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The Epistemic Dimension of Competence in the Social Sciences

To investigate competence in the social sciences, we propose to define competence as a particular configuration of the learner's cognition, strategic repertoire, motivation, and orientation toward knowing. Specifically, we focus on epistemic beliefs and on the changes that a view of knowing as a complex, effortful, generative, evidence-seeking, and reflective enterprise entails. In this context, we discuss how familiarity with the processes used to justify knowledge claims within specific disciplinary communities can provide useful tools to develop the kind of adaptive and consistent thinking that characterize competence in different domains and how this focus may aid the identification of characteristics common across domains. We use our empirical exploration of adolescents' development of competence in the domain of history to illustrate the implications of this theoretical framework, to highlight the relations between domain-specific epistemic beliefs and kind of understanding that students built as a result of reading multiple texts, and to suggest what pedagogical practices may have influenced students' orientations toward knowing in these three history classes.

Keywords:
competence, higher-order thinking, epistemic belief, historical thinking

Give a man a fish and you feed him for a day.
Teach him how to fish and you feed him for a lifetime.
(Chinese Proverb)

1. What is Competence?

Where does one begin the search for competence and core concepts for teaching and learning in the social sciences? As travelers need to know their destination in order to decide how to prepare for the journey, we believe that a specification of what we mean by competence and why we believe it is a worthy educational goal is a necessary step in framing the rest of this contribution and in providing a justification for our focus on the epistemic dimension of competence.

While all the social sciences have the social reality as their object of study, each of them directs its investigations at one of its many dimensions (e.g., economic or sociological) and thus uses methods that specifically facilitate that distinct line of inquiry. As such, competence in the social sciences embraces a broad range of *competences*, both in terms of contents and methods of inquiry. In the United States school systems, such a range is further broadened by the tradition of clustering under the umbrella of social studies disciplines as diverse as history, economics, political science, geography, sociology, anthropology, and psychology, usually brought together by the common purpose of fostering the development of a democratic, well-informed citizenry and promoting literacy and civic responsibility (Martorella 2001, 14-16; National Council for the Social Studies 1994). Thus, the task of identifying a set of concepts, information, and procedures whose mastery would define competence in this diversified domain is very challenging. More importantly, we believe that such list would fall short of identifying the salient traits of competent individuals and the components of educational programs able to

foster the kind of critical literacy necessary to gain an understanding of the social world with all its complexities. Rather, we propose to define competence as a particular configuration of the learner's cognition, strategic repertoire, and motivation (Alexander 1997). Moreover, we focus on the epistemic dimension of competence; that is, on the set of beliefs, concepts, and attitudes that individuals entertain about the process of knowing and the nature of knowledge in general and in respect to a specific domain of study.

This focus is supported by educational psychological research, which strongly suggests that epistemic beliefs influence key components of the learning process, such as comprehension, understanding of multiple texts, strategic processing, interpretation of controversial issues, and evaluation of arguments (Bråten 2008; Bråten, Strømsø 2006; Davis 2003; Hofer 2004; Kardash, Howell 2000; Muis 2007; Ryan 1984, Schommer 1990; Stanovich, West 1997). It is also supported by research addressing the development of expertise in specific domains, which has identified the influence that ideas about how knowledge is generated in that particular domain, and thus about its justifications and limits, have on learning (Elby 2001; Lee 2004; Wineburg 2001a).

2. What Does Competence Look Like?

More specifically, competent learners have consolidated their subject-matter knowledge around domain-defining principles and concepts. For example, in history such principles include chronology, identification of continuity and change, and individuation of relations of cause and effect among events (Lévesque 2009). Competent learners have overcome the fragmentation that tends to characterize domain knowledge in novices and have, thus, become increasingly able to broaden their knowledge base by integrating new information and insights in a cohesive and more coherent structure. For example, competent history learners can situate knowledge about specific events of the past within a broader timeframe, orga-

nized around colligatory, superordinate concepts (Lee 2004)—concepts that identify general trends and series of changes and reflect the directions that prior inquiries into the past have taken (e.g., the Renaissance, the Enlightenment, the Cold War). Having had multiple exposures to domain-specific problems and tasks, competent learners have also developed a varied strategic repertoire, and the flexibility necessary to employ those cognitive tools that will best serve in the specific circumstance. At the same time, the strategies and ways of thinking typical of the domain have become more familiar and their enactment has come to require less cognitive effort, providing space for increasing the complexity of the factors considered at any given time. For example, in history, competent learners are familiar with the analysis of primary and secondary sources and with the use of heuristics such as sourcing and corroboration.

Such cognitive and strategic development will result in better learning outcomes if the goals set by individual learners (and fostered by the educational context) promote knowledge-seeking in that domain, which both builds upon and builds up personal interest in that particular field. This motivational support is fundamental for sustaining the restructuring required to develop the kind of knowledge characterizing competent learners. In fact, such restructuring can be radical, including the need to address the entrenched misconceptions easily developed during the period of acclimation in a domain. For example, in history such restructuring might entail the common misconception that history and the past coincide and thus the tendency to conceptualize colligatory concepts such as the Renaissance as facts, stripped of their historiographical context and the controversy and debate surrounding them. Such restructuring is not easily achieved and often comes at the expense of considerable mental effort and with much cognitive discomfort.

3. The Epistemic Underpinnings of Competence

As signaled in the introduction and suggested by the examples, we want in particular to focus on changes regarding learners' domain-specific epistemic beliefs, because we view competence as characterized by the capacity for and engagement in higher-order knowledge restructuring. This requires the capacity and tendency to reflect about the nature of and the warrants for knowledge formed about a specific object (e.g. a specific aspect of the social world), and to critically evaluate the available information and the understandings gained so far about a specific issue. For example, in reading a text about the development of the arts during the XV century, a competent history learner will recognize that a statement such as "Leonardo da Vinci was born in 1452" requires dif-

ferent justifications than the statement "The Renaissance was born in the XIV century." The information conveyed by the former statement could have been easily known by Leonardo's contemporaries and its trustworthiness requires a verification of facts. Conversely, the concept of Renaissance did not exist in the XIV century, but was introduced by later historians to identify certain sets of changes which took place in Europe. Hence, the trustworthiness of the latter statement requires an evaluation of arguments. In other words, competence entails what elsewhere we defined as higher-order thinking; that is, "the mental engagement with ideas, objects, and situations in an analogical, elaborative, inductive, deductive, and otherwise transformational manner that is indicative of an orientation toward knowing as a complex, effortful, generative, evidence-seeking, and reflective enterprise" (Alexander et al. in press, 11).

This definition applies to competence across every domain, but the specific instantiation of knowledge in a specific domain is shaped by the characteristics of its focus. In this respect, familiarity with the processes used to justify knowledge claims within disciplinary communities can be very helpful in suggesting what strategies can better facilitate the development of reliable knowledge in a specific situation. Thus, while the view of competence that we propose provides a general framework for thinking about the factors that characterize competence across all the social sciences, it leaves the specifications of the characteristics of such thinking to the specific domains, in which learners' characteristics and the characteristics of what is to be known are brought together in the generation of knowledge. For example, the competent history reader pondering on the beginning of the Renaissance has developed an understanding of the processes used by historians to select, analyze, interrogate, corroborate, and evaluate a variety of sources to build historical arguments grounded in evidence.

It is precisely because we see knowledge as the relation between a knower and an object of knowledge that we find it theoretically indefensible to pit conceptual knowledge against procedural or strategic knowledge, or to strip conceptual knowledge of its epistemic underpinnings. How could one gain an understanding of a particular aspect of the social reality without, at the same time, being aware of the methods that make that goal reasonable? In our view, it would be like trying to reach a destination without traveling the path that leads to it. Although this approach may sound enticing because it is seemingly effortless and efficient, it has a major drawback, in that it impedes the exercise of critical judgment and thus never affords learners the opportunity to grow in competence or take charge of their journey. Failure to develop such competence implies much more than missing the opportunity to develop mini-social scientists. Moreover,

although we focus here on the development of competence in individual learners, this journey does not happen in a social vacuum. Rather, it takes place within a disciplinary context, where standards of justifications for knowledge claims inform the communal discourse. Familiarity with the warrants that make assertions more or less acceptable within the disciplinary community is a key factor for a critical understanding of such discourse, and can open up to learners the possibility of becoming, if they so wish, active participants instead of passive spectators in such a community.

For these reasons, we suggested that competence in a domain "should be marked by adaptive and consistent (...) thinking" and "by performance that is principled in its focus and disciplined in its processing" (Alexander et al. 2010, 26). In our work, we used the linking of competence with higher-order thinking to map the different dimensions of learning for competence in regard to reading, history, and science and found the result fruitful for understanding domain-general and domain-specific aspects of competence (Alexander et al. in press). We believe that a similar approach can be used by social science educators to identify the traits of competence within each disciplinary area and to identify characteristics common across all the domains.

4. The Framework at Work: Studying the Development of Competence in the History Classroom

Up until now we have been talking about competence in its relation with the development of knowledge and, in particular, we have considered the epistemic dimension of competence and its role in knowledge development. In the rest of this article, we discuss our empirical exploration of the development of competence in the domain of history, by studying adolescents' history-specific epistemic beliefs and their performance in building historical understanding by reading multiple texts. Features and results of this work have been extensively reported elsewhere (Maggioni 2010; Maggioni, Alexander, Rikers 2009; Maggioni, Fox, Alexander 2009, 2010). Here, we provide a brief overview of this work and focus on the implications of these studies for the identification of classroom and curriculum factors that may foster or hinder the development of competence in history.

Prior research has identified several traits characterizing how experts think historically (e.g. Wineburg 2001b). For example, historians differed from other participants (e.g. students and teachers) in their conceptualization of text, which they immediately perceived as an utterance of an author. Thus, in reading historical documents, they were always mindful of the author's purposes and used various heuristics (e.g., corroboration, sourcing, contextualization) to build understanding out of the sources at their disposal,

overcoming, in the process, difficulties due to their initial lack of prior knowledge about a specific topic (Wineburg 2001c). On the other hand, high-school students and K-12 teachers discounted the presence of an author and analyzed the texts to extract nuggets of information (Paxton 2002; Wineburg 2001a). Although they employed a variety of cognitive and metacognitive strategies (e.g. backtracking, summarizing, and connecting to prior knowledge), the understanding these students and teachers were able to build from text remained limited.

Research has also traced the development of concepts that are key components of competence in history (e.g. evidence, historical account, cause, empathy, and context) across elementary and middle-school students (Lee, Ashby 2000; Lee, Dickinson, Ashby 1997; Lee, Shemilt 2003; VanSledright 2002). These concepts are closely related to views about the nature and justification of historical knowledge; that is, they have a strong epistemic overtone. Consider, for example, the concept of historical account; those who view history as a copy of the past tend to conceptualize historical accounts (i.e. written or oral narratives about past events) as chronicles that report "what happened." On the other hand, those who view history as resulting from the interaction between a historian's question and the remnants of the past tend to conceptualize historical accounts as interpretive narratives based on what the historian selected as relevant evidence.

These bodies of work provide a very useful framework to analyze the development of students' competence in history because they identify and describe essential components of principled knowledge that mark competence in this domain. They also suggest that competence in history implies specific epistemic beliefs. Yet, in these prior studies, epistemic beliefs have mainly been inferred from individuals' performance on tasks that required building historical understanding out of the analysis of multiple sources (e.g. Wineburg 2001a). On the other hand, studies explicitly assessing students' epistemic beliefs have used domain-general questionnaires (e.g. Bråten, Strømsø 2006) not directly assessing beliefs especially critical in the history domain (e.g. beliefs about the nature of historical evidence and historical accounts). For this reason, we decided to use two different measures to assess students' capacity to think historically when asked to build meaning out of the reading of multiple texts and their history-specific epistemic beliefs.

4.1 Methods

Specifically, we designed three class-level case studies involving two junior (11th grade) Honors US History classes and one freshman (9th grade) class comprising students identified as challenged readers by their middle school teachers. In each class, we selected four students representing a variety of motivational and

academic profiles to act as informants. We collected data from the students twice, first at the beginning and then at the end of the second quarter of their fall semester. We asked them to complete a performance task: thinking aloud while pursuing an answer to a historical question about a particular event by reading a set of 6 texts regarding that event. To avoid practice effects on the performance task, we assembled two sets of different texts, as parallel as possible in terms of length, difficulty, and construction of argument.

We probed students' history-specific epistemic beliefs in a structured interview following the performance task, asking them to express and justify their degree of agreement or disagreement with a set of statements designed to mirror three different epistemic stances derived from the literature. The first position focuses only on the object of knowledge and views history as authorless and isomorphic to the past. The second focuses only on the knower and mirrors a fundamentally subjective view of history. The third views history as resulting from the interaction between historians' questions and the archive and thus reflects awareness of the criteria that facilitate understanding of the past. In addition, we conducted several class observations and interviewed the teachers of these students, asking them to complete one of the performance tasks and to respond to the same set of epistemic statements.

4.2 Results: Epistemic Beliefs and Historical Understanding

Our findings suggest that students' epistemic ideas about history aligned with the kind of understanding they were able to build while reading multiple texts. Although this group of students expressed a broad range of epistemic ideas, a common trend across all the interviews was that the history-specific epistemic beliefs voiced by individual participants could hardly be characterized as a well-integrated system. Rather, students tended to shift very quickly (often within the same utterance) from an idea of history as a copy of the past to the belief that history is merely an unjustified (and unjustifiable) opinion. Although sometimes aware of the inconsistency of such position, they were unable to overcome it. For example, in evaluating whether she believed that history was simply a matter of interpretation, Monica said: "I don't know, some of it is interpretation, but a lot of it is facts, I don't know." This cognitive impasse was even more poignantly expressed by Jack, while he was considering the justifiability of historical claims: "I somewhat disagree with this, because historical claims [silence]. I somewhat agree with this because historical claims is pretty much interpretation by historians [silence] ah, I don't know."

Similarly, during the performance task, students took the texts for the most part at face value, treating them as conveyors of information, a behavior that we found in line with the idea of history as the copy of the past, a past that records itself in documents and artifacts. In so doing, students tended to conceive the texts as authorless, behaving as if meaning could be extracted independently from any consideration of the author. They tended to select snippets of information from the different texts, dismissing conflicting elements. They also wove into their responses additional and often inappropriate components coming from prior understandings, guesses, beliefs, and misconceptions, as long as those additional elements fit well in a story that appeared plausible in their eyes, a behavior that correlates well with the idea of history as unjustified opinion.

This approach was clearly described by Monica, who explained how she built her argument in this way: "I based on prior knowledge (...) I came up with an argument and then went into the readings for things to support the argument and I picked up other information to add to what I was saying." Students also tended to equate perspective to bias, and to believe that, ideally, historical knowledge should bypass the historical witness to get as directly as possible to the "facts," or, if not feasible, to discriminate "biased" from "unbiased" witnesses and consider only the latter. Overall, they tended to simplify the meaning-making process, reducing it to a matter of counting up how many texts supported each "side" of the issue addressed by the question.

We found that students' conceptualization of the task was heavily influenced by the instructional context of the history classroom, where their teachers mainly used primary sources for fostering interest, personal connections, and more generally, to convey a sense of the "reality" of history. Thus, several class activities and tasks asked students to use primary and secondary sources (indiscriminately) to extract or rehearse information, with a focus on fostering the acquisition of various strategies to gather, connect, and elaborate information from texts.

Although teachers sometimes asked students to analyze a particular text, identifying its author, audience, and point of view, the role that these analyses could have played in the process of building historical knowledge was not made explicit, with the consequence that students concluded that information about the source and the author of texts was "just redundant" (Elizabeth). At best, students looked at the references to answer ad hoc questions, as Jack aptly described: "I don't read the author, I kind of sort of glance at it, so I can pretty much absorb information, pretty much. I don't really use the author, as long as it is not in a response or anything." Rather, the overwhelming preponderance of class discourse implied a view of texts as conveyors of information, with some attention paid to the possibility that sources could at

times be biased and thus useless, a view repeatedly reinforced by the assignments that students completed, by the use of primary sources during lectures, and by the kind of historical knowledge assessed by quizzes, tests, and exams. As one student, Mark, put it: "[T]here is really never an emphasis placed on checking your sources, because in high school there is a textbook. Obviously, I mean, once in a while you run across a teacher that says maybe the textbook is wrong, but that's still a maybe, so…"

In addition, when teachers asked students to consider multiple perspectives in regard to a specific historical issue, they mainly aimed at fostering students' capacity to take a side (more or less arbitrarily) and argue for their choice by providing factual support. These tasks might have prompted students' analysis and elaboration of the texts and thus facilitated retention of information. Yet, they also introduced the false perception that there are always and only two sides of every issue, together with the idea that claims and evidence that do not serve one's argument are to be explained away or ignored. We found this approach compatible with the epistemic beliefs emerging during the structured interviews and students' behavior on the performance tasks. On one hand, it highlights the need to ground one's claims in evidence, while on the other hand, personal opinions decide which evidence should be picked, and which discarded.

5. Implications: The Epistemic Dimension of Competence

While the epistemic beliefs that emerged during the interviews and the way in which students approached the performance task were in many respects lacking the marks of domain competence as we have defined it, considered from the perspective of the school context, these students showed themselves to be able to use the tools and the processes provided in the classrooms to reach the goals set by the school system. For example, when using multiple texts in class to address specific questions, Eric said that he found it very hard to justify his argument, because he did not "know exactly why" he chose a specific side. Yet, including a few examples from the texts usually got him "a pretty good grade," since he was able to support his position with evidence from the texts. This standard of justification, which made Eric successful in the eyes of his teacher, provides much weaker warrants for historical knowledge that the criteria used in the disciplinary community, where providing support for one's interpretation is only part of the justification process. Conflicting evidence or alternative arguments also need to be weighed and addressed, with the consequence that the past can be better understood in its nuances, richness, and contradictions. Using pieces of disciplinary heuristics (such as citing evidence in history) without understanding how

their power comes from their grounding in the entire process of building knowledge in the discipline reduces them to arbitrary and therefore meaningless formalities.

It is exactly for this reason that we suggest that the definition of competence is crucial for identifying the key elements of the educational trajectory in the social sciences. In particular, we suggest that epistemic beliefs play a very special role in shaping the kind of knowledge that will spring from the relation between the learner and the object of knowing typical of a domain. Only when conceived within this broader horizon do heuristics, core competences, and core concepts become useful tools that facilitate understanding of any kind of reality, be it physical, historical, social, political, or economic. Without such breadth, they easily become mechanical skills and sterile bits of information that can hinder the journey toward competence and understanding.

Chris offered a clear illustration of this. During the semester, he became increasingly aware that different historians may present different sides of the same event. He was also aware of the change that he was undergoing and, during the interview, he commented that he used to think that "facts were facts" but now he believed that "it's on who writes it, it's their interpretation of how history was seen." Yet, Chris's criteria for building historical understanding remained very limited, and thus, once he abandoned the idea that knowledge is independent from a knower (i.e. facts are facts) he found himself on an epistemic slippery slope. Although interpretation had become an undeniable factor in the generation of historical knowledge, his conceptualization of it was still too fuzzy and detached from evidence to address the need for justification. Thus he concluded that "you read all the documents and then you believe what you want to believe," an approach that would have probably served him well on most of his classroom assignments but that might also convince him that human knowledge is too weak to attain any truth about the past and so, why bother?

It is precisely in this respect that we believe that the social sciences could play a distinct role in the curriculum, provided that they do not reduce competence to a discrete, decontextualized set of strategies and notions, but address it in all its entwined cognitive, strategic, motivational, and epistemic dimensions. The different questions they ask about the social reality and the diversity and ingenuity of their processes of inquiry could offer a precious example of how human knowledge is at the same time limited and possible. Limited, because no single social science or the sum of them all can exhaust the mystery of human beings, but also possible, because each science can contribute to shedding light on some aspect of social life. Engaging students in the exploration of the

multifarious aspects of social life will then not only fulfill their present need to understand such a key, and profoundly human aspect of the world in which they live, but also equip them with those cognitive and affective tools that enable them to participate fully in the reality they study.

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