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Experienced relations and structured inscriptions. The distributed nature of knowledge in the study of students lived experience.

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ABSTRACT (150 words)

Lived experience of individuals constitutes our unit of analysis, and allows us to retrace learning processes as they are lived “from within”. In this enactivist perspective, knowledge is considered in relation with “distinctions”, that are familiar entities and relations that are experienced by individuals.

We conducted an empirical study in a course about lesson planning. We used self-confrontation interviews providing us reports from which we could identify precisely these distinctions as they were successively experienced by students. As a matter of fact, knowledge structure did not appear through these descriptions. Nevertheless, it rather appears in students’ notes, that may be considered as material anchors for the moving flow of lived experience.

Consequently, we posit studying knowledge construction in an enactive-experiential perspective entails to consider its *distribution* between 1) various successions of distinctions in the dynamics of lived experience; 2) inscriptions, and more broadly material instruments bearing a temporal continuity.

EXTENDED SUMMARY (500 words, excluding references)

Lived experience of individuals in ecological situations constitutes our fundamental unit of analysis (Dieumegard, Ollagnier-Beldame, Nogry, & Perrin, 2017). Considering lived experience is theoretically supported by enactivist approaches of cognition (Varela & Shear, 1999). Empirically it allows us to retrace learning processes as they are lived “from within”. In such a perspective, knowledge is considered in relation with *distinctions*, that are familiar entities and relations experienced through processes of action and inter-individual coordination (Maturana, 2000).

We conducted an empirical study in a course about lesson planning part of a teacher education program. In order to inform students lived experience, we used self-confrontation interviews providing reports from four of them about every moment of the course. From these report, we identified distinctions relating entities and properties that were successively experienced by each student, as for example:

[giving marks to pupils]: evaluates something intellectual

[what happens on the paper] : is visible

[intellectual activity]: is invisible

This description shares some features with microgenetic studies of conceptual change (Parnafes & diSessa, 2013). In particular, distinctions that are identified along courses of experience are akin to “p-prims” to the extent they constitute very numerous and loosely coupled knowledge relations. They support a fragmented view of knowledge, but alone do not account for its structure (diSessa, 2008).

As a matter of fact, in our study knowledge structure did not appear through distinctions that students successively experienced. Synchronically, we identified few relations into time stretches in the order of ten seconds. While listening and taking notes, students were conducting kind of inquiries for relating new distinctions with former experiences, referring to discourses they heard before (29.7% of time) or to teaching situations they lived (25.7%). Hence, they drift away in various directions and did not seize important aspects aimed by the teacher. Discontinuities and contradictions appeared if diachronically considering distinctions for each student. Therefore, their lived experience did not constitute a coherent net.

Besides, student’s note taking balanced this apparent lack of structure. Although the four participating students experienced very diverse distinctions, their notes appeared to be more convergent. These notes

reflected partially the structure underlying teacher's presentation. Students were very committed to note taking that was present during 66.3% of time. They even noted without understanding during 15.1% of time, and felt that noting prevented them listening during 18.2%. We hypothesize that even if students did not experience some distinctions during the lecture, they might access it later by note-reviewing.

Consequently, we posit that lived experience is narrowly situated in time; therefore it allows seizing only a few relations and not a complex structure. This structure may be conveyed by inscriptions constituting material anchors (Hutchins, 2005) giving width and stability to the restricted and continuously changing flow of experience. Hence studying knowledge construction in an enactive-experiential perspective entails to consider its *distribution* between 1) various successions of distinctions in the dynamics of lived experience; 2) inscriptions, and more broadly material instruments bearing a temporal continuity.

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