wrote a book for teacher educators in English about the promotion of reflection and realistic teacher education which connects practice and research in this field. I think it will offer teacher educators all over the world concrete guidelines for their work with student teachers. Although this book has not yet been published in English, which I expect will happen in a few months from now, it is already in the process of being translated into Japanese. I hope that there will be more opportunities for translations of my work in the future aimed at Chinese teacher educators.

I am thankful to be part of the inspiring international community in this field and the opportunities to learn from each other. We need each other in this world to make progress in teacher education and research.

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