



Timewise. Improving Pupils' Understanding of Historical Time in Primary School.

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SUMMARY

TIMEWISE

Improving pupils' understanding of historical time in primary school

The understanding of historical time is an essential aim for the subject of history. It is a condition for gaining historical consciousness and it helps pupils to form their identity and to become responsible and critical citizens. Furthermore, the understanding of historical time, with concepts as chronology, periodization, change and continuity, is indispensable for historical thinking and reasoning.

The teaching of the understanding of historical time starts in primary school. However, evaluations of the Dutch Centre for Assessments (Cito) show that too few pupils in grade 8, at the end of primary school in the Netherlands, reach a sufficient understanding of historical time, despite the fact that the ten-era curriculum that was implemented in 2006 aims at supporting pupils in orientating themselves in time. Therefore, this dissertation focuses on the question of how pupils' understanding of historical time in primary school can be improved. It consists of five successive studies concerning the curriculum for the understanding of historical time in the primary school context. These studies focus on pupils' development in the understanding and learning of historical time, and on effective aspects of teaching and teacher training.

Chapter 1 focuses on the conceptual framework of the dissertation and the research questions. The understanding of historical time was operationalized from an educational perspective, consisting of the following aspects: the vocabulary of time, characteristics of historical periods, the timeline to distinguish different historical periods and their chronological order, and change and continuity within and between historical periods. With regard to pupils' development on the understanding of historical time studies on this topic have been dominated by the Piagetian stage theory for a long time, which tied this development to maturation. According to this theory pupils would first have to master clock and calendar time before they would be able to understand historical time, from the age of about 11. More recent theories, however, showed that children can develop a basic understanding of historical time from the age of 5 and that this understanding can be stimulated by teaching.

Although there are only a few empirical studies about effective ways of teaching the understanding of historical time, some conclusions could be drawn about the use of timelines, pictures and stories as effective materials to enhance pupils' understanding of historical time. In the context of this study, based on these insights, Timewise, a teaching approach to improve pupils' understanding of historical time, is developed, implemented and evaluated. For the development and the implementation of such a new approach, professionalization of teachers is required. According to literature a professional development program (PDP) needs to address several components: changes in teachers' beliefs and attitudes, increased knowledge and skills, and changes in instructional behaviour which should result in improved learning outcomes. In addition, teachers should be supported with methods that will help them to implement a new approach in their classroom, such as prescriptions, strategies, insights, and a body of knowledge.

The central question of this dissertation was: “*How can pupils’ understanding of historical time in primary school be improved?*” This central question was investigated through 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 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?

These research questions were answered in chapters 2 to 6.

Chapter 2 reports on an analysis of the Dutch primary history curriculum regarding the understanding of historical time, compared to the English curriculum. One of the reasons for this comparison was that the teaching of history starts at the age of 5 in England, whereas the start of history lessons in the Netherlands is at the age of about 9. Based on the model of the curricular spider web the intended and the implemented primary curricula for history were analysed, drawing on curriculum documents, surveys and interviews with teachers, teacher trainers and curriculum experts. Important aspects of the understanding of historical time, such as the use of the vocabulary of time, the timeline, characteristics of historical periods and change and continuity, appeared to be represented in the objectives of the intended curricula of both countries. However, not all objectives were taught in the implemented curriculum. Although the history curriculum starts earlier in England, the episodic structure of the curriculum seems not very helpful to support pupils’ understanding of historical time. In the Netherlands the framework of ten eras is mostly taught chronologically. However, teachers reported that neither the sequence nor the dates of historical periods were taught explicitly. In both countries a majority of the teachers did not use timelines to teach pupils how to place events, people and changes in the correct historical period. Furthermore, teachers hardly engaged their pupils in identifying change and continuity within and between historical periods. Finally, pupils’ performances in the understanding of historical time are hardly assessed in primary schools in both countries. Apparently, the teaching and learning of historical time needs improvement and the chapter concludes with some suggestions to accomplish this.

Chapter 3 focuses on the development of the understanding of historical time of pupils in primary school. A developmental model was presented with three stages: *emergent*, *initial* and *continued* understanding of historical time, which describes pupils’ development according to the objectives on the understanding of historical time: apply the vocabulary of time, sequence historical phenomena and periods in chronological order, use the timeline to place historical phenomena in time, identify characteristics of historical periods, and identify change and continuity within and between historical periods. These objectives were described in increasing difficulty and abstraction. For instance pupils’ use of the vocabulary of time develops from broad time phrases, such as “long ago”, to the use of dates and names of eras. The identification of characteristics of eras develops from concrete characteristics, such as

transport or architecture to more abstract economic and political characteristic features. On the basis of this model an instrument, consisting of multiple choice questions on each of the three stages, was constructed to measure how pupils aged 6-12 perform. After a consultation with assessment experts, thinking-aloud interviews with pupils, and a pilot in one school, the test was taken by 1457 pupils of grades 3-8 (ages 6-12) in seven Dutch primary schools. The analysis of the data showed that the mean scores for correct answers increased through the grades and that pupils in higher grades significantly outperformed pupils in lower grades. There seemed to be room for improvement in all grades, especially in the lower grades (ages 6-9) in which pupils have had hardly any teaching on the understanding of historical time. However pupils in the higher grades (ages 10-12) could improve as well on the level of *continued* understanding of historical time, with regard to the understanding of the relation between dates and centuries, the placing of pictures of events and situations on the timeline, and the ability to compare historical phenomena within and across historical periods.

Chapter 4 reports a qualitative study that was carried out to get more insight into specific problems of pupils in their development of understanding of historical time. This study focuses on problems pupils encounter in their reasoning, when carrying out assignments on placing historical phenomena in time. The context is the Dutch curriculum with ten eras and characteristic features, which was implemented to support pupils in orientating themselves in time. Twenty-two pupils of grades 3 to 8 (ages 6-12) conducted assignments in which they had to place objects, situations, events and people in time. These assignments were based on the objectives on the understanding of historical time that were defined in chapter 3. Results confirmed problems that had been described in previous studies with regard to pupils' use of the vocabulary of time, the identification of characteristic features of historical eras, and problems related to present-orientated thinking in assignments on sequencing and comparing historical phenomena of different historical periods. However, next to these problems, other problems were identified in pupils' reasoning as well which appeared to be related to the Dutch curriculum with ten eras and characteristic features. These problems were related to the names and icons of the ten eras, which sometimes hindered pupils in their reasoning, whereas the curricular characteristic features appeared to be hardly known.

This study provides a coherent overview of types of problems, related to the objectives on the understanding of historical time, which arise in pupils' reasoning when situating historical phenomena in time. This overview provides more insight into pupils' development in the understanding of historical time, which is important for teachers and teacher trainers and can be helpful for the development of a teaching approach to improve pupils' understanding of historical time.

Chapter 5 focuses on the effects of a curriculum intervention with Timewise, a teaching approach developed to improve pupils' understanding of historical time. The main design principles of Timewise were that teachers should systematically pay attention to the objectives on the understanding of historical time and should engage their pupils in activities with timelines, stories and pictures. The study, in which 16 teachers from grade 4 (ages 7-8) and grade 7 (ages 10-11) participated, represents the first curriculum intervention on the understanding of historical time in primary schools in the Netherlands. In a quasi-experimental pre-/post-test design with the treatment group (n=396) and a control group (n=392) pupils' learning gains were tested with the instrument that was developed in chapter 3. Mixed-model linear analyses showed that both for grade 4 and grade 7 pupils in the experimental condition

(n=396) scored significantly higher on the post-test than pupils in the control condition (n=392), with a medium effect size. For grade 4 the significantly higher learning gains of the treatment group, who were taught with Timewise, confirm suggestions from previous research that the development of children's understanding of historical time can be stimulated by learning and instruction and can start earlier than the age of 9 or 10, as is usual in most countries. For grade 7 it could be concluded that systematic teaching according to the objectives of historical time, with a consistent use of timelines, resulted in higher learning outcomes on pupils' understanding of historical time than in the control group, in which teachers were teaching with textbooks and did not use timelines.

These positive results indicate that engaging pupils in learning activities based on the objectives of the understanding of historical time, with a consistent use of timelines, combined with pictures and stories as resources, leads to improvement of pupils' understanding of historical time, for younger as well as older pupils.

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 mixed-method design with questionnaires, logs, observations and interviews was used to explore how the teachers perceived the supportive methods provided by the PDP 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, related to pupils' learning outcomes. Results showed that teachers felt supported in the implementation of Timewise by clear prescriptions, by the instructional strategies and background knowledge, and by the attractive materials and resources. In questionnaires and interviews teachers reported changes in beliefs on teaching about the understanding of historical time, with regard to pupils being more able to learn about historical time than they would have expected. However, the belief that learning clock and calendar time is a prerequisite for the learning about historical time appeared to be rather persistent. Observations indicated that the highest learning gains were reached by the teachers with the highest results on the implementation of the instructional behaviour aimed at, which consisted of systematically paying attention to the five objectives on the understanding of historical time. In the questionnaire one year after the PDP all teachers reported that they still felt fully competent in their knowledge and skills in the teaching of historical time, particularly in the use of the classroom timeline. Practical and user-friendly materials and resources seemed to be important in particular to support teachers in the implementation of new pedagogical approaches in their classroom.

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

General conclusions

Based on our findings, several conclusions can be drawn with regard to answering the central research question of how pupils' understanding of historical time in primary school can be improved.

Firstly this dissertation resulted in an operationalization of the understanding of historical time in a set of five objectives and a developmental model that describes primary school pupils' development for the understanding of historical time on three stages. The measuring instrument that was developed on basis of the developmental model can be applied to gain insights into pupils' performance on the understanding of time. Measurements with pupils aged 6 to 12 indicated that these pupils developed their understanding of time in line with the stages described and that there seemed to be room for improvement. Furthermore, conclusions on pupils' development were drawn with regard to problems that arose in assignments on situating historical phenomena in time. These problems, which partly related to names and characteristics in the Dutch ten-era curriculum, were included in a coherent overview based on the findings and on literature with regard to pupils' reasoning with the vocabulary of time, characteristics of historical periods, and present-oriented thinking.

Secondly, pupils' understanding of historical time could be improved by Timewise, a teaching approach in which teachers engaged pupils in learning activities based on the objectives of the understanding of historical time, with a consistent use of timelines in combination with pictures and stories as resources. It could be concluded that the pupils of grade 4 (ages 7-8) and 7 (ages 10-11) who were taught with Timewise showed significantly higher learning gains than a control group.

Thirdly, conclusions could be drawn about effective components of the PDP for teachers, which consisted of the training and the intervention with Timewise. Particularly the supportive methods, which included a comprehensive instructional manual and attractive materials and resources, such as a classroom timeline and a storybook, appeared to be important factors for the success of Timewise. Furthermore, the PDP covered the full cycle of important components for a PDP to be effective, including important design factors, changes of attitudes and beliefs, gains in skills and knowledge, changes in instructional behaviour next to measurements of pupils' learning outcomes.

Discussion and directions for future research

The discussion paid attention to some limitations in this dissertation, such as the conceptualization of the understanding of historical time, which did not include time as a phenomenon, and in addition the measurement of the understanding of historical time, which predominantly measured historical knowledge through an instrument with a modest reliability. Future research might investigate how skills and attitudes on the understanding of historical time can be measured. Findings in this dissertation indicated that pupils' development in the understanding of historical time can be stimulated by teaching, which appeared to be successful at an early age. This seems to further refute the Piagetian stage theory that for a long time influenced curriculum developers and teachers to believe that the teaching of historical time cannot start before pupils are at least 9 years old. Nevertheless, more research would be needed into the question to what extent the development of the understanding of time within children is a process of maturation and/or learning and which factors inside and outside school influence this process. Furthermore, longitudinal research could give insights into how an early start of the teaching about historical time might positively influence pupils' understanding of historical time in higher grades of primary school and in secondary education.

The curriculum intervention with Timewise represented the first intervention study in the Dutch context that measured the effects of a teaching approach on improvement of pupils' understanding of historical time. Positive effects on pupil's learning outcomes were

found, but the limitation must be taken into account that only sixteen, mostly motivated teachers took part in the intervention. Furthermore, most teachers in grade 7 used Timewise in addition to regular textbook lessons, whereas teachers will usually not have that time available. More large-scale research would be needed, in other grades in primary school as well, to investigate how Timewise might be integrated into textbooks or how teaching history through Timewise might replace the textbook curriculum.

In addition, future research could explore the effects of co-operative tasks in which, for instance, all pupils use the vocabulary of time or work in groups on sequencing tasks with historical pictures and timelines, and the effects of ICT-applications with learning activities on tablets and smart phones or in a Virtual Reality environment. With regard to the PDP on Timewise a limitation might be that the PDP included neither coaching nor participation in whole school teams, which in literature are often mentioned as effective characteristic for PDPs. Future research could investigate the effects of a PDP on Timewise on a larger scale, with whole school teams and coaching sessions in the schools. In these sessions, for instance, the problems could be addressed that arose in the study about pupils' reasoning while situating historical phenomena in time, to which the PDP on Timewise paid only little attention.

Implications for practice

This dissertation yielded several practical tools that can be applied by teachers in primary school and by teacher trainers in initial and in-service training of (prospective) teachers:

- a model with objectives and stages on pupils' development in the understanding of historical time;
- an instrument to assess pupils' development in the understanding of historical time;
- an overview of types of problems that might arise in pupils' reasoning about historical time;
- Timewise, a teaching approach with materials and resources on a website;
- a professional development program (PDP) for teachers on the implementation of Timewise.

Teachers could apply these tools for the development, implementation and evaluation of lessons about the understanding of historical time in grades 3 to 8. For teacher trainers the tools could be useful in educating student teachers and for in-service training with school teams. Textbook editors might apply the insights of this study into developing textbooks and on-line materials, not only for grade 5-8, but also for grade 3 and 4. For educational policy makers a recommendation would be to evaluate the framework of the ten eras and the characteristic features, for which findings from this dissertation could be taken into account.

Finally, the conclusions and practical implications in the dissertation could contribute to professionalization of teachers and teacher trainers and inspire them to improve the understanding of historical time of pupils in primary school.