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Unpacking corrections in mobile instruction: Error-occasioned learning opportunities in driving, cycling and aviation training

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ABSTRACT

This article deals with the organisation of correction in mobile instructional settings. Five sets of video data (>250 h) documenting how learners were instructed to fly aeroplanes, drive cars and ride bicycles in real life traffic were examined to reveal some common features of correction exchanges. Through detailed multimodal analysis of participants' actions, it is shown how instructors systematically elaborate their corrective instructions to include relevant information about the trouble and remedial action – a practice we refer to as unpacking corrections. It is proposed that the practice of unpacking the local particulars of corrections (i) provides for the instructional character of the interaction, and (ii) is highly sensitive to the relevant physical and mobile contingencies. These findings contribute to the existing literature on the interactional organisation of correction and mobility, as well as to ongoing work in ethnomethodology and conversation analysis on teaching and learning as members' phenomena.

1. Introduction

This article is about the organisation of correction in mobile instructional settings. It draws on different empirical materials showing students being instructed how to control different vehicles – cars, bicycles and aeroplanes – as part of real life mobile training. In so doing, it highlights a range of trouble sources and participants' ways of identifying, and correcting erroneous, or otherwise problematic, actions as well as anticipating and explaining their potential consequences for the vehicle, its position and movement in the surrounding traffic infrastructure.

Analytically, we treat driving instructions (which may entail navigational information or focus on matters of vehicle control, cf. De Stefani & Gazin, 2014) as well as their corresponding driver actions as locally achieved phenomena by highlighting the ways in which the parties make sense of – and act on – each other's actions, as well as of the unfolding mobile environment. Focusing on correction-relevant mobile contexts – that is, sequences of talk and action through which the vehicle is operated, while simultaneously handling problems related to its manoeuvring in the immediate setting – we identify the practices by which corrective instructions (Deppermann, 2015) are explicitly accounted for in terms of situational contingencies that is, features of the mobile setting relevant for the operating of the vehicle. By demonstrating how the parties embody correction procedures, and how these procedures are unpacked as local rationalities, this article contributes new insight into the practices of teaching and learning in mobile environments.

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2. Social interaction, instruction and mobility

Following the perspectives of ethnomethodology (EM) and conversation analysis (CA) first introduced by Garfinkel (1967, 2002) and Sacks (1992/1966), instructional settings host socially organised activities (cf. Seedhouse, 2004) that characteristically comprise sequences of locally sensitive, recipient-designed instructions and instructed actions. An important theoretical upshot of this perspective is the emphasis on the participants' procedures for sense making, which is methodically retrieved by anchoring the analysis in the participants' own orientations towards their joint conduct – thereby offering a glimpse of social interaction from a members' perspective. For the current purposes, the thrust of this approach lies in the ability to shed light on what constitutes development of competence to the participants themselves, rather than buying into preconceptualised notions of learning.

In this vein, recent studies of social interaction have examined the organisation of instructional activities in a variety of settings such as classroom task instructions (St. John & Cromdal, 2016), craft education (Lindwall & Ekström, 2012), second language learning (Hellerman, 2007; Majlesi, 2014), computer-engineering courses (Vickers, 2010), surgical training (Zemel & Koschmann, 2014), pre-clinical dental training (Hindmarsh, Hyland, & Banerjee, 2014), dance lessons (Keevallik, 2010) and driving instruction (Broth, Cromdal, & Levin, 2017; Deppermann, 2015; Gazin, 2015). While these studies represent an effort to explicate the participants' methods and practices that are pitched to enhance students' competence in some domain, very few studies have examined how such practices are organised in mobile settings where the participants operate in – and act on – a constantly changing physical environment (but see Broth & Keevallik, 2014; De Stefani & Gazin, 2014; Gazin, 2015; Juhlin, 2010; McIlvenny, in press; Melander & Sahlström, 2009). Building on these current developments in studies of social interaction in educational settings, the present article shows how the participants' accomplishment of a routine instructional practice – corrective instruction – is sensitive to different aspects of mobility.

2.1. Instruction in mobile settings

The familiar scene of instructional activities, with one party engaging in courses of action previously prescribed by another party, cuts across any array of institutional as well as mundane settings. However, mobile settings tend to impose their own set of infrastructural conditions and requirements upon the participants' interaction. For instance, in training to operate mobile units – craft, vehicles or other means of transport – instructions and their responsive actions should be seen as "relative to emerging contingencies in real time" (Haddington, Mondada, & Nevile, 2013, p. 6). Therefore, an important feature of training in mobile settings is that instructional exchanges are sensitive to matters of time and space. For instance, instructions may be designed to make relevant immediate responsive actions, or they may project corresponding instructed actions at a later moment. Accordingly, De Stefani and Gazin (2014) show that the design of instructional turns in driver training exhibits the instructor's orientation to the local spatiotemporal contingencies: "late" instructions are typically short and occasionally reduplicated for urgency, while "early" instructions provide the participants with more time, both for the formulation of the instruction and for the performance of the instructed action. For these reasons, taking account of the mobile unfolding environment in the instructional exchange is analytically inescapable.

Another feature of mobile instructional activities is that instructions typically comprise verbal actions, often accompanied with embodied actions such as pointing and other indexical gestures, while the subsequent actions they make relevant may often be performed without talk, for instance through the student's manipulation of vehicle controls (De Stefani & Gazin, 2014). Indeed, in the case of instructions concerning vehicle control, students cannot comply by means of talk alone, although they may well produce talk (e.g. receipt tokens, comments or questions) while carrying out the instructed actions. For this reason, instructors can be seen to inspect the students' practical actions for their fit with the original instruction, and where relevant, to comment on, evaluate or to initiate correction activities.

2.2. Correction in mobile training

In contrast to ordinary mobile activities such as driving, cycling and flying (cf. Haddington, 2012, 2013; Haddington & Rauniomaa, 2014; Laurier et al., 2008; Laurier, Brown, & Lorimer, 2012; McIlvenny, Broth, & Haddington, 2014; Nevile, 2010), the aim of mobile training sessions is not to reach a specific location, but to expose the student driver, cyclist or pilot to a variety of real-life situations (e.g., different traffic or weather conditions) that allow him or her to exercise and improve their handling of the vehicle or craft with respect to the local contingencies of the emerging environment. A central feature of such training, we argue, has to do with the ways in which performance errors are dealt with not just for the purposes of safely handling the vehicle in situ, but also, and crucially, to enhance student skills prospectively. Accordingly, in this article we show how student errors and correction procedures offer a fertile ground for doing instructional work.

In an analysis of the very first attempts at driving a car, Broth et al. (2017) examine how a novice driver student practices her "pedal skills", i.e., the embodied practice of coordinating the gas and clutch controls when setting the car in motion. Central to this activity is the instructor's monitoring of the student's incipient technique by analysing the vehicle's behaviour – engine sound, vibration level at the biting point, etc. – and by initiating student correction with reference to such natural indications. As Broth et al. (2017) conclude, through such instructive correction "[r]elevant sensory information was introduced, levels were calibrated and analytic skills relevant to the manoeuvre at hand were taught by the [driving instructor]" (p. 150).

Deppermann (2015) introduced a class of instructions labelled *task setting requests*, which formulate complex navigational manoeuvres, such as to turn left at the next roundabout, or to go back to the city centre (cf. De Stefani & Gazin's '(2014) notion of "navigational instructions"). Task setting requests, Deppermann argues, should be distinguished from *corrective instructions*, which respond to the student's failure to carry out the manoeuvre as expected, specifying the relevant individual steps involved in carrying out the task, including their temporal features relative to the traffic, road infrastructure and other environmental contingencies. In other words, corrective instructions "adapt the initial task-setting request, producing a more granular formulation of the next locally relevant action to be taken by the student, given the nature of the student's failure and its relationship to the local contingencies of the emerging traffic situation" (p. 11). For example, a student who failed to competently follow the instruction to make a left turn at the third traffic light received a series of short corrective prompts, indicating when to change gears, check the side mirrors, look for traffic and to brake. Notably, such prompts are highly elliptical and indexical in nature, and serve as glosses for the expected actions (e.g., shifting *down into second* gear, checking mirrors *on the left*, look