Questioning the past: student questioning and historical reasoning

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SUMMARY

Student-questioning can be regarded as a meaningful learning activity, also in the domain of history learning. Despite the growing body of research on the learning and teaching of history and the fact that several scholars consider questioning an important component of historical thinking and reasoning, there are not many empirical studies that have student questioning in history as a main focus. It is important to investigate how student questioning can be facilitated in history and, in order to define the ability in asking historical questions, describe the underlying processes of student questioning.

Chapter 1. The general aim of this dissertation, as described in Chapter 1, is to contribute to theories on history learning and teaching by investigating domain-specific aspects of questioning.

The focus is on the significance of student questioning for learning history and this research regards student questioning as an important learning activity. Research on student questioning mainly focuses on the effect of questioning on other variables (e.g., text understanding, learning content). We aim to investigate what (internal and external) factors trigger student questions, the type and number of questions formulated, how questions are formulated and what cognitive and affective processes underlie the formulation of questions. To connect to existing literature on student questioning we choose to study student questioning while and after reading a text. In our studies we work with texts that introduce a historical topic. Historical introductory texts are texts that introduce a topic in history by triggering text-based interest (Schiefele & Krapp, 1996). Interest and questions can be triggered by narrative and problematizing texts containing an unexpected element, incongruence, or an appeal to one’s imagination.

- The questions we address in this dissertation are;
- How can we define the ability to ask historical questions?
- What is the effect of the type of introductory text on students’ situational interest and the type and number of questions students generate?
- What type of questions do students ask spontaneously while reading a historical introductory text and in what kind of thinking processes do questions originate?
- What type of questions do students ask after reading a historical introductory text and to what extent are these questions embedded in historical reasoning?
- Which questions do students consider important and interesting?
This dissertation contains a chapter providing a theoretical framework (chapter 2), three reports of empirical studies (chapter 3, 4, and 5) and a discussion chapter (6).

Chapter 2 describes the theoretical framework of the studies. It discusses the conceptualization of questioning in history learning and the research on questioning in other domains in order to define the ability to ask historical questions. To construct this framework we reviewed empirical literature on historical reasoning and questioning, educational review studies on student questioning and research on the process of questioning. The chapter describes questioning as one of the components of historical reasoning and how important aspects such as prior knowledge and affect shape questioning processes.

From a domain-specific perspective, the ability to ask historical questions can be seen as being able to ask questions that are embedded in historical reasoning and aim at (further) understanding of historical phenomena (e.g., a historical situation, event or development). From this point of view a historical question is a product or a (potential) start of historical reasoning (see Van Drie & Van Boxtel, 2008; Schreiber et al, 2006). A historical question, for example, ‘Why did women and children work in factories?’, can guide the construction of an historical explanation. On the other hand, while constructing an historical explanation, a historical question such as ‘What was the difference between Germany and UK during the industrialization?’ may be the result of historical reasoning. Based upon literature on history learning we suggested that the ability to ask historical questions is shaped by knowledge about the type of questions one can ask, prior historical content knowledge, the ability to use historical meta-concepts and evidence, and the awareness that history is a (re)construction of answers to questions we formulate about the past. After reviewing the (rather limited amount of) empirical research on historical questioning (Ciardiello and Cicchelli, 1994; Neber, 1999) we concluded that authors agree on the importance of questioning and that there is still a need to describe this ability more explicit and connect it to learning processes.

From a cognitive perspective, the ability to ask a historical question can be seen as being able to ask a question out of an experience of a knowledge deficit or conflict, which can both be considered an experience of perplexity. This experience is ideally followed by the formulation of the question and an idea of an answer. In this way questioning can guide knowledge building and comprehension. In order to stimulate students to ask questions, students should be guided in these questioning processes through the following phases; 1) triggering perplexity, 2) formulating, and 3) having an idea of an answer (Dillon, 1988; Van der Meij, 1994). In educational practice it is still a challenge to create a learning environment that triggers and supports students to ask meaningful questions.

From an affective perspective, the ability to ask a historical question can be seen as being able to ask a historical question out of interest or emotion. Especially in the domain of history, literature showed that affective responses such as interest and emotions can influence cognitive processing of historical content (Barton & McCully, 2007) and could give rise to meaningful questions. Interest in a domain can be triggered by, for example, controversial issues or addressing important life-themes.
Emotive responses can reveal present-day thinking that needs to be addressed when students are reasoning about and questioning the past.

Summarizing, we defined the ability of asking historical questioning using a domain-specific, cognitive and affective perspective. We defined the ability to ask historical questions as ‘being able to ask questions that are embedded in historical reasoning. A historical question is a product or a (potential) start of historical reasoning (e.g., contextualization, causal reasoning, comparative reasoning, and argumentation) while trying to put into words a conflict or deficit in prior knowledge about historical constructs, phenomena or developments. Finally, a historical question can be embedded in affective processes such as interest or emotions that may drive further engagement in historical reasoning. In order to further underpin these conceptualizations we needed to study how questions are triggered, what different types of questions are formulated, and the underlying processes of questioning.

Chapter 3 reports the results of the first empirical study that investigated questions students ask related to an introductory text about a new topic in the history classroom. The effects of a narrative, problematizing and expository introductory text on the situational interest of students and the number and type of student-generated questions, were compared.

Participants were 174 students in higher secondary education (16 years old). After measuring prior knowledge about the Industrial Revolution and students’ interest in History students were assigned to groups reading one of the introductory texts and instructed to write down questions about the Industrial Revolution.

Student-generated questions ($f = 729, M = 4.2$) were categorized in 1) higher and lower-order questions, in 2) descriptive, explanatory, comparative and evaluative questions, and in 3) emotive and non-emotive questions. We used these categories independent from each other, for example, a higher-order question could be a describing question at the same time. The analysis showed that students in all groups were able to generate higher-order questions, which were mainly descriptive (64%) and explanatory (26%). Students generated a comparable amount of higher (47.5%) and lower-order (49.1%) questions. Questions that reflect emotions were generated, although these made up a relatively small portion of the total number of questions (13.2%).

The type of introductory text had a significant effect on the level of situational interest and type of questions, but not on the number of questions generated. Narrative and problematizing texts provoked more situational interest and more emotive questions than the expository text. Emotiveness and engagement appeared to be an important source of interest. Students who had more historical knowledge on the topic, who were more interested in history, and whose situational interest was more triggered, asked more questions.

Although emotiveness was an important source of interest, students formulated relatively few emotive questions. Apparently emotiveness did not always result in the formulation of questions. However, emotive questions could be questions students are most interested in and can be used by teachers to transform present-day and unschooled thinking into historical thinking. In cases where students asked
higher-order historical questions, for example, explanatory questions, we wondered whether they were the result of historical reasoning or students just were reproducing the kind of questions they had come across in their history lessons. We concluded that more research is needed into underlying processes of student questioning. We noticed that a question itself does not reveal much about the underlying processes that take place while reading a historical introductory text and formulating questions.

Chapter 4 describes the second empirical study that aimed at deeper insight into processes underlying student questions in history. A process study was carried out to investigate the characteristics of students’ thinking when reading a historical introductory text and asking spontaneous questions while reading. We characterized students’ thinking processes while reading in terms of the verbalization of historical reasoning, (a lack of) prior knowledge and affect.

An introductory text was composed that contains narrative and problematizing characteristics that we considered important for triggering situational interest (engagement and emotions such as indignation), cognitive conflict, and different types of questions. Thirty-three secondary school students were instructed to read the text and underline striking text segments. At the point of underlining, students were asked to verbalize their thoughts. Protocols of students verbalizing their thoughts about striking fragments in the text were divided into episodes. Each episode ($f = 251$) was analysed using a coding scheme in order to label each episode on the following four dimensions: 1) historical reasoning (contextualization, comparing, causal reasoning and argumentation), 2) prior knowledge (experiencing a deficit in, a contradiction or a correspondence with prior knowledge), 3) affective processes (indignation, interest, astonishment, empathy or boredom), and 4) spontaneously-asked question(s) (yes or no).

In half of the 251 analysed fragments (episodes) students verbalized historical reasoning, mainly contextualization. Also in half of the episodes students expressed affective thoughts. Associations (43%) were more frequently used to verbalize prior knowledge than a knowledge deficit (23%) or a knowledge conflict (8%). The most frequent combinations of processes were 1) historical reasoning, association without affect (16%), 2) historical reasoning, association with affect (14%), 3) no historical reasoning, no prior knowledge and affect (13%), and 4) no historical reasoning, knowledge deficit and no affect (10%).

Within the 251 episodes students spontaneously asked 97 content-related questions. Most content questions were descriptive ($f = 73, 57\%$) and were asked while reading the narrative text that dealt with working conditions. In 26 (23\%) of the 120 episodes with historical reasoning 44 (42\%) content questions were spontaneously asked. Historical reasoning appeared an important process in which questions are embedded. But in many cases historical reasoning did not result in or was started by a question.

Although the verbalization of a knowledge conflict occurred less than the verbalization of a knowledge deficit or associations related to the topic of the text, a knowledge conflict appeared to be a strong trigger and was verbalized in terms of a
question. Some of the questions were related to affective responses. For example the question ‘Why does she get a fine?’ or ‘Why did they have to work so hard?’ are questions showing indignation, responding to a situation described in the text. Thus, the results of this empirical study showed that, in addition to the experience of a knowledge deficit or conflict, which are considered important triggers of questions in the literature on student questioning, domain-specific reasoning and affect played a role in the generation of questions during reading of the historical introductory text. Although an experienced conflict between prior knowledge and the information in the text was not often verbalized, we think that expressions of indignation or astonishment about historical situations and events described in the text could also be regarded as conflict.

Chapter 5 reports the final and third study of this dissertation which draws on the second study and aims at deeper insight into students’ performance in asking historical questions after reading a historical introductory text. We were interested in the type and content of questions students formulated after reading, receiving the instruction to formulate questions that they would ask in a lesson that introduces the Industrial Revolution. From a curriculum perspective it is important to know to what extent students’ questions are embedded in historical reasoning and connected to important topics in the curriculum.

For this study we used the theoretical framework, sample, data collection method, introductory text and coding schemes from our second study. Audio recordings of 33 students formulating questions were transcribed. Students formulated 117 questions that were coded on content by using text themes and type (descriptive, explanatory, comparative, and evaluative). In order to describe the processes that underlie each student question we used protocols of students’ utterances before and during formulating a question and their answers to the prompt ‘are you able to give an answer to this question?’ All utterances while formulating a question and answering on the prompt were defined as a question episode.

We were especially interested in to what extent questions asked after the instruction to ask questions were connected to historical reasoning. We coded three dimensions of underlying processes: 1) historical reasoning (contextualization, comparing, causal reasoning and argumentation), 2) prior knowledge (experiencing a deficit in, a contradiction or a correspondence with prior knowledge), and 3) affective process (indignation, interest, astonishment, or empathy). After coding we described prior knowledge and affect that underlie 1) questions embedded in historical reasoning and 2) questions not embedded in historical reasoning.

Questions formulated by students were connected to working conditions, the industrialization process, and the narrative about Friedrich Engels. Questions about working conditions connected to significant curriculum issues; for example, the development of ‘the social question’ and the different political answers to this development. Furthermore, an important part of the questions dealt with general aspects about the Industrial Revolution era, revealing the knowledge deficits of students and the need to have more clarification about the context of industrialization, such as
duration, time, places, causes and important individuals and inventions. Most questions were descriptive (50%).

Almost 40% of the questions were embedded in historical reasoning, mainly contextualizing and causal reasoning. With regard to prior knowledge students explicitly expressed a knowledge deficit (31%), conflict (24%) or an association (29%). With regard to affect, half of the questions were embedded in an affective process, mainly interest and indignation.

Question episodes that contained historical reasoning showed that question generation was related to historical reasoning when students tried to build a historical context for an event or situation described in the text, when they used prior knowledge to think of possible explanations or when they approached a historical interpretation critically. These question episodes contained questions as ‘Was life really as grey as described in the text?’ or ‘What actually started the Industrial Revolution?’ Students also showed uncertainty about the quality of their historical question, showing the awareness that in history a certain type of question is formulated.

From a student perspective it is important to consider how student questions originate and what they consider interesting and important questions. After students had formulated their questions they were asked to indicate their most important and interesting question.

For important questions, an ‘overarching question’ was the most given motive. Half of the questions were selected as important questions for reasons that reflect a curriculum perspective (e.g., important topics and historical questions that can be used in history lessons), and about half of the questions chosen as most important reflected more personal experiences or interests such as a knowledge deficit, affect or interest in actuality. Motives for regarding a question as interesting were personal interest (57%) or because of actuality (13%) or a need for better understanding (13%).

Chapter 6 firstly summarizes the most salient findings of this dissertation by taking all three empirical studies together, as described above. Secondly this chapter discusses the main themes of this dissertation: 1) historical questions as a component of historical reasoning, 2) prior knowledge related to student questioning, and 3) affective aspects of student questioning. For each theme the findings of the three studies are compared and future questions for research on student questioning are formulated.

With regard to the first theme (historical reasoning) we concluded that the type of historical questions students ask are mainly embedded in an attempt to contextualize. e.g., trying to construct a historical context for the situation or event described in the text. We think this is important, because contextualizing is seen as a foundation for further historical reasoning. Secondly, based on our categorization of questions in the first study we assumed that not only higher-order questions can be valuable for historical reasoning. Lower order questions can be embedded in historical contextualization, an important component of domain-specific reasoning. Thus, we think this distinction between higher and lower-order questions should be supplemented with more domain-specific categories.
With regard to the second theme (prior knowledge) we remarked that students with more prior knowledge may ask more questions because they compare new information with what they already know or use their knowledge to contextualize. However, while reading, spontaneously formulated questions where mainly connected to a knowledge deficit and appeared in episodes without much verbalization of prior knowledge. This could mean that students with prior knowledge do not use this knowledge to formulate questions while reading and only verbalize prior knowledge in the form of associations. Thus, explicitly giving students the opportunity to ask their own questions can support students in verbalizing their experience of a knowledge deficit, conflict or prior knowledge. Further research could focus on the effect of different reading goals (understanding, criticizing, problem solving) before reading the text and exploring differences and communalities in the ability to ask historical questions between students with different levels of prior knowledge.

With regard to the final theme (affect) we found that a higher situational interest resulted in more questions. In addition, emotiveness and engagement were an important source of situational interest. Thus, triggering interest with a narrative or problematizing introductory text containing general life themes and moral issues can be a strategy which could be adopted to stimulate students to formulate their own questions. Studying underlying processes while reading revealed that in half of the cases where students stopped reading they verbalized affect (indignation, interest, astonishment, empathy and boredom). This supports our idea that the disequilibrium students experience, and which is often considered an important trigger for questions, is not only cognitive, but also affective. The third study confirmed our finding that half of the questions were embedded in affect. Students could become more aware of the idea that you can ask historical questions (initially) triggered by affect. Emotions such as interest, indignation and empathy play an important part in motivating one’s self for a topic in history and asking questions that you consider to be interesting.

Finally, we conclude the final chapter by recommending teachers to support students in being explicit about their thoughts regarding the content they read or listen to in history classrooms and use a similar procedure as we have done in the second and third study in order to support student with formulating their own questions. Teachers could help students with formulating meaningful questions based on historical reasoning, a need for information, a cognitive conflict or affective reactions. By doing this, history teachers could realize a classroom atmosphere in which each student question can be meaningful and students are supported in developing their ability to ask historical questions. Student questioning can be meaningful for history education, provided that teachers know how to trigger questions and are aware of the underlying processes of a question.