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'Natura, ars, exercitatio' in a new frame

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Abstract: Norway's teacher education was reformed and received new guidelines in 2016. The reform in Norway was in line with an international trend for reforming teacher education by changing goal formulations for the preservice teachers (PSTs) from mostly focusing on subject content to also introducing learning outcome formulations focusing on learning how to teach. This trend is called a turn to practice-based teacher education. One of the suggested ways to obtain this goal in teacher education has been to invite teacher educators to use modelling and subsequent rehearsals carried out by PSTs. This theoretical article discusses different approaches to understand how teacher educators' modelling of teaching works by asking the following research question: In what ways can theories inform us about the relationship between modelling and rehearsals? The use of modelling in the research project Rehearsing Teaching Professionally (ReTPro) is presented as an example from a reform project. Existing research in relation to modelling and rehearsals is presented as a background. One antique and two modern approaches on how to learn from modelling are presented. The article thereafter discusses the differences between the ancient and the modern approaches and looks at their relevance for the ReTPro-case.

Keywords: modelling, rehearsal, *imitatio,* teacher education, teacher educators

Samandrag: Lærarutdanning i Noreg blei reformert og fekk nye nasjonale retningsliner i 2016. Reforma i Noreg var i tråd med ein internasjonal trend der ein reformerte lærarutdanninga ved å endre målformuleringar for lærarstudentane si læring frå å ha mest fokus på faginnhald til også å innføre læringsutbytteformuleringar som fokuserer på å lære å undervise. Ein av dei foreslegne måtane å oppnå dette målet i lærarutdanninga på har vore å invitere lærarutdannarar til å bruke modellering og så ha påfølgande øvingar utført av lærarstudentane. Denne teoretiske artikkelen diskuterer ulike tilnærmingar for å forstå korleis lærarutdannarar si modellering av undervisning kan fungera. Artikkelen stiller følgjande forskingsspørsmål: På kva måtar kan teoriar informere oss om forholdet mellom modellering og øvingar? Bruk av modellering i forskingsprosjektet Rehearsing Teaching Professionally (ReTPro) blir presentert som eit eksempel frå eit reformprosjekt. Deretter blir eksisterande forsking på modellering og øving presentert som bakgrunn for reformene i lærarutdanninga. Ein antikk og to moderne teoretiske tilnærmingar som handlar om korleis ein kan lære av modellering blir presentert. Artikkelen diskuterer deretter kva som er likt og ulikt mellom dei antikke og dei moderne tilnærmingar, og ser på relevansen desse har for eksempelet ReTPro.

Nøkkelord: modellering, øving, imitering, lærarutdanning, lærarutdannarar

Introduction

Norway's teacher education has recently been reformed. In 2016, learning outcome formulations in national guidelines for teacher education in Norway changed from mainly describing the subject content of learning to also focusing on how preservice teachers (PSTs) can be taught to teach (Kosnik et al., 2016; Karseth, 2020). The reform of Norwegian teacher education is part of an international trend called 'the turn to practice-based teacher education' (Grossman et al., 2018, p. 2).

One approach to promoting practice-based teacher education has thus been to find novel ways to teach how to teach and to develop new theories on teaching. McGrew et al. (2018) write: '… with the turn toward a practice-based teacher education, there is a need to investigate the pedagogies that teacher educators might use to support candidates to developing ambitious and equitable teaching practices' (p. 37).

Forzani (2014) described the turn to practice-based teacher education in the following words:

> Teacher educators are experimenting, for example, with the practices of modelling (e.g. McDonald et al., 2013) and rehearsals and other 'approximations' of practice (Grossman et al., 2009; Lampert et al., 2013), and with the use of video and other artifacts of teaching for representing and decomposing practice (e.g. Ball, 2013; Ghousseini & Sleep, 2011). (p. 357)

In this reformed teacher education, teacher educators experiment inter alia with modelling teaching for PSTs in different ways at campus and in practicum. As stated by McGrew et al. (2018), modelling is a complex process: 'Modelling requires the teacher educator to select a complex practice or cognitive skill and decompose, enact, and meta-cognitively mark the work so that TCs [teacher candidates] can understand the teacher educator's decision making involved in connecting its component parts' (p. 36).

As we can see from this definition, modelling is a conscious act of the teacher educators, which aims to inform the PSTs of a way to act in a given similar situation. This act is meant to help the PSTs become better teachers. One way to help them learn this is by rehearsing what has been modelled.

In the described process, it seems to be taken for granted that the relationship between the modelling conducted by the teacher educators and the PSTs' possible uptake is a positive one, especially through the meta-cognitive marks made by the teacher educators. Although a positive relationship between modelling and learning is a prerequisite for the mentioned way of organising teacher education, little effort has lately been put into discussing the relationship between modelling and rehearsal.

This theoretical article investigates what the rationale behind modelling teaching is and how the modelled prototype may affect the PSTs' learning process. These questions are going to be thematised, not by examining empirical data but by looking into different theories that try to explain ongoing developments. The research question in this article is: In what ways can theories inform us about the relationship between modelling and rehearsals?

In modern theories, we find two research strands on modelling in teacher education: (1) empirical articles arguing for the benefits of modelling; (2) more general theories on learning from practice that can be applied to explain how PSTs can learn from modelling. This article examines some research from the first strand as a background to understanding the interest in using modelling and rehearsals in practice-based teacher education, as well as research from the second strand to understand the connection between modelling and rehearsals based on modelling.

Still, the claim that educators should be modelling performative skills is not new. Learning from models has, from antiquity to the 18th century, been a highly appreciated pedagogical move in educational contexts, expressed as a broader pedagogical idea to learn from good examples (Høisæter, 2012). We also find this principle discussed in ancient rhetorical theories on how to become a skilled orator, which can be regarded as the last phase of educational programmes at that time. This leads to the question of whether the ancient theories are different from the modern ones and if they could bring something to the modern discussion, especially regarding decisions on what to learn and how to do it.

The use of modelling and rehearsals in a research project named *Rehearsing Teaching Professionally* (ReTPro) will be shortly presented as an example of working within a reform project. Then former research in relation to modelling and rehearsals is presented as a background. After this, three theoretical approaches suggesting ways to understand how PSTs can learn from modelling

are presented, that is, one theory from antiquity and two modern theories. The article thereafter discusses the differences between the ancient and the modern approaches and looks at their relevance for the ReTPro-case.

As a first step in this theoretical investigation of how theories can inform us about the relationship between modelling and rehearsals, I will briefly present the practice of modelling and rehearsals as it has been developed by ReTPro. The ReTPro approach will be used as an example, or a case, in the theoretical discussion on how the connection between modelling and rehearsals can be understood.

A case: Modelling and rehearsal in the ReTPro project

McDonald et al. (2013, p. 378) stated that there is a need for PSTs to be trained in ways to use knowledge in action. They thereafter launched a model that they called the 'cycle for collectively learning to engage in an authentic and ambitious instructional activity' (p. 382), with four stages containing core practices in learning how to teach. They suggest the learning cycle as a common framework teacher educators can relate to when participating in discussions about teacher education. The learning cycle is built upon the research contributions made by many teacher educators with different backgrounds. McDonald et al. (2013, p. 382) mention, for example, Grossman (2013) and Kazemi et al. (2009). McDonald et al.'s (2013) learning cycle has been an inspiration for many practice-based teacher education programmes, including the ReTPro project. The first two phases of the learning cycle include studying models and rehearsing teaching on campus with fellow students.

In the educational design research project ReTPro at Western Norway University of Applied Sciences (2021–2025), mathematics and English as a foreign or second language (EFL/ESL) were chosen as the subjects the PSTs were going to have a special focus on. All subjects were supposed to focus on either dialogic talk (i.e. rehearsing how to formulate questions and responses to promote productive in-class or group discussions with students) or teacher-in-role (i.e. rehearsing how to arrange different situations challenging the students to enter a role in a fictive world that makes them talk). The subject

pedagogy chose to link dialogic talk to a new perspective, namely giving feedback in individual student–teacher conversations. Before modelling, the first step was to identify activities that were going to be modelled and rehearsed.

Table 2.1

Chosen activities for modelling and rehearsals in ReTPro

Subject	Activities
Maths	• Teaching 'quick images' to engage students in mathematical talk and using talk moves as resources to increase their talk (Lampert et al., 2013; Chapin et al., 2009) • 'Leading a whole-classroom discussion' to promote students' mathematical understanding (Stein et al., 2008) • 'Using task-based interviews' to unwrap students' mathematical ideas (Clarke & Roche, 2009) • Teaching 'three-act tasks activities' to engage students in asking mathematical questions and mathematical modelling (Lomax et al., 2017)
English as a foreign or second language	• The use of teacher-in-role when teaching intercultural citizenship (Rosler, 2008; Stinson & Winston, 2011). • The use of talk moves in dialogic teaching (Hardman, 2020; Chapin et al., 2009). • 'Leading picture-stimulated whole-class discussions' to foster students' vocabulary acquisition (Hardman, 2020; Swain, 2005)
Pedagogy	• The use of talk moves in individual student-teacher conversations (O'Connor & Michaels, 2019; Kazemi & Hinz, 2014)

The chosen activities in ReTPro meet the criteria in the definition of modelling that require teacher educators to select a complex practice or cognitive skills. The activities can be seen as core practices. McDonalds et al. (2013) mention Grossman et al.'s (2009) criteria for identifying core practices:

- Practices that occur with high frequency in teaching,
- Practices that novices can enact in classrooms across different curricula or instructional approaches,
- Practices that novices can actually begin to master,
- Practices that allow novices to learn more about students and about teaching,
- Practices that preserve the integrity and complexity of teaching, and

- Practices that are research-based and have the potential to improve student achievement. (p. 277)

Still, the ReTPro activities represent three different grain sizes (Grossman & Fraefel, 2024, p. 142).

Talk moves are the core practice with the smallest grain size in ReTPro. In fact, talk moves are specific speech acts teachers need to acquire as a repertoire to choose from when conducting dialogic teaching. Examples of talk moves are to explain, revoice, repeat, press for reasoning, challenge, agree or disagree, add on or use wait time (Chapin et al., 2009, p. 13). Talk moves are aspects of conversations that have been developed in research studies on how to give the best kind of feedback, such as *Accountable Talk* (Michaels et al., 2008) and *Academic productive talk* (O'Connor & Michaels, 2019).

Conversely, leading whole class discussions and teaching 'three-act task activities' (Lomax et al., 2017) are activities with a larger grain size because they have a plethora of different activities baked into them.

The use of teacher-in-role, however, could relate to a medium grain size of core practices. Common to all activities is that they are useful routines for prospective teachers.

Table 2.2

ReTPro's types of modelling

Subjects	Modelling PSTs were exposed to
Maths and EFL/ESL	Free accessible educational videos on teachers' modelling
Pedagogy	Use of the game simulator 'snakke med barn' (talking with children)
Maths, EFL/ESL and pedagogy	ReTPro campus teachers' modelling
Maths, EFL/ESL and pedagogy	ReTPro practicum teachers' modelling
Maths and EFL/ESL	Peers' modelling through rehearsals on campus

The PSTs have probably been exposed to teaching long before they started their teacher education, namely for as long as they have been attending school. The largest group of teachers that might influence their view of teaching is,

of course, the teachers that the PSTs have met through their own years as students in school. Kennedy (2019) states that

> all of us – those who become teachers, those who become education researchers, and everyone else – have spent roughly 12,000 hours watching teachers through our child-eyes, developing our own conceptions about what the job entails and what makes some teachers better than others. (p. 139).

Furthermore, Kennedy comments that this observation and the ideas we form about teaching in this way are naïve. In 1971 Blume (Blume in Lunenberg et al., 2007, p. 586) expressed that 'teachers teach as they are taught', indicating that the teaching we all have been exposed to is an important factor in our own view on teaching.

Former experiences with teaching will allegedly constitute the backdrop of the observations we make and experiences we have later. Still, this kind of experience with teaching does not fit into the definition of modelling as a conscious activity carried out by the modelling person.

On the other hand, reforming teacher education by introducing modelling is necessarily motivated by a wish to change teaching and to introduce *new* ways of teaching. Otherwise, there would be less need for modelling. The years of observing teachers' teaching are thus supposed to be replaced by new ways of teaching in the subjects.

The case ReTPro provides examples of new ways of teaching by applying the concept of ambitious teaching in mathematics (Lampert et al., 2013), by introducing the use of the teacher-in-role method to teachers (Galante & Thomson, 2017), and by seeking to reduce the use of the IRE (initiative–response–evaluation) structure in classroom conversations (Sinclair & Coulthard, 1975; Mehan, 1979).

As we see in the overview of the types of modelling the PSTs are exposed to in Table 2.2, the different roles of the modelling agents suggest that some of them will be more eager and able to introduce the changed way of teaching than others. We can suppose that the teachers in the videos the PSTs watch are good examples of new ways of teaching, as they are recorded in controlled situations.

Furthermore, the fact that campus teachers who are engaged in the reform project consciously chose to model certain activities might suggest that their modelling will be examples of new ways of teaching (see the empirical data in the present anthology: Cabot, 2025; Cabot & Brodal, 2025; Myklebust & Tuset, 2025; Kulild et al., 2025). As they have a group of PSTs as their own students, they are likely to succeed in teaching in accordance with what they want the PSTs to learn.

However, the practicum teachers have a slightly different challenge in their modelling. They are in real classroom situations with all the additional challenges that follow. Compared to on-campus teaching, the classroom situations during practicum can be more complex. More unforeseen things may happen that the practicum teachers will have to attend to. It is therefore possible that practicum teachers may be less influenced by new ways of teaching, particularly in cases when they are not a part of or not recruited by the research project but are practicum teachers for other practical reasons.

The idea that teacher educators should model new ways of teaching is described poignantly by Kennedy (2019), who writes that 'the central premise underlying all PD [professional development] is that there is something the researcher knows about teaching that teachers don't know' (p. 144). In other words, research takes precedence over experience and tradition in these cases.

This constitutes a field of tension in most research projects attempting to reform teaching, especially when the campus teacher educators are supposed to be the experts on teaching.

Modelling in the reform process of teacher education

McDonald et al. mention three possible ways of representing teaching: modelling by the teacher educator, watching videos of teachers enacting the activity, or reading about a case where a teacher enacts the activity. These are all representations of practice to help the PSTs develop an image of the activity.

In this context, McDonald et al. (2013) suggest the use of an 'enact-able activity' (p. 382), which could be labelled as an *enacting-enabling* activity because it must be possible to enact the activity and the PSTs must be enabled

to carry out the activity. Such an enacting-enabling activity must be decided before modelling. The activity should be a practice that 'someone habitually and consistently does' (p. 382).

McDonald et al. (2013) write that one can deal with core practices by looking for 'specific, routine aspects of teaching that demand the exercise of professional judgment and the creation of a meaningful intellectual and social community for teachers, teacher educators, and students' (p. 378).

McDonald et al. (2013) state that their 'framework is intended to push against the tendency in teacher education to default to an acquisition model of learning' (p. 381). Here, the term acquisition refers to different models of learning in teacher education. It suggests a superficial way of learning, as in a transmission-reception (behaviourist) model of teacher education.

By using the phrase 'the exercise of professional judgment', McDonald et al. (2013, p. 378) suggest that teacher education must be concerned with more than the acquisition of knowledge. Indeed, teacher education must demonstrate a commitment to using *knowledge in action*.

Concerning McDonald et al.'s (2013) learning cycle, the modelling activity has been promoted by several researchers. For example, Loughran and Berry (2005) presented a double-degree teacher preparation subject they had developed and titled *Developing Pedagogy*. In this broader programme, they highlight two important aspects of teacher educators' explicit modelling. First, they argue that it is *per se* a good thing that teacher educators do themselves what they expect their students to do in their teaching.

Secondly, they stress the need to teach PSTs how to reflect on teaching, that is, to help them develop a meta-perspective on teaching. They therefore suggest that one co-teacher educator should model how to carry out a session of joint debriefing after the modelling of teaching in order to offer the PSTs access to 'the pedagogical reasoning, feelings, thoughts and actions that accompany our practice across a range of teaching and learning experiences' (Loughran & Berry, 2004, p. 194).

In 2006, Loughran was part of Korthagen et al.'s (2006) research group analysing effective features of teaching programmes in Australia, Canada and the Netherlands. Korthagen et al. (2006) suggested seven fundamental principles to guide the development of teacher education programmes. One of these principles (number 7) was: 'Learning about teaching is enhanced when the teaching and learning approaches advocated in the programme are

modelled by the teacher educators in their own practice' (Korthagen et al., 2006, p. 1036).

In 2007, Lunenberg et al. (2007) thoroughly addressed the question of how modelling should be carried out in teacher education. They begin the article by citing Blume (1971), stating that 'teachers teach as they are taught' (Blume in Lunenberg et al., 2007, p. 586). Lunenberg et al. (2007) define modelling as 'the practice of intentionally displaying certain teaching behaviour with the aim of promoting student teachers' professional learning' (p. 589).

In a literature study, they identify three important goals of teacher educators' modelling: (1) Modelling can contribute to the professional development of PSTs; (2) Modelling is a way to change education; (3) Modelling can improve the teaching of teacher educators. More specifically, Lunenberg et al. (2007) distinguish between implicit and explicit modelling, but they only provide an in-depth analysis of explicit modelling.

Based on Loughran (1996), they explain explicit modelling as situations in which teacher educators communicate to PSTs which choices they make while teaching. This can be done through simultaneous journal writing and thinking aloud, or – as mentioned by Loughran and Berry (2005) – through the use of a co-teacher commenting on the modelling instantly after it has happened in the classroom. Lunenberg et al. (2007) found that the research literature claims that explicit modelling facilitates the translation of pedagogical choices to the PSTs' own practice and that explicit modelling may connect exemplary behaviour with theory.

Lunenberg et al. (2007) also carried out an empirical research study into the practice of ten teacher educators in four Dutch institutions for teacher education, asking 'Do teacher educators model new visions of learning into their own practice?'. They distinguished between four forms of modelling in their study: (1) implicit modelling, which seemingly has a low impact, (2) explicit modelling, (3) explicit modelling facilitating the translation into the students' own practice, and (4) connecting exemplary behaviour to theory. They found that explicit modelling was not common among teacher educators. Their main conclusion was that there was 'little or no recognition of modelling as a teaching method in teacher education' (Lunenberg et al. 2007, p. 597). In line with this, Lunenberg et al. (2007) conclude that 'when it comes to using modelling new learning in teaching education, teacher educators are apparently still at the beginning of a long and challenging path' (p. 599).

Rust (2010) starts her article in a very critical way, stating that American teacher education at that time is 'stuck in an unproductive and dysfunctional pattern' (p. 5). After providing an analysis of what is wrong and what the challenges for teacher educators may be, she points to several ways of improving teacher education and states the following: 'In essence, we need to model the practice we want our students to incorporate into theirs' (Rust, 2010, p. 14).

Critical voices on modelling have also been raised. Forzani (2014) mentions an obvious problem with having teacher educators modelling teaching. Indeed, 'many teacher educators have not taught children or worked intensively in classrooms in many years (Levine, 2006), and may lack the skill required to implement practice-based approaches effectively were they even to try it' (Forzani, 2014, p. 366).

Looking at these examples of argumentation for the use of modelling by teacher educators, we see that they are first and foremost grounded in problems related to teacher education and in teacher educators' needs for learning PSTs to teach. They aim to a lesser degree at meeting problems connected to students in schools.

The interest in describing teacher educators' modelling leads us to focus on the modellers and what characterises the way they model. In the next two parts of this article, I will present theories on how modelling works, which theories represent an ancient perspective on learning from models, and on how to learn from modelling.

Ancient perspectives on learning from models

The prerequisite for learning any skill according to ancient theories was first launched by Aristotle as a combination of three factors that had to be present: in Greek *physis*, *techne* and *usus*. The corresponding Latin concepts were *natura*, *ars* and *exercitatio*. *Natura* refers to the personal abilities you must have to be able to be educated at all. The antique meaning of *ars* is related to the modern noun *art*, but has a much broader meaning, as in crafts or techniques. Examples of *ars* are speaking, writing, arithmetic or construction art, in short everything that you must learn and that requires systematic

training and practice (Eide, 2015). *Exercitatio* is this required training, for example rehearsal.

We shall now take a closer look at the Latin concepts *natura*, *ars* and *exercitatio* as presented by the Roman rhetorician Quintilian (35–100 AC) in the book entitled *Institutio Oratoria* (*The Orator's Education*) from 95 AC. *Institutio Oratoria* is a textbook aimed at teaching young men in the Roman Empire to become skilled orators, men with oral skills that were needed in politics or when working as lawyers. In his book, Quintilian discusses his theories with predecessors such as Aristotle and the other Latin rhetorician Cicero (106–43 BC), with whom he was partially in disagreement.

Transferred to modern terms, *ars* is the craft, the techniques that are being modelled, whereas *exercitatio* is the rehearsal. Unlike modern theories, the ancient theories have a well-known concept for the relationship between modelling and rehearsal: in Greek *mimesis*, in Latin *imitatio*. The terms 'modelling' and 'rehearsal' and the connection between the two are not clarified in modern terms, nor do we have a term like *mimesis* or *imitatio* to express the connection.

In a modern interpretation, the term *imitatio* has negative connotations as someone copying someone. 'Imitation' is today viewed as something instrumentalistic, even though it is recognised as a very central aspect of learning in many theories about language and learning. In our post-romantic world, *imitation* is the opposite of innovation. In this context, it is necessary to think of the word *imitatio* in the way it was used in antiquity, as a more positive concept or a neutral expression for what happens when a person wants to learn from a model. '*Mimesis*, says Aristotle, is a natural part of the learning process (*Poetics*, 1447a-b) but the degree of adhesion to the original source varies considerably' (Mendelson, 2001, p. 289).

The disagreement between Cicero and Quintilian relates to issues of knowing whether *imitatio* is mostly connected to *ars* or to *exercitatio* – that is to say, to the modelling or the rehearsal. Cicero places *imitatio* as part of *ars*, which means that the key to success is connected to the modelling and, consequently, to the modelling person. Quintilian sees it to a greater degree as part of *exercitatio*. He sees *imitatio* as something occurring in the rehearsal. In doing so, it becomes first and foremost the responsibility of the rehearsing person.

Quintilian (2001) elaborates on his views in book 10.2 in *Institutio Oratoria (The Orator's Education)*. He starts by arguing for *imitatio* as a way of learning in general when writing the following:

> *Imitatio* is a principle of life in general that we want to do for ourselves what we approve in others. Children follow the outlines of letters so as to become accustomed to writing, singers find their model in their teacher's voice, painters in the work of their predecessors, and farmers in methods of cultivation which have been tested by experience. (Quintilian 2001, p. 323)

Thereafter, he discusses *imitatio* as part of education in seven points that I quote here in a slightly abbreviated and simplified manner:

1. Imitation is not sufficient on its own. Only lazy minds are content with what others have discovered. Nothing grows by imitation alone.
2. The greatest qualities of an orator are inimitable: his talent, invention, force, fluency, everything in fact that is not taught in a textbook.
3. Careful judgement is necessary: a) Whom should we imitate? b) What is it in our chosen model that we should prepare ourselves to reproduce?
4. The first step for the student is to understand what it is that he is going to imitate and to know why it is good.
5. Next, he must consider his own strengths. There are some objects of imitation for which his natural capacity may be too weak or with which his very different temperament may be at odds.
6. It is best to keep the excellence of a number of models before our eyes and use each in the appropriate place.
7. Imitation should not be restricted to words. We must fix our minds on the way the models handle circumstances and people, their strategy, their arrangement, the way in which everything is aimed at victory. (Quintilian, 2001, pp. 323–337)

As we can see from these points, Quintilian has a relaxed and balanced view of *imitatio*. *Imitatio* is just a step on the way to becoming a good orator, and some of the things we admire in others are not possible to imitate.

He also writes about the job the young oratory student has to do in his imitation. Requirements are, for example, judging *who* he wants to imitate, not forgetting to consider the effect of the model's body language and the model's strategies, knowing his own strengths, and considering when it is appropriate to use imitation to accomplish something.

Quintilian was a practically oriented teacher, who is known for his point of view on how to teach orator students to argue. He represents the approach to argumentation known as *controversia* (in English: controversy). In other words, he wanted to teach the orator students to always find two standpoints in every case – that means pros and cons. Mendelson (2001) explains this in the following words:

> *Controversia* may be said to place its priority on the exchange among interlocutors rather than on the formal development of one's own claim, on personal hypotheses rather than universal theses, on arguing with others rather than arguing that such and such is the case. (p. 278)

This way of arguing is, according to Mendelson (2001), also noticeable in Quintilian's way of arguing in the book *Institutio Oratoria*. Instead of finding a range of evidence for his point of view, he explores the point of view by discussing it back and forth. This form of discussion – that is to say, the development and elaboration of pros and cons – may be the origin of the adversarial principle in legal systems.

According to Quintilian, 'careful consideration should always be paid to the arguments of the opponent' (Mendelson, 2001, p. 286). As part of these practical views on arguing, Mendelson (2001, p. 289) mentions that Quintilian developed the method of role-plays for his orator students. In fact, these role-plays, rehearsals and modelling practices may be the roots of modern approaches to practice-based teacher education.

Modern perspectives on learning from models

The Latin concept for how to learn from models, *imitatio*, or in English *imitation*, is, for the reasons mentioned above, no longer possible to use. The modern term imitation is in line with what McDonald et al. (2013) label acquisition. Sfard (1998) elaborates on this when making the poignant statement: 'Since the dawn of civilization, human learning is conceived of as an acquisition of something'… She suggests consolidating the *acquisition metaphor* with the *participation metaphor*. According to the *participation metaphor*, learning to teach is 'becoming a participant' of something, and the knowledge one wants to take part in is an 'aspect of practice, discourse or activity' (Sfard, 1998, p. 7) in a given context. A combination of the two metaphors as a way of understanding learning in teacher education is preferable.

Sfard put these thoughts in the following words:

> It seems that the most powerful research is the one that stands on more than one metaphorical leg (cf. Sfard, 1997). An adequate combination of the *acquisition* and *participation metaphors* would bring to the fore the advantages of each of them, while keeping their respective drawbacks at bay. (Sfard, 1998, p. 11)

In line with these perspectives on learning, I will shortly comment on two other concepts that are of particular interest when examining learning from models. The concepts are *routines* as a concept for what is going to be learned, and *appropriation* for how the core practices are going to be learned.

I have chosen two modern theories that can be used to understand the processes involved in learning from models: Anna Sfard's description of *participation* and *thoughtful individualisation* linked to the development of teaching routines, and Wertsch's (1998) distinction between mastery and *appropriation*.

Routines have to do with defining what should be modelled and rehearsed. As mentioned, McDonald et al. (2013) point out that an enact-enable activity must be decided on, and this should be 'something that someone habitually and consistently does' (p. 382). Routines explained as 'repetition-generated patterns of our actions' (Lavie et al., 2019, p. 153) are a concept that fits well into the idea of core practices.

In this context, Sfard states the following:

> *Routines come in different sizes*. The smallest, simplest routines, those that cannot be decomposed and are performed in a single step, are called *atomic*. Large ones… or those for coordinating whole-class discussions and monitoring students' group work, are often referred to as *practices*. (Sfard, 2025)

In Sfard's (2025) opinion, 'a rich repertoire of well-developed professional routines is the basis of the expert teacher's smooth functioning' *(p.* 314*)*. Vocabulary learning from models is a form of *individualisation*. Sfard (2008) explains that 'the tendency for individualisation – for gradually overtaking the roles of others, accompanied by an increase of one's agency over the given activity – seems to be one of the hallmarks of humanness' (p. 79). She calls this view of human learning a participation version of human development. This is, according to Sfard, how we learn practices.

In his theories on language and dialogue, Bakhtin saw the need for a concept expressing that we use the words of others as we learn to speak. He chose to use the concept *appropriation* (Bakhtin, 1981, p. 294). In line with this, Wertsch (1998) distinguishes between appropriation and mastery. In the chapter 'Internalisation as Appropriation' he states that the word appropriation is a translation of Michail Bakhtin's Russian concept *prisvoit*, meaning '… something like to bring something into one self, or to make something one's own' (Wertsch, 1998, p. 53). He adds 'I use "appropriate" and "appropriation" to translate these Russian terms, with the understanding that the process is one of taking something that belongs to others and make it one's own' (Wertsch, 1998, p. 53). This meaning fits, in my opinion, well with the process of learning how to teach from models by rehearsing the modelled routines or core practices.

Discussion

Conspicuously, the ancient and modern approaches to modelling are quite different in a number of ways. Here, I will discuss the different approaches and some of the similarities and differences between them, in addition to taking a quick glance at what they add to our understanding of the ReTPro case.

The discussion will mostly revolve around differences between the modern and the ancient approaches. This is, of course, not entirely fair. Quintilian addresses the learner in a textbook that explains directly how the learner should think and act, whereas I have presented modern approaches by reviewing articles written by teacher educators to other teacher educators, arguing in a metalanguage. This must be taken into account in the discussion. If the modern educators were to rewrite their texts as direct advice to the PSTs, the differences might not be so apparent. Still, there is a basic difference in attitude that can be found.

Both ancient and modern approaches agree that there is a number of ways to model teaching. As we have seen, McDonald et al. (2013) distinguish between three types of representing teaching: modelling by teacher educators (modelling), watching and analysing videos of teachers enacting the activity (video analysis), or reading texts about a teacher enacting a specific activity (case analysis). The first two are in use in the ReTPro case.

Loughran and Berry (2005) and Lunenberg et al. (2007) distinguish between implicit and explicit modelling, stating that implicit modelling is less promising as a way to teach PSTs to teach. It is unclear what characterises implicit modelling in Lunenberg et al. (2007)'s views. However, explicit modelling is defined as 'the practice of intentionally displaying certain teaching behaviour with the aim of promoting student teachers' professional learning' (Lunenberg et al. 2007, p. 589). Considering that explicit modelling requires a metalanguage, we can assume that if the teaching behaviour is not intentional and/or if it does not include a meta perspective, modelling becomes implicit. Yet, this is somewhat difficult.

As we can see from Table 2.2, both implicit and explicit models are used in the ReTPro project. Implicit modelling is done by showing video films. Video recordings used as models may not have the required intention by the teachers. They are, however, still valuable models to be studied by the PSTs involved in the ReTPro project because they are analysed so that the PSTs can develop a metalanguage on the activities. In doing so, the PSTs learn not only by observing and reflecting on models, but also from participating in explicit modelling carried out by their campus teachers and peer PSTs.

The other claim from Lunenberg et al. (2007) is that explicit modelling is divided into three subcategories of explicit learning: (1) explicit modelling with metalanguage connected to it, (2) explicit modelling facilitating the

translation into the students' own practice, or (3) explicit modelling that connects exemplary behaviour to theory. This is probably not the case every time modelling happens in ReTPro, especially if teaching is modelled by PSTs.

What is most noticeable in Lunenberg et al. (2007)'s and the other modern approaches is that the difference between implicit and explicit modelling in both cases has to do with the behaviour of the modellers. Compared to the ancient views of how modelling works, we see that this corresponds with Cicero's point of view in the ancient tradition. Indeed, Cicero sees the modelling process as part of *ars*, knowledge about and focus on the techniques that can be used. According to this, the person most responsible for success in using models is the teacher educator. Explicit modelling with metalanguage is in every case a question of how the teacher educator organises the modelling of teaching.

In contrast, Quintilian sees modelling as a part of *exercitatio*, and in that way as the responsibility of the learners, in our example case, the PSTs. We can also note that Quintilian's points underline that many aspects of modelling should be considered in relation to the PSTs' personal characteristics, his or her *natura*, so to speak.

Furthermore, according to Quintilian, the PSTs should be exposed to many different models and decide for themselves which model they wish to follow. This engages the PSTs' responsibility for learning in a way that is perhaps more in line with modern pedagogy than the idea that PSTs should follow a template of good teaching created by the teacher educator. Quintilian's view can be seen as a counterpart to the two modern explanations of how to learn from models. The *acquisition* and *participation* aspects of how to process the knowledge acquired from models give the PSTs the main role in the learning process.

On the other hand, this problematises the idea that modelling should function as an introduction of new ways to teach in a reform project. A change in ways of teaching is the ultimate goal in an interventionist research project such as ReTPro. When PSTs are left to make a choice on how to teach, there is a chance that a project would not succeed in this endeavour. There is a risk of creating a situation in which PSTs fall back on following well-known routines based on their own school experiences, instead of striving to achieve the teaching that has been modelled to them.

The example project ReTPro is a reform project aiming to change teacher education. The focus on teacher educators as models is therefore a natural consequence.

Yet, in this context, Quintilian's approach is a good reminder of what ideally should be the situation when the reform process has ended and the new status quo is that PSTs learn to teach from models. In that case, they could gradually be given the opportunity to decide for themselves whom to have as models and preferably be presented with many different explicit modelling activities and to reflect on their strengths and weaknesses.

In sum, PSTs should be able to learn how their own *natura* and understanding of the purpose in a specific teaching situation can lay the foundations for developing their teaching style.

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