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Timewise

Improving pupils' understanding of historical time in primary school

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Chapter 1

INTRODUCTION

“History is the systematic study of the past, and at its heart is time”
(Jordanova, 2000)

1.1 AIM AND SCOPE OF THIS DISSERTATION

In history education, the understanding of historical time is an important aim. It is a precondition for the development of historical consciousness, which is about making connections between interpretations of the past, understanding of the present, and perspectives on the future (Angvik & Borries, 1997; Grever, 2009; Seixas, 2006; Rösen, 2012). Pandel (1987) describes historical consciousness as a mental structure with seven dimensions of consciousness, of which time, reality and historicity are the core dimensions and the other dimensions (identity, politics, economy-society and morality) are shared with other disciplines. In this theoretical model of historical consciousness, time is about the consciousness of past, present and future, and historicity about the consciousness of change and continuity.

This dissertation focuses on the question of how pupils' understanding of historical time in primary school can be improved. In studies about children's understanding of historical time different terms are used, such as 'consciousness of time', 'awareness of time' and 'understanding of chronology'. In this study 'understanding of historical time' has been chosen, because this term is frequently used in curricula for history, and in English and American educational literature. (Thornton & Vukelich, 1988; Harnett 1993; Barton 1996, 2011; Wood & Holden 1997).

Primary school pupils need to understand historical time to gain historical understanding of change and continuity in people's lives from the past to the present (Stow & Haydn, 2000). Without an understanding of time it is not possible to distinguish historical periods with their specific characteristics and to be aware of living in a continuum of time with change and continuity (Grever, 2009). The understanding of historical time also is important as a basis for historical thinking, of which thinking in terms of change and continuity is one of the core concepts (Lévesque, 2009; Seixas & Morton, 2013). Historical thinking and reasoning furthermore require that pupils can contextualize historical phenomena in a temporal, spatial, and social context for which insights into historical time and knowledge of a chronological overview of historical periods are essential (Van Boxtel & Van Drie, 2013). In learning to think and reason about differences and similarities in people's lives in the past and the present, the understanding of historical time supports pupils in forming their identity and in preparing their participation as citizens in a pluralistic democratic society (Barton & Levstik, 2004). This becomes ever more important in a society in which the fast development of technology and media asks for citizens who can critically interpret different kinds of information.

During the last decades a renewed interest in chronological understanding and historical knowledge influenced history curricula in primary and secondary education in the

Netherlands. The emphasis on the teaching and learning of chronology, which was visible in other countries as well, can be considered as a reaction to a crisis of identity in western countries due to developments after the fall of the Berlin Wall, ranging from a revolution in communication, to mass migration and growing tensions between Islam and the western world (Wilschut, 2010). For the Netherlands a public debate about nation building and strengthening of identity resulted in the implementation of a new curriculum (Dutch Ministry of Education, Culture and Sciences, 2006, 2010), aimed at better supporting pupils in their orientation in time. In this curriculum the past was divided into ten clear-cut eras with associative names and symbolic icons, to which a historical-cultural canon was added with fifty events and persons from Dutch history (Van Oostrom, 2007). Each era carried between two to six characteristic features, from in total 20 characteristics in primary education, to 49 in higher secondary education. These features, such as 'the beginnings of European overseas expansion', should help pupils in identifying historical phenomena, such as the voyages of Columbus or Magellan as belonging to the era of Discoverers and Reformers (1500-1600). However, hardly any research indicates whether the implementation of the ten-era framework actually has led to a better understanding of time. Only in grade 8, at the end of primary school, pupils take a national assessment which includes some multiple-choice items on the understanding of historical time, and until 2010 the Dutch Centre for Assessments conducted periodic surveys with grade 8 pupils to evaluate pupils' learning in history. Evaluations of these surveys indicated that too few pupils reached a sufficient understanding of historical time (Wagenaar, Van der Schoot, & Hemker, 2010). Compared to the previous curriculum with traditional names pupils could more often correctly place historical events on a timeline with the names and icons of the ten eras. However, it was not clear whether pupils could position the eras in time and whether the new ten-era framework led to a better understanding of historical time (Wagenaar et al., 2010).

Improvement of primary school pupils' understanding of historical time seems to be a relevant topic. However, empirical studies about the teaching and learning of historical time are scarce, mostly small-scale and not very recent. This dissertation aims at contributing to the small body of available literature by developing a teaching approach, named Timewise, to support teachers in their teaching of historical time. Relevant themes in this context that need to be explored are the conceptualization of the understanding of historical time, and how the understanding of historical time is addressed in the primary school curriculum in the Netherlands compared to England. For several reasons, as will be explained in paragraph 1.2.2, a comparison with the English primary school curriculum is interesting. Furthermore, insight into the development of the understanding of historical time within primary school pupils, recommendations for the teaching of historical time, and important issues for the professional development of teachers will be needed.

The dissertation will address these themes in five separate studies:

1. In the first study the Dutch curriculum for the understanding of historical time will be analysed and compared to the English curriculum.
2. The second study investigates pupils' development on the understanding of historical time and how this understanding can be measured.
3. The third study explores which problems arise in pupils' reasoning while situating historical phenomena in time.
4. The fourth study focuses on the development, the implementation and the evaluation of Timewise, a teaching approach aimed at improving pupils' understanding of historical time.

- The fifth study focuses on effective components of a professional development program (PDP) for teachers on the implementation of Timewise in their curriculum.

Since this dissertation focuses on the design, implementation and evaluation of a teaching approach with regard to the curriculum on the understanding of historical time, the curricular spider web (Van den Akker, 2003; Thijs & Van den Akker, 2009) provides a useful model for the visualization of a curriculum (Figure 1.1). This model consists of a core, the rationale, which serves as a central link, and nine threads, which represent all other curriculum components. For a curriculum on the understanding of historical time the rationale is about the importance of this understanding for primary school pupils in developing historical consciousness and preparing them to become responsible citizens, as was explained at the start of this paragraph. With regard to the analysis, development, implementation and evaluation of a curriculum on the understanding of historical time the threads of the spider web clarify the importance of achievable aims and objectives, concrete content, and a thoughtful realisation of a pedagogy with attention for the role of the teacher, learning activities, materials and resources and adequate assessment. In this dissertation we focus on all components, except for 'grouping' and 'location' because these are very much dependent on specific variations in schools. In Figure 1.1 the five studies of this dissertation are connected to these components.

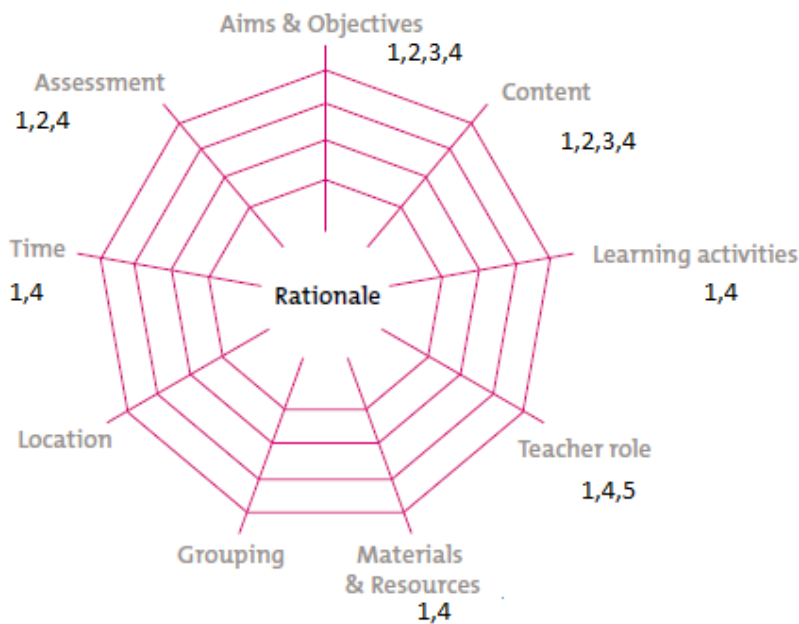


Figure 1.1. The curricular spider web (Thijs & Van den Akker, 2009), with connections to the studies in this dissertation.

This chapter will continue with a description of the conceptual framework of the dissertation, followed by the specific research questions and an explanation of the theoretical and practical relevance. The chapter concludes with an overview of the empirical studies of this dissertation.

1.2 CONCEPTUAL FRAMEWORK

1.2.1 Conceptualization of the understanding of historical time of primary school pupils

Augustine already wrote that the concept of time is complicated to explain (O'Donnell, 1992). On the one hand there is the concept of measurable (mathematical) time, also called chronology, which derives from the movement of heavenly bodies. On the other hand there is the concept of subjectively experienced time, which Augustine described as part of consciousness in the human mind (Jansen 2001; Grever 2001, 2009; Rösen, 2007; Wilschut 2009, 2012). According to Ricoeur (as cited in Grever, 2001; Jansen 2001) historical time is the mediator between the objective and subjective concept of time, through narrative, in which time materialises in stories that give meaning to individual historical phenomena. In order to fulfil the role of mediator the historian uses reflective instruments to bridge the gap between 'subjective time' and 'objective time': the calendar (chronology); successive generations; and remains: archives, traces and documents (Ricoeur 1984). These tools form the core of Wilschut's (2012, p. 70) description of 'consciousness of historical time' in six key concepts: 'chronology and periodisation', which are about the division of time with the use of a timescale and about the distinction between different compartments; 'generations and relics', the mediating elements enabling images to be created from one time period from the perspective of another; and 'anachronism and contingency', which are about attitudes and perceptions of interrelationships between the different individual time compartments.

In the Netherlands Wilschut (2012) conducted research on the teaching and learning of historical time, mainly from a theoretical perspective, with a small empirical study in secondary education, in which teaching about historical eras with images and associative names appeared to be more successful than teaching about these eras with only dates and centuries. The last Dutch study before Wilschut's thesis was an article by Fontaine (1974), in which he explored children's development of historical time, based on insights from psychological studies, such as Piaget's experiments on time, movement and velocity (Piaget, 1966). Although international studies about children's understanding of historical time are rare as well, the concept of the understanding of historical time is more often elaborated on in English educational literature. In a much cited study Stow and Haydn (2000, p. 87) defined the understanding of historical time from an educational perspective, in three objectives:

- the understanding of the words and symbols to define time;
- the ability to use a time scheme and the dates by which such a scheme is symbolized;
- the knowledge of the characteristics of definite epochs in the time scheme and the ability to place these epochs roughly in the correct order.

The first objective is about the use of the appropriate vocabulary to describe time, ranging from relative phrases, such as 'long ago' to dates and names of historical periods. The second objective concerns the use of a timeline with historical periods and the dates belonging to these periods. With regard to the third objective pupils have to know about characteristic features of historical periods and about their chronological sequence. Dawson (2004) confirms these objectives and adds the development of a sense of period, which he describes as the ability to envisage individuals and events from the past, built on knowledge of characteristics of historical periods.

From the literature about the understanding of historical time it appears that chronology and periodisation (Wilschut, 2012) are relevant concepts, which are also included in the second and third objective in the definition of Stow and Haydn (2000). Aspects that belong to these concepts are the use of the vocabulary of time and the use of the timeline to distinguish between different historical periods and their characteristics. The development of a sense of period (Dawson, 2004) also belongs to the understanding of historical time, as well as to the concept of change and continuity. These insights into important concepts of the understanding of historical time raise the question whether and how these concepts are related to objectives on the understanding of historical time in primary school curricula.

1.2.2 Pupils' development in the understanding and learning of historical time

Although there are some indications about the operationalization of understanding of historical time in primary schools, there are only a few more or less recent studies about the development of understanding of historical time during the childhood period (Blyth, 1978; West, 1981a; Levstik & Pappas, 1987; Harnett, 1993; Barton & Levstik, 1996; Hoge & Foster, 2002; Hodkinson, 2003a). Psychological studies on this topic have been dominated by the theory of Piaget (1969) for a long time. Although his research did not include the understanding of historical time, the Piagetian stage theory was often (mis)used by educators to justify that the development of the understanding of historical time is tied to maturation and seems to start between the ages of 11 and 17 (Jahoda, 1963; Hallam, 1970). This was consistent with older studies which concluded that pupils start to understand historical time from the age of about 11 and emphasized that the understanding of clock and calendar time is conditional for the learning of historical time (Oakden & Sturt, 1922; Harrisson, 1934; Friedman, 1944; Bradley, 1947).

However, educational research from the second half of the twentieth century indicates that younger children are already able to understand historical time. McAulay (1961) found that 7-year olds seem to be capable of understanding periods of time and have some understanding of past social reality. Roth (1968) argued that children from the age of 5-8 start to show an interest in their own history and from the age of 9 can work with dates. In a review article on research on children's understanding of historical time, Thornton and Vukelich (1988) concluded that from about the age of 9 children begin to master historical dates, and from 12 years on they enter a stage in which their temporal understanding is approaching that of adults. A small body of empirical studies in England showed successful teaching programs on the understanding of historical time with pupils aged 5-11 (Blyth, 1978; West, 1981a; Hodkinson, 2003a). Other studies investigated pupils' understanding of historical time in sequencing tasks with pictures, stories and artefacts (Levstik & Pappas, 1987; VanSledright & Brophy, 1992; Harnett, 1993; Brophy, VanSledright, & Bredin, 1993; Barton & Levstik, 1996; Wood & Holden, 1997; Foster, Hoge, & Rosch, 1999; Vella, 2001; Wood & Holden, 1997; Foster, Hoge, & Rosch, 1999; Vella, 2001; Hoodless, 2002; Blow, Lee & Shemilt, 2012). These studies all concluded that the understanding of historical time starts with young children from the age of about 5 and that this understanding is a learning process that can be developed by teaching.

For the Dutch context little is known about how pupils develop their understanding of historical time during the primary school years. The only research on pupils' performances

concerns the last year of primary school (grade 8, ages 11-12) (Wagenaar et al., 2010), but there are no studies available on how the understanding of historical time of Dutch pupils develops in earlier years in primary school. However, there are some English and American studies that describe how pupils aged 5-12 use the vocabulary of time and how they use knowledge about characteristics of historical periods (Levstik & Pappas, 1987; Harnett, 1993; Barton & Levstik, 1996; Hoge & Foster, 2002). Results from these studies indicate that pupils' use of the vocabulary of time develops from broad relative time phrases to the use of dates and names of historical periods, and that knowledge about characteristic features develops from concrete tangible characteristics, such as clothing, transport and architecture, to more abstract ones, such as economic and political characteristics. Furthermore, some of the studies mentioned above give insights into problems that pupils encountered while placing historical phenomena in time (Levstik & Pappas, 1987; VanSledright & Brophy, 1992; Harnett, 1993; Barton & Levstik 1996; Foster et al., 1999; Hoge & Foster, 2002; Hodkinson, 2003a; Wagenaar & Hemker, 2004). For the youngest pupils (aged 5-7), who are still learning the meaning of numbers, using dates appeared to be difficult (Barton & Levstik (1996). They often used broad time phrases, such as 'long ago' and 'very long ago' (Levstik & Pappas, 1987; Harnett, 1993; Barton & Levstik 1996; Foster et al., 1999; Hoge & Foster, 2002). However, as Hodkinson (2003b) described, pupils can have very different interpretations of these terms. Older pupils used historical knowledge to place historical phenomena in time more frequently than younger pupils, although not always correctly, because they mixed accurate historical information with naïve conceptions and imaginative elaborations (VanSledright & Brophy, 1992; Wagenaar & Hemker 2004). Furthermore, in several studies pupils showed notions of present-oriented reasoning by identifying present-day characteristics that were 'not yet' present in historical periods, assuming that history is a linear story of progression and that people in the present are smarter than in the past (Harnett, 1993; Barton & Levstik, 1996; Hoge & Foster, 2002). In this kind of reasoning about the past, from a contemporary view, pupils can easily develop misconceptions (Lee & Ashby, 2001; Hunt, 2002). Pupils showed these kind of misconceptions, when assuming that black-and-white pictures and appearances as 'dirty' or 'broken' must be older than coloured pictures and bright shiny artefacts (Harnett, 1993; Barton & Levstik, 1996; Foster et al., 1999; Vella, 2001; Blow et al., 2012). Awareness of these problems could be helpful in gaining more insights into pupils' learning about historical time.

The research findings discussed above raise the question of how the understanding of historical time is addressed in the intended and implemented curriculum in Dutch primary schools and how this can be compared to a curriculum on the understanding of historical time in another country with a different approach, such as England. The English curriculum (Department for Education, 2013)¹ is interesting for a comparison, since the teaching of historical time in England starts from the age of 5, whereas in the Netherlands the start of history lessons is at the age of about 9. Furthermore, the English curriculum is a 'state curriculum' with detailed descriptions of aims and content, whereas the Dutch curriculum only broadly describes some objectives for primary school history lessons. Another reason for

1

<http://webarchive.nationalarchives.gov.uk/20131202172639/http://www.education.gov.uk/schools/teachingandlearning/curriculum/primary>. The National Curriculum was under consultation at the time of writing. The new curriculum was implemented in September 2014.

the comparison with England is that the small body of research in this context mainly consists of English literature, focusing on the English curriculum.

1.2.3 Teaching about the understanding of historical time

From the previous paragraph the conclusion can be drawn that teaching is important for the development of the understanding of historical time of primary school pupils. Friedman (1982) distinguishes three components that are underlying the cognitive processes in children's learning of time: 'verbal lists' of time sets, 'associative networks' to remember characteristic features, and 'image coding' as representations of events that took place in time. These components are reflected in the aspects of the understanding of historical time that were described in paragraph 1.2.1, with regard to the use of the vocabulary of time, the identification of characteristic features of historical periods and the use of timelines.

Many educationalists recommend that teaching with timelines can support pupils' understanding of historical time, because timelines visualize temporal relations (Hoodless, 1996; Stow & Haydn, 2000; Hodkinson, 2003a, 2004; Barton, 2011; Cooper, 2012). However, there is only limited evidence to support this assertion. For primary and lower secondary education there are few, mostly small-scale empirical studies (West, 1981a; Hodkinson 2003a; Masterman & Rogers, 2002; Prangmsma, Van Boxtel and Kanselaar, 2008), which report on positive effects of teaching with timelines, such as improvement in primary pupils' linguistic abilities, their ability to sequence narrative pictures from different historical eras, and improvement in their historical knowledge. In Hodkinson's (2003a) study, with pupils aged 8-10, a treatment group that was taught with timelines developed greater chronological understanding than the control group. Furthermore, he found that large horizontal classroom timelines with marked centuries were more effective than others, such as spiral forms.

With regard to pupils' reasoning with the vocabulary of time and characteristics of historical periods some studies indicated that historical pictures and stories were effective materials, because pictures and stories triggered pupils' use of relative time phrases, dates, names of historical periods and characteristic features. In several empirical studies researchers used historical pictures to investigate primary school pupils' understanding of historical time in reasoning about chronological sequences (Harnett, 1993; Barton & Levstik, 1996, 2002; Hoge & Foster, 2002; Van Boxtel & Van Drie, 2012), whereas others used stories (Levstik & Papas, 1987; Hoodless, 2002). Some studies in secondary education successfully used pictures to support pupils' in situating historical phenomena in time as well (Van Boxtel & Van Drie, 2012; Wilschut, 2012).

In the Netherlands there has not been any research into effective approaches to teaching the understanding of historical time in primary education. In the Dutch history curriculum that was implemented in 2006 the timeline of the ten-era framework was introduced as a central pedagogical tool (Commission on History and Social Sciences, 2001). However, this curriculum hardly contained guidelines for teachers on how to apply this framework in the classroom in a way that corresponds to pupils' development in the understanding of historical time. Furthermore, there are no empirical studies about the extent to which the ten-era framework contributed to a better performance of pupils' understanding of historical time. To gain more insight into what kind of pedagogy would be appropriate to enhance Dutch pupils' understanding of historical time, a new teaching approach, named Timewise, was developed and tested. This study will include the full cycle

for a curriculum intervention: the development and the implementation of Timewise, as well as an evaluation through measuring pupils' learning outcomes.

1.2.4 Teachers' professional development on improving pupils' understanding of historical time

As research has shown, a successful implementation of a new teaching approach depends largely on the role of the teacher (Hattie, 2005; Yoon, Duncan, Wen-Yu-Lee, Scarloss, & Shapley, 2007; Desimone, 2009; Opfer & Pedder, 2011; Thurlings, Evers, & Vermeulen, 2015; Kennedy, 2016). Therefore it is important to gain insight into what is needed to support teachers in implementing a new teaching approach in their classroom.

Multiple reviews have discussed characteristics and conditions for Professional Development Programs (PDPs) that could be successful in improving teaching practices (e.g. Borko, 2004; Timperley, Wilson, Barrar, & Fung, 2007; Blank, de las Alas, & Smith, 2008; Van Veen, Zwart, & Meirink, 2012; Cherrington & Thornton, 2013). With regard to effective design features for a PDP most research seems to support five influential features: content focus, active learning, duration, collective participation, and coherence (Desimone, 2009). Besides, several studies mention additional important features, such as the accessibility of resources and the autonomy of teachers to integrate a new approach in their classroom (Knapp 2003; Blank et al., 2008; Opfer & Pedder 2011; Van Veen et al., 2012; Thurlings et al. 2015).

However, sustainable changes in teachers' behaviour in the classroom practice appear to be difficult to realize. One of the reasons for the ineffectiveness of PDPs could be that most programs hardly relate changes in teachers' behaviour to an improvement of pupils' learning outcomes (Guskey, 2003; Knapp, 2003; Hattie, 2005; Van Veen et al., 2012; Kennedy, 2016). In a much cited framework Desimone (2009) includes this relation by linking design features of a PDP to changes of teachers' beliefs, increased knowledge and skills, changes in instruction and improved pupils' learning outcomes, within a context of situational and organizational conditions. In addition, Kennedy (2016) emphasizes that a PDP needs to pay attention to methods that support teachers in implementing new pedagogical approaches into their daily practice: prescriptions, strategies, insights, and a body of knowledge.

Furthermore, for the development of a PDP on the improvement of pupils' understanding of historical time there are a number of issues that need attention. Many review studies emphasize the importance of subject matter and pedagogical content knowledge (Desimone, 2009; Van Veen et al., 2012, Kennedy, 2016). Therefore, historical content knowledge needs to be included as well as knowledge about the development of pupils' understanding of time (Levstik & Pappas, 1987; Harnett, 1993; Barton & Levstik, 1996; Hoge & Foster, 2002) and about which learning activities can stimulate this development. Furthermore, there is a strong textbook tradition in the Netherlands, in which pupils read texts and answer worksheets (Wagenaar, 2010; Dutch Inspectorate of Education, 2015b). An approach like Timewise will require a different teaching approach from teachers in which they engage their pupils in learning activities with timelines, pictures and stories to stimulate them to use appropriate vocabulary of time, to identify characteristic features of historical periods, and to reason about change and continuity.

In line with the model of Desimone (2009) the PDP has to include measurements of pupils' learning outcomes on the understanding of historical time, to make teachers realize that

their efforts in adapting a new teaching approach have an effect on pupils' performances. With regard to the professionalization of teachers most studies on professional development only focus on changes in teachers' instructional behaviour through changing attitudes, beliefs, skills and knowledge, whereas only a few studies include measurements of pupils' learning outcomes. In this study all components for an effective design, implementation and evaluation of a PDP (Desimone, 2009; Kennedy, 2016) will be included, in order to gain more insight into the relevance of these components.

1.3 RESEARCH QUESTIONS

As stated at the beginning of this chapter, the central question of this dissertation is: *How can pupils' understanding of historical time in primary school be improved?* To answer this question, research is needed into the concept of the understanding of historical time in the primary school context and into pupils' development in the learning and understanding of historical time. Little is still known about how the understanding of historical time is addressed in primary school curricula and what kinds of pedagogical approaches would be effective to enhance pupils' performances. With regard to the implementation of a new teaching approach this dissertation will focus on how teachers can be supported to teach a new approach in their classroom and on which components are relevant in a PDP for teachers.

The central question will be answered through investigating five specific research questions:

1. How does the Dutch primary school curriculum address the development of the understanding of historical time, compared to the English curriculum?
2. How do Dutch primary school pupils aged six to twelve perform with regard to their understanding of historical time?
3. Which types of problems related to the objectives of the understanding of historical time arise in Dutch primary school pupils' reasoning while placing historical phenomena in time?
4. What are the effects of an intervention with a new teaching approach, Timewise, on pupils' understanding of historical time?
5. Which components are effective in a professional development program on improving primary school pupils' understanding of historical time?

1.4 OVERVIEW OF THE DISSERTATION

In the following chapters the five empirical studies that have been conducted to answer the research questions will be described.

Chapter 2 presents an analysis of the Dutch curriculum for primary history, based on curriculum documents, surveys and interviews with teachers, teacher trainers and curriculum experts. Based on the model of the curricular spider web (Van den Akker, 2003) it was investigated how the understanding of historical time is addressed in the intended and the implemented primary curricula for history. This analysis was compared with the English national curriculum for primary history. From this comparison conclusions were drawn about different curriculum components.

Chapter 3 reports on the construction of a model on the development of pupils' understanding of historical time. The model is based on analyses of empirical studies and descriptions in curricula and it defines pupils' knowledge and skills for five objectives on the understanding of historical time. Based on this model a measuring instrument was developed, to measure how primary school pupils aged 6-12 perform with regard to the developmental model. This measurement was conducted with 1457 pupils from 7 primary schools.

Chapter 4 focuses on the types of problems primary pupils encounter in their reasoning, when they place historical phenomena in time. For this study 22 primary school pupils were interviewed with assignments on placing objects, situations, events and people in time. Based on literature and data from the interviews several types of problems in pupils' reasoning are defined and illustrated. Implications for the teaching of historical time in primary school and teacher training and implications for policymakers are discussed.

Chapter 5 reports on the effects of a curriculum intervention with Timewise, a teaching approach developed to improve pupils' understanding of historical time, in which timelines are a basis on which pupils can develop their understanding of historical phenomena and periods. After a training 16 teachers of grades 4 (ages 7/8) and 7 (ages 10/11) implemented the Timewise approach in their classrooms. The effects of this approach were measured in a quasi-experimental pre-/post-test design with the instrument that was developed in chapter 3.

Chapter 6 reports on which components of the professional development program (PDP), consisting of a training and the implementation of Timewise, contributed to pupils' learning outcomes. A multimethod design with questionnaires, logs, observations and interviews was used to explore how the teachers perceived the supportive methods provided by the PDP (Kennedy, 2016) and how these methods and the components of the PDP, such as changes in attitudes and beliefs, gains in knowledge and skills, and changes in the instructional behaviour (Desimone 2009), related to pupils' learning outcomes.

Finally, chapter 7 summarizes and discusses the main outcomes of the different studies. Subsequently, directions for future research are suggested. We conclude chapter 7 with practical implications for the teaching of the understanding of historical time in primary school and in teacher training and recommendations for educational policy makers.

The chapters of this thesis have been written as separate articles in such a way that they can be read independently. As a consequence, it is inevitable that some sections of chapters show overlap. Chapters 2 to 4 are written in British English, since these chapters have been published in British journals. Chapters 5 and 6 are in American English, since these have been published (5) and submitted (6) in American journals. Chapters 1 (Introduction) and 7 (Conclusions and discussion) and the summary are in British English.

Because the naming of grades can be confusing in the different languages, Table 1.1 is included. It explains the school systems with regard to years and grades in the Netherlands, England and the United States.

Table 1.1. Overview of years and grades in primary school in England, the Netherlands and the United States

Ages	Grades / Years			
	England		The Netherlands	United States
5-6	Key Stage 1	Year 1		
6-7		Year 2	Grade 3	Grade 1
7-8	Key Stage 2	Year 3	Grade 4	Grade 2
8-9		Year 4	Grade 5	Grade 3
9-10		Year 5	Grade 6	Grade 4
10-11		Year 6	Grade 7	Grade 5
11-12			Grade 8	Grade 6