



Authenticity work in higher education learning environments: a double-edged sword?

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Accepted: 17 August 2021 / Published online: 28 August 2021
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Abstract

Educational authenticity occupies a strong position in higher education research and reform, building on the assumption that correspondence between higher education learning environments and professional settings is a driver of student engagement and transfer of knowledge beyond academia. In this paper, we draw attention to an overlooked aspect of authenticity, namely the rhetorical work teachers engage in to establish their learning environments as authentic and pedagogically appropriate. We use the term “authenticity work” to denote such rhetorical work. Drawing on ethnography and critical discourse analysis, we describe how two teachers engaged in authenticity work through renegotiating professional and educational discourse in their project-based engineering course. This ideological project was facilitated by three discursive strategies: (1) deficitization of students and academia, (2) naturalization of industry practices, and (3) polarization of the state of affairs in academia and in industry. Our findings suggest that authenticity work is a double-edged sword: While authenticity work may serve to bolster the legitimacy that is ascribed to learning environments, it may also close down opportunities for students to develop critical thinking about their profession and their education. Based on these findings, we discuss implications for teaching and propose a nascent research agenda for authenticity work in higher education learning environments.

Keywords Authentic learning · Authenticity work · Engineering education · Ethnography · Critical discourse analysis · Critical thinking

Introduction

Authenticity has become a ubiquitous concept in discussions about higher education pedagogy and reform. The terms *educational authenticity* and, more commonly, *authentic learning* are

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frequently used to criticize and move away from “decontextualized” forms of teaching in higher education (Andersson and Andersson 2005; Lüddecke 2016). The criticism leveled at decontextualized teaching is rooted in the observation that students often fail to see relevance in what they are learning and fail to transfer knowledge to “real-world” settings (Barab and Duffy 2012; Perkins and Salomon 2012). Educational authenticity is understood as a solution to such problems.

The term “authenticity” is usually taken to mean correspondence or connection between *learning environments* in academia and professional environments beyond academia (Shaffer and Resnick 1999; Strobel et al. 2013). The basic assumption is that student engagement, professional identity development, and knowledge transfer are all better supported by learning environments that reflect “how knowledge is produced and communicated in professional settings” (Wald and Harland 2017, p. 753). As such, arguments concerning educational authenticity are particularly salient in discussions of pedagogy in higher education programs aimed at specific professions (Bialystok 2017). Authenticity is sometimes alternatively conceptualized in line with educational philosophy and used to discuss properties and experiences of students and teachers as well as their ways of being in the world (Kreber and Klampfleitner 2013; Ramezanzadeh et al. 2017). However, this paper is concerned specifically with the “correspondence view” of authenticity (Splitter 2009), which focuses on the qualities of learning environments and objects thereof.

A perusal of the extensive literature that has developed around this topic reveals two dominant theoretical perspectives on educational authenticity. A large number of studies see authenticity primarily as an *objective* property of learning environments. These studies focus on how learning environments are designed in order to achieve a high degree of correspondence or connection to “real” professional practice (Jonassen et al. 2006; Newmann et al. 1996; Wedelin and Adawi 2015) and the impact of such learning environments on student learning (Chen et al. 2015; Hursen 2016; Radović et al. 2020). These design efforts often center on how tasks, assessment, and physical as well as social contexts may be designed to reflect the conditions of professional settings (Gulikers et al. 2004; Strobel et al. 2013).

In stark contrast to such a theoretical perspective, other studies see authenticity primarily as a *subjective* property of learning environments. These studies focus on how teachers and students *perceive* learning environments that are designed to be authentic (Gulikers et al. 2008; Nicaise et al. 2000; Wallin et al. 2017; Weninger 2018). There are two main points of departure in these studies. First, teachers and students do not necessarily agree on what may be considered authentic, since “teachers are likely to have a different idea of what professional practice looks like than students do” (Gulikers et al. 2008, p. 408). Second, teachers and students do not necessarily agree on whether it is pedagogically appropriate to model learning environments on professional practice, as students may perceive this as “non-academic, non-rigorous, time wasting and unnecessary to efficient learning” (Herrington et al. 2003, p.61). Therefore, from this perspective, the key to reaping the benefits of authenticity is that students perceive learning environments as both authentic and pedagogically appropriate (McCune 2009; Roach et al. 2018; Stein et al. 2004) or at least “suspend” their disbelief (Herrington et al. 2003). Otherwise, they will not participate wholeheartedly.

Recognizing such potential disagreements between teachers and students, various scholars have called on teachers to win students over and bolster the legitimacy of their learning environments through persuasion. We will use the term *authenticity work* (Peterson 2005) to refer to such projects, where “work” denotes continuous efforts made by actors to establish certain social facts about themselves or about the world (cf. identity work; Barton et al. 2013).

In our usage, authenticity work encompasses the rhetorical work teachers engage in to establish their learning environments as authentic and pedagogically appropriate. Petraglia (1998) places importance on authenticity work when asserting that “we need to *convince* learners of a problem’s authenticity” (p. 53). Similarly, Woolf and Quinn (2009) point towards the need for authenticity work when arguing that “instructors adopting this approach need to stress that one purpose of the course is to experience the ill-structure and ambiguity of the professional practice” (p. 40). Yet, despite such encouragement and despite calls for studies that “examine the impact of various factors contributing to students’ perceptions of value and impact of different learning experiences” (Sutherland and Markauskaite 2012, p. 762), we could not find any studies directly examining teachers’ authenticity work in a higher education setting¹.

With this paper, we aim to address the empirical void surrounding authenticity work in higher education. The paper rests on two theoretical assumptions, which shaped our research questions and design. First, in contrast to most previous studies on educational authenticity, we take our theoretical point of departure in the view that authenticity is a *socially constructed* property of learning environments rather than objective or subjective (Barab et al. 2000; Hung and Chen 2007; Wald and Harland 2017). That is, authenticity is attributed to learning environments in and through social interaction. Second, while authenticity is a term with strong positive overtones in education, we recognize that authenticity “allude[s] to inherent and implicit ideas of power, realness, authority and, ultimately, of superiority” (Wald and Harland 2017, p. 752). Thus, we argue that even though authenticity work is undertaken with good intentions, it can have unintended consequences. Importantly, constructing certain practices as authentic may discourage critical scrutiny and may also come at the expense of other practices that are simultaneously constructed as inauthentic (Dishon 2020). This observation sparked our interest in exploring authenticity work from a *critical perspective*, drawing on the notions of *discourse* and *ideology* (Fairclough 1992).

We situated our study in the context of engineering education, because authenticity is a prominent concept in discussions of engineering education pedagogy and reform (Strobel et al. 2013) and since we, working at a technical university, have a particular interest in researching and developing engineering education. Further, we focus our study on a project-based learning environment because project-based learning is strongly associated with authenticity (Blumenfeld et al. 1991; Prince and Felder 2007). We use a methodological blend of ethnography and critical discourse analysis (Krzyżanowski 2011), developing a “thick description” (Geertz 1973) of the authenticity work a pair of teachers engage in—as the central

¹ Because the term “authenticity work” is an import from management studies, it did not aid us in search for previous educational research. Instead, we searched Scopus and Web of Science for articles in which title, abstract, or keywords included both one term indicating a focus on authenticity (authentic learning, authentic pedagogy, authentic assessment, authentic instruction, educational authenticity, authenticity in education, authentic education, authentic task, authentic problem, authentic context, authentic science) and one term indicating a focus on teachers’ influence on learners (influenc*, persua*, convinc*, negotiat*, rhetor*, discour*). The search was conducted 9 February 2021 and yielded 309 results in Scopus and 223 results in Web of Science. We screened the titles, read abstract of papers with relevant titles, and finally read full papers if the abstract was relevant. Because we only found *one* study directly examining teachers’ authenticity work, done in a secondary school setting (Hsu and Roth 2009), we also conducted backwards and forwards citation searches for central references emphasizing the need for teachers to engage in authenticity work (Petraglia 1998; Nicaise et al. 2000; Herrington et al. 2003; Gulikers et al. 2008; Hsu and Roth 2009; Woolf and Quinn 2009) but did not identify any additional relevant articles.

plank—in reforming their project-based course on software engineering. In our analysis, we seek to address the following research questions:

- (1). What *discursive strategies* do the two teachers draw on to establish their learning environment as authentic and pedagogically appropriate?
- (2). What are the *ideological consequences* of their authenticity work?

We believe that this analysis can inform authenticity work in other disciplinary settings and in learning environments that are not project-based. But perhaps more importantly, insights from employing a critical perspective can “kick back” at taken-for-granted assumptions (Alvesson and Kärreman 2011) and invite both teachers and researchers to reconsider the status of educational authenticity as a key concept in higher education research and reform.

Methodology and methods

The present study draws on two qualitative research traditions—ethnography and critical discourse analysis—to explore authenticity work in higher education learning environments. Broadly stated, ethnographers are interested in gaining an in-depth understanding of what is “going on” in specific social settings—in terms of social interactions, behaviors, and norms—by observing and interacting with people in these settings over longer periods of time (Delamont 2012). By using observations in tandem with interviews, ethnographers are able to move beyond a sole focus on perceptions to reveal “social practices which are normally ‘hidden’ from the public gaze” (Reeves et al. 2013, p. 1365). Discourse analysts, on the other hand, are interested in elucidating how these social practices constitute and transform the social world, analyzing practices in terms of *discourse*—that is, patterned language use in a social setting (Gee 2014). A fundamental starting point for all discourse analysis is that discourse serves a number of functions beyond merely transmitting information. Through discourse, subjects and objects are constructed, represented, connected, and given meaning as well as relative status (Gee 2014).

Within the broad theoretical tradition of discourse analysis, *critical* discourse analysis attends specifically to *ideological* processes in discourse (Fairclough 1992; Gee 2014). An important unit of analysis in such work is the local *order of discourse*—that is, the configuration of discourses drawn on in a certain social sphere—and its continuous renegotiation (Fairclough 1992). Local orders of discourse often contain several competing discourses struggling for the same terrain, each contributing to the establishment of competing ways of understanding and organizing social activity (e.g., market-oriented and social justice-oriented discourses of academia). When certain discourses achieve a dominant status, this implies that certain ideological relations become established (Chouliaraki and Fairclough 1999). Accordingly, the struggle for defining the order of discourse is a political struggle with *ideological consequences*.

Combining these two traditions, ethnography and critical discourse analysis, we aim to identify *discursive strategies* involved in authenticity work. By the term “discursive strategies,” we mean patterns of language use that serve to (re)construct the legitimacy or illegitimacy of certain practices or discourses (Vaara et al. 2006). Specifically, we aim to analyze how these discursive strategies contribute to establishing a certain order of discourse in the learning environment and what ideological consequences that follow. To this end, our ethnographic approach provided contextual richness through prolonged fieldwork and critical

discourse analysis provided a rigorous analytical frame focused on ideological processes in language (Atkinson et al. 2011; Breeze 2011). Before going deeper into analytical considerations, we first describe the empirical setting of our study and methods for data collection.

Empirical setting

The empirical setting for our study was a project-based course in software engineering at a technical university in Sweden. The course was given by two teachers, Jonas and Frank², both having a research background in software development and both also having published papers on the topic of software engineering education. Jonas and Frank had taught the course together for a number of years when we came in contact with them. While Jonas was the formal examiner for the course and our first contact, Frank was the one teaching and supervising most of the sessions that we observed. The course was a part of a number of different study programs and thus involved students with somewhat different backgrounds. At the time of our study, 56 third-year bachelor students—majoring in either software development or technology management and economics—were enrolled in the course.

The course revolved around a software engineering project in which students, in teams of five, were to conceive and develop software applications towards an external stakeholder organization. The purpose was to learn how to put programming skills into action and how to organize software engineering projects in line with principles of agile software development (Dingsøyr et al. 2012) and SCRUM-methodology (Schwaber and Beedle 2002).

The course proceeded in three phases. During the first 3 weeks, Jonas and Frank lectured on agile software development principles and SCRUM-methodology and had students try it out through workshop exercises. The project assignment was introduced, and student teams were formed. In the 5 following weeks, the projects were carried out. During these weeks, the students mostly worked independently in their teams, with one joint session every week where they consulted with the external stakeholder regarding the design of their applications and got supervision from Frank regarding the organization of their projects. At the end of the course, the students presented and demonstrated their finished application and wrote a project report.

Data collection

In order to study discursive strategies involved in Jonas and Frank's authenticity work and potential ideological consequences, we employed a fieldwork approach to data collection, using classroom observations, formal interviews with teachers and students, and follow-up meetings with the teachers. The fieldwork was conducted by the first author, but we retain the pronoun "we" in this section to reflect that the study was collaboratively designed.

We conducted in total 23 h of classroom observation. Here, we focused on how Jonas and Frank introduced the learning environment and how they elaborated their description as new activities were introduced. Further, we were interested in how students responded to and potentially rearticulated the teachers' way of framing the course and project and thus observed their questions and how they themselves talked about the learning environment. During these observations, we had recurring informal chats with both teachers and students to hear their thoughts about what was going on in the course. The observations were recorded in fieldnotes, with certain quotes transcribed verbatim.

² All names that appear in the paper are pseudonyms.

In addition, we conducted 15 interviews and meetings with teachers and students. Two interviews with Jonas and Frank were undertaken before the course started, in order to provide a first account of how they talked about their learning environment. In addition, we had three follow-up meetings with Jonas and Frank in the 2 years following our fieldwork in order to hear them talk about new developments in their course and to discuss our emerging interpretations of what we had observed. In probing Jonas and Frank's perspectives on the learning environment and events that transpired therein, we learned about their motives behind designing and framing the learning environment in a certain way. Ten individual interviews with students were undertaken just after the course had finished, where we asked students broadly about their experience of the learning environment and of specific situations we had observed. Students who were invited to take part in the interviews were sampled purposively across programs and project groups. All interviews were semi-structured in order to let our respondents speak mostly in their own terms. The interviews ranged between 60 and 90 min, were audio-recorded, and were transcribed verbatim. Transcripts and fieldnotes were analyzed in the original Swedish and quotes selected for the paper have been translated to English. Participation in the study was voluntary, and we informed our respondents that they could withdraw their participation at any time.

Data analysis

Like most data analysis involving qualitative material, our analysis process was a prolonged and iterative one (Miles and Huberman 1994). Our general approach was to go back and forth between close readings of the empirical material and close readings of literature on educational authenticity while continuously formulating a description of Jonas and Frank's authenticity work. Aiming to produce a "thick" description (Geertz 1973), we moved gradually from scattered observations, seemingly pertaining to authenticity work, to constructing interpretations of what we found particularly significant. Evaluating our emerging interpretations, we scoured the empirical material for support and contradictory observations, assessed the relevance of our findings for the literature on educational authenticity, and reformulated and retested our analysis.

Drawing on critical discourse analysis, a key element in this procedure was close-up analysis of specific instances of language use (Gee 2014), in our case talk in the context of interviews and classroom interaction. First, we identified instances of language use where the nature, role, and/or status of the learning environment was described or negotiated. Second, we analyzed these instances in terms of both linguistic content and structure (Gee 2014). In terms of content, we distinguished two sets of discourses that were frequently drawn on when talking about the learning environment (professional and educational discourses), each including two competing discourse-orientations (a rigor orientation and a relevance orientation).

In terms of structure, we identified discursive strategies employed by Jonas and Frank through looking for repeated patterns in their language use where subjects (e.g., students, teachers, and professionals) and objects (e.g., learning activities, processes, and tools) were constructed in such a way that the legitimacy of their learning environment was strengthened³.

³ Although we distinguish among several discursive strategies below, we do not want to suggest that these strategies are deliberately employed by the teachers in the course. Rather, the choice of the term "strategy" reflects our analytical interest in the effects of certain patterns of language use. The teachers certainly did intend to shift some views on the course, but probably not the full discursive shifts and consequences we highlight here.

Further, to investigate the ideological consequences of these discursive strategies, we analyzed students' language use in terms of *intertextuality* (Fairclough 1992), looking for acceptance of and/or challenges to the new order of discourse that Jonas and Frank's authenticity work served to establish. When students reproduced elements of Jonas and Frank's discursive strategies—for instance, through repeating exact phrases or arguments—we interpreted such correspondence as an indication that certain discourses had achieved a (temporarily) dominant status in the context of the course. Conversely, when students rearticulated—that is, rearranged discursive elements significantly—or rejected Jonas and Frank's discursive strategies, we saw this as an indication that the local order of discourse was contested and that the status of individual discourses was tenuous.

Findings

To facilitate an understanding of the different layers of findings that emerged from our analysis, we begin by presenting a thumbnail sketch of our main findings (see Figure 1). A key finding is that the authenticity work Jonas and Frank engaged in can be understood as an *ideological project*, as their authenticity work served to establish a different order of discourse in the learning environment. Specifically, this shift bolstered the legitimacy of the learning environment by strengthening the status of *relevance-oriented* professional and educational discourse at the expense of *rigor-oriented* discourse. Notably, Jonas and Frank's authenticity work involved three discursive strategies: (1) *deficitization* of students and of rigor-oriented discourse, (2) *naturalization* of industry practices and of relevance-oriented discourse, and (3) *polarization* of academia and industry as well as of rigor-oriented and relevance-oriented discourse. Elements of these discursive strategies were reproduced by most students at the end of the course, indicating that Jonas and Frank were largely successful in their authenticity work. A worrying finding, however, is that their authenticity work seemed to reduce the *space for critical reflection* in the learning environment, closing down opportunities for students to develop critical thinking about their profession and education.

These findings are fleshed out and corroborated in three sections below, using illustrative extracts from the empirical material. The first section outlines the background to Jonas and Frank's authenticity work. This is followed by two sections illustrating the three discursive strategies that Jonas and Frank employed—first in renegotiating local professional discourse and then in renegotiating local educational discourse.

Responding to a legitimacy crisis with authenticity work

Jonas and Frank found themselves in a somewhat sticky situation as teachers. When undertaking the course project and when filling in the course evaluation, students recurrently questioned the legitimacy of the learning environment, voicing objections that often centered on the uncertainty and unpredictability that the project entailed. In contrast, Jonas and Frank took pride in their course, feeling that they had managed to organize a learning environment that corresponded to and connected students with engineering contexts beyond academia. Rather than stemming from an inappropriate design, Jonas and Frank deemed uncertainty and unpredictability to be integral to software engineering. Accordingly, although they continuously engaged in fine-tuning the course, they maintained that if the authenticity of the learning environment changed, then the students would miss out on important lessons about “real” software engineering. Still wanting to attend to the frustration that students voiced, Jonas and

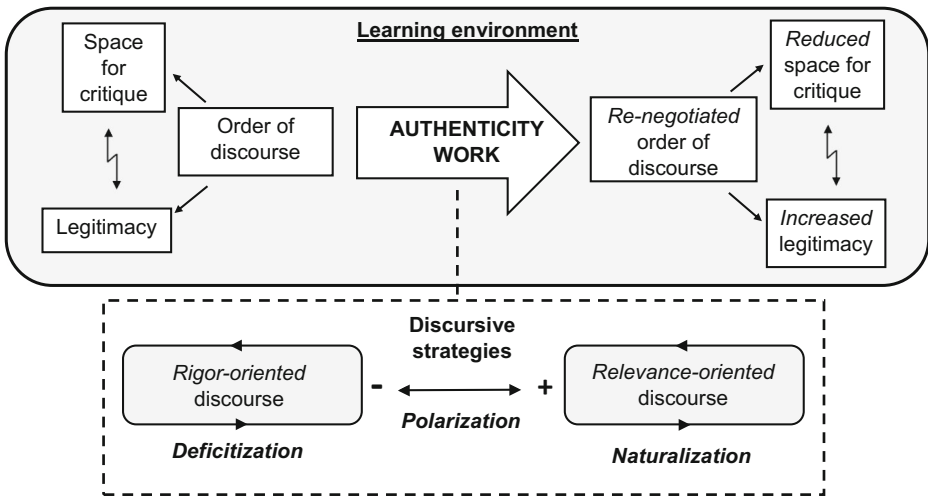


Fig. 1 Authenticity work was found to (1) establish a different order of discourse in the learning environment, (2) encompass three discursive strategies—deficitization, naturalization, and polarization—enacted in renegotiating the orientation of both professional and educational discourse, and (3) increase the legitimacy of the learning environment while simultaneously closing down opportunities for critical thinking

Frank turned their attention to changing the way in which students interpreted and participated in their learning environment.

Accordingly, much of what Jonas and Frank said about their learning environment was recognizable as authenticity work, speaking both about its high degree of authenticity and the appropriateness of such a pedagogical approach. For instance, in the course introduction, Frank asserted both that the course featured “real problems,” “real tools,” “real processes,” “real stakeholders,” and “real value” and that if the course would not have had such a high degree of authenticity, “you wouldn’t have had to face the most difficult questions.” While such assertions were positioned as simple facts, the students did not, however, automatically accept them. Thus, more than simply communicating the rationale behind their learning environment, Jonas and Frank needed to locally renegotiate what was talked about as legitimate engineering practices and legitimate higher education practices. In discourse analytical terms, they needed to establish a different order of discourse in their learning environment.

Renegotiating local professional discourse through authenticity work

In describing the order of professional discourse that they felt they were up against, Jonas and Frank held that software engineering in higher education is usually very rigor-oriented, and, therefore, so are their students:

We [university teachers] are teaching the students – at least on the technical programs – to think like hackers, much more than like engineers. There is a difference, because a hacker is somebody who is very focused on technical details, on things like which database you use and how to elegantly implement that algorithm. [...] [The students] are very much focused on the solutions. They want to be programmers, people who come up with an elegant technical solution. But they don’t really get this whole

process thing, and stakeholder value and these kinds of things. That is not really their main concern. (Jonas, Interview)

Here, Jonas draws on a rigor-oriented discourse of engineering—including terms such as “technical details” and “elegant implementation”—to describe and criticize software engineering in the context of higher education. In contrast, he privileges a relevance-oriented professional discourse—including terms such as “stakeholder value”—constructing such discourse as more useful for professionals. Because the projects Jonas and Frank had assigned their students were focused primarily on tailoring applications to the needs of an external stakeholder, rather than perfecting technical features, the legitimacy of their learning environment hinged on the status of relevance-oriented professional discourse in the local order of discourse. Specifically, the learning environment’s status as authentic—that is, corresponding to “real” engineering practice—depended on the salience of relevance-oriented professional discourse and the suppression of rigor-oriented professional discourse.

In the same excerpt, we get a first glimpse of how Jonas and Frank’s authenticity work was facilitated by three discursive strategies: deficitization, naturalization, and polarization. In his statement, Jonas emphasizes the limitations of doing software engineering in a technically rigorous fashion and claims that a focus on rigor is symptomatic to software engineering in the context of higher education. He thus deficitizes—that is, constructs as flawed—rigor-oriented professional discourse. Actors who draw on such discourse, including both teachers and students, are constructed as not “getting it” and as being “focused” on the wrong things. These presumed deficits are here constructed as the basis for students’ objections to the course design: the learning environment is not flawed; it is rather the students, the educational system, and the focus on technological rigor that is the problem. Further, Jonas naturalizes—that is, constructs as natural and superior—relevance-oriented professional discourse: it is what “engineers” engage in and therefore what students and teachers should draw on. Finally, rigor and relevance are constructed as conflicting aims in engineering practice, drawing on a distinction between relevance-oriented “engineers” on the one hand and rigor-oriented students and “hackers” on the other. Thus, rigor-oriented and relevance-oriented professional discourse is polarized—that is, constructed as opposites.

These three discursive strategies entered the classroom through a recurring interaction pattern where Jonas and Frank corrected the way students talked about their projects, urging them to take up a more relevance-oriented discourse. For example, in the following excerpt from one of the introductory workshops, Jonas comments that the students are asking the wrong kind of questions about their projects, questions focused on databases. One of the students, Robin, speaking in line with a rigor-oriented professional discourse, questions why they should not care about databases, while another student, Mika, aligns with Jonas in emphasizing relevance over rigor. Finally, Jonas reiterates his correction:

Excerpt 1

Jonas: Many of you asked questions about databases – but that is not needed.

Robin: In object-oriented programming you should do programs that are generic, so that you can add functionality later. Adding a database, you could add future functionality?

Jonas: Interesting. [To class:] Comments?

Mika: You should also keep it simple.

Jonas: Many of you asked questions about databases – but that is not needed.

Jonas: Yes. [...] A database is not creating value for the customer right now; it is not requested at the moment.

Most apparent in this excerpt is the deficitization of rigor-oriented professional discourse, seen in Jonas' construction of questions regarding databases as "not needed" and "not requested." Instead, Jonas steers the official classroom talk towards "creating value for the customer," constructing relevance-oriented professional discourse as more important. Through the interaction, rigor- and relevance-oriented discourses of engineering are again polarized, constructed as opposed rather than complementary.

In Excerpt 1, we also get a first glimpse of how Jonas and Frank's ambition to renegotiate the local order of professional discourse jeopardized the space for critical reflection allowed in their learning environment. Although Robin offers a well-articulated bid at critical reflection on the relative merits of rigor and relevance in engineering practice, this window is relatively quickly closed by Jonas and Mika. We notice, for instance, how Jonas' comment about whether databases are needed is formulated as a statement rather than a question that is up for critical discussion. Furthermore, recurrently correcting students and not taking up their critical reflections also serves to deficitize their critical speech. Such a dynamic may maintain a teacher–student relationship where teachers hold the authority to outline what should be regarded as "real" professional practices and students are to willingly accept these ideas.

From the interviews with students after the course, it was apparent that Jonas and Frank's attempts to locally renegotiate professional discourse had largely been successful. A majority of the students indeed described the project as "real" and corresponding to "the way that software development is actually done." In corroborating these statements, they explicitly reproduced the discursive strategies Jonas and Frank had introduced to establish and maintain a new relative status of rigor- and relevance-oriented discourse. For instance, when Elin talked about what she had learned in the course, she stated the following:

We [students] have a tendency to go astray and do unnecessary things. But is it really needed? [...] Does anyone want that functionality? Does the code even need to look good or should we focus on getting it working instead? (Elin, Interview)

Elin here uses both a rigor-oriented discourse—talking about "code" that "looks good"—and a relevance-oriented discourse, asking whether "anyone want this?". Elin implies that she and her fellow students usually act in line with a rigor-oriented discourse. Through using rhetorical questions, she questions the value of such discourse and through negative terms she constructs her and her fellow students' way of doing engineering as flawed ("we" "go astray" and "do unnecessary things"). In contrast, relevance-oriented discourse is constructed as important and "needed." The effect of Elin's statement is that rigor-oriented professional discourse—as well as Elin herself—is deficitized while relevance-oriented professional discourse is naturalized. Embedded in such arguments were often positive comments about the course, indicating that the discursive strategies that Jonas and Frank introduced through their authenticity work did indeed serve to bolster the legitimacy that was ascribed to the learning environment.

However, students' reproduction of these discursive strategies also implies a lack of critical examination of the assumptions about engineering underpinning Jonas and Frank's authenticity work. Specifically, assumptions regarding for instance what "real" engineers should care about (relevance), what is unnecessary for "real" engineers to focus on (technical rigor), and the state of affairs in academia vis-à-vis the state of affairs in industry (that they are

usually misaligned) seemed to fly under the radar. In fact, none of the students we interviewed at the end of the course put forth any significant rearticulation or critique of how professional practice was portrayed in Jonas and Frank’s authenticity work. As such, the legitimacy gained from their authenticity work seemed to have come at the expense of opportunities for critical reflection.

Renegotiating local educational discourse through authenticity work

Jonas and Frank’s attempt to establish a new order of *educational* discourse in their learning environment similarly boiled down to a discursive and ideological shift from rigor to relevance. This renegotiation, however, seemed somewhat less successful. Describing the pre-established order of discourse they felt they were up against, Jonas outlined the attempted shift from educational rigor to educational relevance:

We are trying to move away from classical lectures as much as possible, and trying to move towards very practical, hands-on things you can do in the classroom [...] We believe we reach the learning objectives much better this way, but I think some students just find it plain annoying that they have to do something. [...] [In other courses] the projects are defined by the teacher. The teacher says: “this year you are going to build this”. But there is no connection to a stakeholder that actually derives value from it. It is chosen because it is a good example of... because you can apply the content of the course to it. (Jonas, interview)

In this statement, Jonas draws on and naturalizes relevance-oriented educational discourse, constructing courses that shun “lectures” and instead “connect” to external “stakeholders” that can “derive value” from students’ projects as pedagogically appropriate. Simultaneously, Jonas draws on and deficitizes rigor-oriented educational discourse, which centers on pedagogical structure and clarity. Here, this deficitization is accomplished through criticizing project courses building on tamed “good examples” aligned with the course “content.” Jonas constructs relevance-oriented educational discourse as subjugated and not properly valued in higher education. As Jonas and Frank’s learning environment centered on the idea of facilitating learning experiences that are readily transferrable to a professional setting, its status as pedagogically appropriate hinged on the salience of relevance-oriented educational discourse in the local order of discourse.

The same discursive strategies were employed in teacher–student interactions regarding the pedagogical merits of the learning environment. For example, in response to a student speaking to the limitations of unclear activities, Frank defended their design ideas in the following way when wrapping up one of the introductory workshops:

Excerpt 2

Frank: Do you have any feedback?

Elliott: I wish you would have given us clearer directions for what we were supposed to do in the experiments.

Frank: That was on purpose, so that you would experience being in a sprint, not knowing exactly what to do and have to organize on your own.

In this interaction, Elliott constructs what had happened in the workshop as “experiments” for which they had not received “clear directions,” speaking in line with a rigor-oriented educational discourse. In response, Frank emphasizes that the activities were designed to be relevant for the conditions of professional practice, specifically that of “being in a sprint”—a delimited phase where a software team implements planned building tasks—in which one cannot expect to know “exactly what to do.” While a lack of clear directions can be regarded as pedagogically inappropriate in rigor-oriented educational discourse, it is important that engineering education reflects professional conditions—in line with relevance-oriented discourse—and thus important that students do not always get clear directions. Because Elliott’s statement is reinterpreted in this way and because the rigor-oriented discourse in which it was articulated is not taken up, the effect of Frank’s statement is that relevance-oriented discourse is naturalized and rigor-oriented discourse is deficitized. Simultaneously, Elliott is positioned as not having considered a relevance-oriented interpretation of the workshop activities.

From the interviews with students at the end of the course, Jonas and Frank’s attempt to renegotiate the local order of educational discourse seemed somewhat inconclusive. The students drew recurrently on both relevance-oriented educational discourse—outlining how the course had felt “real” and that this was a positive thing—and rigor-oriented discourse, primarily in criticizing the ambiguity and unpredictability that the course had meant and in highlighting the stress and anxiety it had caused them. Their privileging of these discourses differed. Some students clearly reproduced the naturalization of relevance-oriented educational discourse and the deficitization of rigor-oriented educational discourse. For example, David made many positive comments about Jonas and Frank’s learning environment and asserted that centering education on “fictitious” projects was “pure nonsense.” Another group of students ascribed equal legitimacy to both rigor- and relevance-oriented discourse. Olof, for example, asserted that the design of the learning environment “suited” the aims of the course but that educational rigor was important in courses where students are to learn more “specific knowledge,” such as “JavaScript.” A few students were more skeptical. Simon, for instance, articulated a clear critique of Jonas and Frank’s relevance-oriented discourse:

It’s all too common that teachers, already back in the science program in high school, justify unclear descriptions by saying that you will become a better problem solver [...] They shouldn’t always fall back on that. I think it’s cowardly as well. The goal can’t always be to make things unclear so that we become better at handling unclear situations. I don’t think so. Sometimes I think there is value in the opportunity to dig deep technically as well. [...] We become damn good at managing the basic conditions that you’ll encounter in the first two weeks of any project. But we’ll never be good at managing the rest of everything, because we never have time for that. (Simon, interview)

This statement from Simon illustrates an interesting exception to the general lack of rearticulation of the assumptions underpinning Jonas and Frank’s authenticity work. Simon clearly rearticulates the status of rigor-oriented and relevance-oriented educational discourse in the local order of discourse. First, he argues that it is “common” for teachers to talk about the value of “unclear descriptions.” Through this statement, relevance-oriented discourse is constructed as pervasive rather than subjugated throughout the education system. Furthermore, Simon speaks about such discourse in negative terms, as something “all too” common that teachers “cowardly” “fall back on,” and argues that it limits what students may learn from their studies. In contrast to Jonas and Frank’s talk

about relevance and rigor, the effect of Simon's statement is that relevance-oriented educational discourse is deficitized and rigor-oriented discourse is naturalized. Through rearticulating rather than reproducing Jonas and Frank's discursive strategies, Simon's statement illuminates and puts into question assumptions underpinning their authenticity work: Is higher education really too rigorous? Does educational rigor automatically make higher education learning environments less relevant for professional practice? Simon's rare critical reflection highlights that such assumptions risk flying under the radar if teachers are overly successful in their authenticity work.

To sum up, while Jonas and Frank seemed to have been able to convince the students that their learning environment corresponded to how "real" software engineering is done, they did not manage to convince all students that this authenticity was automatically pedagogically appropriate. This meant that some students indeed continued to question the legitimacy of their learning environment. However, this also meant that not all opportunities for critical reflection on different educational qualities were closed down.

Discussion

Using a blend of ethnography and critical discourse analysis, we have explored authenticity work in a project-based learning environment. In broad strokes, the analysis revealed that the teachers' authenticity work (1) established a different order of discourse in the learning environment and (2) encompassed three discursive strategies that were enacted when renegotiating both professional and educational discourse: deficitization, naturalization, and polarization (see Figure 1). The analysis further revealed that authenticity work can be a *double-edged sword*, with both favorable and unfavorable ideological consequences: On the one hand, our findings support the hypothesis that authenticity work can bolster the legitimacy that is ascribed to learning environments. This may strengthen student participation. On the other hand, our findings also suggest that authenticity work can jeopardize opportunities for critical reflection. This may stifle students' critical thinking about their future profession and their education.

Implications for theory and practice

In previous research on educational authenticity, students' perceptions have been considered central to why they do not always participate wholeheartedly in learning environments that have been designed to be authentic (Gulikers et al. 2008; Herrington et al. 2003; Woolf and Quinn 2009). In line with such a conceptualization, teachers have been encouraged to influence students' perceptions of learning environments through what we here have termed authenticity work. We take issue with this dominant view. Our findings point instead towards an alternative conceptualization: Legitimacy and student participation in learning environments hinge on the status of specific discourses in the local order of discourse. Authenticity work can thus be understood as an ideological project, involving a renegotiation of both professional discourse—establishing the learning environment as authentic—and educational discourse, establishing the learning environment as pedagogically appropriate. Accordingly, what is at stake in authenticity work, more than perceptions of a single learning environment, are professional as well as educational norms and relationships.

Turning to the discursive strategies involved in teachers' authenticity work, our findings indicate that they can be problematic. We want to emphasize, however, that the discursive strategies we observed in the classroom can also be seen in the rhetoric employed in major parts of the literature on educational authenticity and that these strategies should not be viewed as constructed by any individual teacher. As pointed out by Hung and Chen (2007), the literature on authenticity risks "demeaning" higher education by assuming that there is a cohesive, "traditional," teaching and learning practice in academia that is uniformly misaligned with effective instruction. In a similar vein, Dishon (2020) points out that literature on educational authenticity often assumes that there is a cohesive professional practice "out there" that learning environments *can* and, perhaps more importantly, *should* be modeled on (and thereby perpetuate). We question both the veracity and the consequence of such assumptions. First, we believe that they do not do justice to the multitude of aims and practices pursued inside and outside academia nor to the diversity among students and professionals. Second, we saw in our study how such assumptions informed a relegation of students' critical reflections regarding professional practice and effective instruction, closing down opportunities for students to develop critical thinking about their profession and education.

Given that authenticity work can be a double-edged sword, associated with both favorable and unfavorable consequences, where does this leave us? Is authenticity work always at odds with fostering critical thinking about the profession and education? If so, does the end justify the means? Here, we agree with Philip et al. (2018), who make the point that ideological "convergence" is often needed in teaching, but that "too early ideological convergence, without adequate engagement with ideologically expansive stances, constrains learning, just as too early convergence on an engineering solution often leads to inferior products" (p. 185). Chua and Cagle (2017) offer a tentative way out of this dilemma, arguing that teachers should—as a minimum—make clear to students that their silencing of alternative professional and educational perspectives is a temporary and local bracketing, made in the name of efficiency. A more ambitious approach along these lines would be to draw inspiration from *critical pedagogy*, which places importance on actively involving students in questioning dominant ideologies and practices (Breunig 2009). As such, critical pedagogy "encourages critical thinking and promotes practices that have the potential to transform oppressive institutions or social relations" (Breunig 2005, p. 109). We argue that the tenets of critical pedagogy can guide teachers in developing discursive strategies for authenticity work that are more compatible with fostering critical thinking.

Implications for research

In the introduction, we drew attention to the empirical void surrounding teachers' authenticity work in higher education. Our study takes first steps to address this gap, and the findings point towards important directions for future research, forming a nascent research agenda on authenticity work.

Regarding the content and structure of authenticity work, we see two main strands for future research. First, continued in-depth analysis of classroom interactions could shed further light on what discourses are drawn on in authenticity work and how they are mobilized. We identified three discursive strategies involved in authenticity work: deficitization, naturalization, and polarization. In a similar study, Hsu and Roth (2009) outline how different "interpretative repertoires" are mobilized in motivating a science internship for upper secondary students. We additionally want to stress the importance of adopting a critical perspective

when studying any such discursive negotiations. Second, future work may unveil how authenticity work varies across contexts. We studied authenticity work in a project-based software engineering course at a technical university. Authenticity work should be explored in other institutional settings (e.g., in the context of medical or social work training) and for other pedagogical approaches (e.g., problem-based learning and service learning).

Turning to the ideological consequences of authenticity work, we believe there is a need for further research on the norms and relationships that are enacted through authenticity work, as well as the affordances of authenticity work for critical thinking. Recognizing that authenticity is co-constructed by any and all participants of a social practice (Peterson 2005), it is integral in such work to analyze how discursive resources and strategies introduced in teachers' authenticity work are reproduced, rearticulated, and/or rejected by students. One important direction for such analysis is the consequences of authenticity work for students' identity negotiations (Johansson et al. 2018; Pattison et al. 2020), including questions as to how students assess their own abilities and how they ascribe value to different aspects of their professional practice—such as technologies, customers, and societal impacts.

Future work may also study consequences of authenticity work more broadly, for example, in terms of effects on student engagement and learning outcomes. Such work may help tease out the role of authenticity work vis-à-vis the role of different “authentic” educational designs in bringing about certain effects. Of particular interest, here are studies comparing consequences of (1) similarly designed learning environments where teachers put different emphasis on authenticity work and (2) different educational designs where teachers put similar emphasis on authenticity work. Such studies could shed light on the fact that comparative studies of interventions designed to have a lower vis-à-vis higher degree of educational authenticity have yielded inconclusive correlations between on the one hand authenticity and on the other hand student engagement and performance (Chen et al. 2015; Hursen 2016; Radović et al. 2020).

Conclusion

This study breaks new empirical ground by exploring authenticity work in higher education learning environments. Taking departure in a view of educational authenticity as a socially constructed property of learning environments, our findings challenge the dominant view on educational authenticity in two important ways. First, the findings illustrate that authenticity work can be usefully understood as an ideological project and suggest that this project involves a renegotiation of both professional and educational discourse. This challenges the view that authenticity work merely seeks to address and change perceptions of learning environments. Second, the findings suggest that authenticity work can be a double-edged sword, bolstering the legitimacy that is ascribed to learning environments but stifling students' critical thinking about both their profession and education. This challenges the more fundamental view that it is inherently positive to strive for authentic learning environments. Based on our findings, we invite teachers and researchers alike to adopt a more critical stance towards educational authenticity. More specifically, we invite (1) teachers to draw inspiration from critical pedagogy to develop discursive strategies for authenticity work that are compatible with fostering critical thinking and (2) researchers to further investigate the affordances of authenticity work for critical thinking.

Acknowledgements We would like to thank our respondents for their participation and the anonymous reviewers for their helpful comments.

Funding Open access funding provided by Chalmers University of Technology.

Data availability With consideration taken to the anonymity of the respondents, full data and material are not made public.

Code availability Not applicable

Declarations

Conflict of interest The authors declare no competing interests.

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