

Learning the Learning Sciences: An Investigation of Newcomers' Sociocultural Ideas

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Abstract: The sociocultural perspective is one of the key ideas of the Learning Sciences. For the field to sustain and expand its collective knowledge and practices, it is vital to enculturate sociocultural thinking to new generations of scholars and practitioners. In this short paper, we advance this goal by investigating the way students who study the Learning Sciences come to view learning from a sociocultural perspective. Here, we focus upon one case study within the context of an affiliate of the Network of Academic Programs in the Learning Sciences. Our findings indicate three ideas that signify sociocultural thinking: (1) Collaboration-as-learning; (2) Culture as relevant to learning; and (3) Learning as a process.

Keywords: collaboration, enculturation, higher education, learning community, sociocultural

The teachers of the future will be knowledge workers... They will deeply understand the theoretical principles and the latest knowledge about how children learn. (Sawyer, 2014, p. 730)

Introduction

The aim of this research is to elucidate the way students come to view learning from a sociocultural perspective. This is the subject of intense interest for the Learning Sciences (LS) research community, which has been deeply influenced by sociocultural theories and seeks to sustain and expand its collective knowledge and practices to new generations of scholars and practitioners. While there have been many efforts to make LS content accessible to students, such as through textbooks like *How People Learn* (Bransford, Brown, & Cocking, 2000), an extensive collection of webinars that cover the foundations of the discipline (isls-naples.psy.lmu.edu), and in dozens of international graduate programs, only few empirical studies relate to how students learn the ideas of the discipline itself (e.g., Rogoff, 1994). By focusing upon the sociocultural perspective, we may not cover the entire field, but do capture some of the most significant and complex ideas that newcomers must master to participate in LS discourse (Sawyer, 2014).

This research is motivated by our experiences as graduate students, instructors, and researchers within a unique learning community: The Educational Technologies Graduate Program (Edtech) at the University of Haifa, Israel. Founded in 2005, Edtech has gradually grown over the years to include approximately 20 Master's level students in each of the two annual cohorts, 20 doctoral and post-doctoral researchers, and five full-time faculty. While LS literature has always been at the center of studies, Edtech formally joined the Network of Academic Programs in the Learning Sciences (NAPLeS) in 2013. From the very start, Edtech was designed to enculturate its students into the LS. One prominent design feature that was derived from this approach was the idea that the process of learning must match the content. As students study ideas such as communities of learners (Brown & Campione, 1994), they participate in a learning community (Hod & Ben-Zvi, 2014, 2015).

We report upon a specific case of a master's level student as a step in more generally elucidating the way students come to view learning from a sociocultural perspective. In the following section, we provide an interpretation of the sociocultural perspective which provides the framework used to interpret our findings.

Background

Sociocultural theory is rooted in Vygotskian thought, and particularly in his idea that learning is mediated by cultural and historical tools that individuals internalize and appropriate as they are socialized throughout their lifespans. Human higher mental functioning occurs first on an intermental plane, and with the aid of mediators such as tools, signs, and language, it continues on an intramental plane (Wertsch, 2007). Such an "outside in" perspective contrasts sharply with cognitive views which emphasize learning processes which are initiated first inside a person's head, then socially, "inside out" (Collins & Bielaczyc, 1999).

Vygotskian ideas have germinated into many directions (e.g., activity theory, distributed cognition). Due to space considerations, we will limit ourselves to situated learning and the discursive approach. One major

contribution to situated learning is based on Lave and Wenger's (1991) ideas of Communities of Practice (CoP). This view of learning "implies becoming a different person [and] involves the construction of identity" (p. 53). Meaning, learning is a process whereby a newcomer in a CoP, who is initially a legitimate peripheral participant, gradually takes on more meaningful roles within the CoP and thus enculturates its practices.

Lave and Wenger's sociocultural framework has become the basis of many key ideas within the LS, particularly due to its commitment to education (Sawyer, 2014). By identifying enculturation as a key construct in the learning process, researchers have found useful ways to talk about the problems of instructionist pedagogies and to think in new ways about how to design for authentic learning. As Brown, Collins, and DuGuid (1989) pointed out, traditional education too often fails to give students experience in the relevant domain culture. For example, students learning mathematics in school may practice solving long lists of equations so they can perform successfully on a test, a practice that hardly resembles the way the community of practicing mathematicians engage in their discipline. The implication of this view for schools has been to re-conceptualize classrooms from places where knowledge is transmitted to learning communities (Bielaczyc, Kapur, & Collins, 2013). In taking a community perspective, an array of mediators beyond just transmitted content becomes the subject of educational design.

The discourse about learning and education in the years that followed these large insights was analysed by Sfard (1998), who very lucidly showed how this new "sociocultural way" of talking about learning stood in contrast to cognitive views. The key insight was that sociocultural views looked at learning as an action, while cognitive views reified these actions into objects. These two views are expressed in discourse as different metaphors of learning. Whereas metaphors that are sociocultural include participation, being a part of, and enculturating, cognitive metaphors objectify these actions into knowledge and concepts that can be acquired and possessed. This discursive perspective was not only useful in clarifying how these perspectives differed, it provided a clear operationalization for analyzing students' views on learning.

We see these different but interrelated views of sociocultural thought as tools to examine students' developing sociocultural ideas. Given the situativity of learning, we don't expect to find direct correlations of students' understandings with what we have presented here. Rather, we would like to examine the relationship between students' knowing about sociocultural ideas with their coming to be part of Edtech.

Methods

The findings presented here are part of a larger case study of Master's level students within Edtech. This specific paper follows one of these students. Our data sources included careful observations of face-to-face course meetings, online artifacts from students' work, and periodic interviews. Data were analyzed using micro-genetic techniques, looking at a fine-grained level of detail at meaningful episodes of learning where they were situated. As our interpretations emerged throughout careful examination of the data, these were triangulated only after multiple sources of data were found.

Preliminary findings

We focus upon Andrea, a central member in the National English Teachers' Community. Andrea entered Edtech as an experienced elementary school English teacher who engaged in numerous educational activities that eventually transformed into other professional roles. She received recognition for creating and maintaining a vast portal for online English learning resources. Moreover, Andrea was on national committees to develop English curriculum and led teacher training programs. She received a national teacher of the year award.

As an incoming student to Edtech, Andrea was immersed in numerous web communities such as Twitter, Google Plus, and the blogosphere. Andrea's offline behavior in Edtech was consistent with her online activities. She was very social and popular with other students. Even in her studies, she was among the most active and contributing student across all the courses that she participated in.

Andrea was in many ways a perfect fit for Edtech due to her technological prowess and central role in the teachers' community, where there was heavy focus on practice and technology. This often contradicted the norms of Edtech's culture of learning, such as deep inquiry, revision, and collaboration. The contrasts between these communities made Andrea an interesting case to study, which we report upon here.

Sociocultural idea 1: Collaboration-as-pedagogy to collaboration-as-learning

Although Andrea was a social person, her ideas about collaboration when she entered Edtech developed throughout her studies. At the start, Andrea focused upon collaboration as a structured activity:

The instructors around me can put in front of me all the good opportunities for learning, but the process itself I do by myself, alone. The community can sit together, the group can work together and in great collaboration and also with the product of a certain project that was built together, still the learning is personal, individualistic...

By the end of the program, she shifts from talking about the pedagogical aspects of collaboration to considering its part within the learning process:

Every word and every little bit... had to go through this thin sieve and those unforgiving eyes up to the process in which I learned to know that nothing can be taken for granted and ahead of time I started thinking of all the directions I expected Nora to come with. Slowly we started to work collaboratively with mutual respect and the knowledge that the two of us together are much better than each of one on her own.

Sociocultural idea 2: Culture as relevant to learning

Halfway through the first semester of studies, Andrea took part in a collaborative activity where students were asked to read *Situated Cognition and the Culture of Learning* (Brown et al., 1989) and create concept maps to represent their shared understandings of it. Andrea played a leading role in her group. The final version included separate collections of key terms from the article. However, there was no evidence that culture was in any way meaningfully related to learning, rather, it was presented as an isolated idea.

In reflecting about an incident towards the end of the first year, Andrea pinpointed the first time where she saw the relevance of the idea of culture in relation to learning:

We knew where we are going and we knew what we want, but we didn't know how to call it till Cindy casually noted, "you want a change in the instructional culture." And from there it was clear what is the name of the place that we want to reach.

Sociocultural idea 3: Learning as a process instead of product

Andrea's background attests to the product-orientation that she had as a learner upon entering the program. Within the first few weeks, the culture clash between her ways of working and the norms in Edtech created tension that she described. In her work culture, her practice was to complete tasks as efficiently as possible. But under a similar load in Edtech, she had to think about how to proceed so that she could learn in the best way possible. Her cultural habits of getting things done created tension for her:

There are critical assignments that must be implemented immediately. There is the concept map, initiatives, diary... So please someone explain how I can live with all this? Is it possible? Even if I slow down reality doesn't change.

By the end of the program, a noticeable shift in Andrea's expectation of herself when faced with a heavy load was evident. In the context of an ongoing collaboration that she had with another student, she showed deep appreciation of the role that the collaborative process has in learning, instead of racing to achieve a product:

The process throughout the project... taught me what is design research and what is the place of the whole process... If I wouldn't have gone through all the mistakes we made and experienced all the difficulties on the way, I wouldn't have reached all these insights... Today I am at the start of the road.

Discussion and conclusions

As sociocultural thinking involves some of the most significant ideas of enculturating LS discourse, this ongoing study attempts to elucidate the way students come to view learning from this perspective. In the case presented here, we show some of Andrea's preoccupations when she studied within a context that was designed based on

sociocultural ideas, and where students study sociocultural content. We have found three ideas that are relevant to the development of sociocultural views.

As we show in the background section, sociocultural thinking involves both ideas about learning and pedagogical ideas that stem from them. However, teachers entering programs such as Edtech often focus upon pedagogical ideas before they develop their understanding of the principles that underlie them. Andrea exemplifies the vital transformation in the first idea, *collaboration-as-pedagogy to collaboration-as-learning*, from focusing upon her situated experiences from a pedagogical lens into a learning lens.

The idea and relevance of culture is fundamental to understanding sociocultural thinking. Without seeing the relevance of culture to learning, Vygotsky's entire idea of the interpersonal plane is lost. Likewise, participating within a CoP has no relevance if the community itself does not have certain norms or practices, which are the ingredients that form a culture. Thus, the second example where Andrea sees culture as relevant to learning is a seemingly small, yet vital, step towards thinking socioculturally.

In the third finding, the shift from viewing learning as a product to a process relates to Sfard's discursive view, where cognitivist perspectives see learning as an object, while the sociocultural perspective views learning as an action. The objectification of learning gives finality to the process. Once acquired, there is a final product that has been achieved. In contrast, participation in action connotes a dynamic and never-ending process. Andrea's focus on learning as a list of tasks to be completed suggests that she didn't recognize the ongoing activity as the learning. Her reflection upon the process shows how she came to understand that everything that had to be done on the way to these products was the learning.

These three ideas are not the only aspects of sociocultural thinking, but do signify sociocultural thinking. If, as the conference theme states, we want to transform learning and empower learners, understanding the development of sociocultural ideas can help the LS accomplish these goals.

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