Effective dialogues in driver education

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Abstract

The Norwegian driver education programme is extensive, systematic and comprehensive. The syllabus intentions have high expectations for pupil learning, and in the learning situation the ability of teachers to utilise dialogue as an effective learning tool is put to the test. Over a 5-year period we have studied learning situations in all areas of the Norwegian driver education programme. In this article we present findings based on observations of teacher–pupil interaction during on-road practice and discuss how teachers may form the dialogue into an effective learning tool in order to tap the learning potential that is embedded in driver education programmes. The education of responsible drivers requires that teacher–pupil dialogues bring about a shared understanding of a full traffic context during on-road practice. It becomes evident that different teacher supportive approaches pave the way to 'intersubjectivity' of occurring traffic contexts in qualitatively different ways. Teachers use both 'clarifying' and 'elaborative' processes to prepare the learner for responsible driving. The establishment of a mutual understanding is a continuous dialogical process in which concepts become mediating tools. How the two conceptual worlds of teacher and learner merge makes a basic level for subsequent scaffolding processes during on-road practice.
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1. Introduction

According to research literature the effectiveness of driver education programmes is by no means clear. Studies evaluating the effects of different types of driver education programs report mixed results. Some studies show that education only contributes modestly to reducing driver collision risk (Ker et al., 2005; Levy, 1990; Zhao et al., 2006), while others show no effects or even an increased accident rate (Elvik and Vaa, 2004). One possible explanation of these mixed findings may be the determinants of driver education effectiveness. Broadly speaking, volume, duration and pupil attitudes are frequently used as determinants of driver education effectiveness (Martin et al., 2005; Morrisey et al., 2006; Zhao et al., 2006). Few studies have explored in depth how learning situations are facilitated and carried out. Although studies show that particular training strategies are decisive for learning outcomes of driver education and thus driver behaviour (Gregersen, 1996; Gregersen and Bjurulf, 1996; Gregersen et al., 2003), we have little knowledge on the 'hows' in driver education that go beyond counting lessons and drawing attention to driving qualifications. Knowledge on how to tap the learning potential that is embedded in driver education programmes is a key element in improving the learning outcomes and thus influencing traffic behaviour. Hence, the actual potential of driver education as a vital force in reducing collision risk has yet to be tapped.

Teacher–pupil dialogue is a prominent learning medium during on-road practice and the study of how dialogues may become 'effective dialogues' may pave the way for 'effective driver education programmes'. As teacher and pupil engage in dialogic processes, the interlocutors may create and negotiate knowledge with one another (Young, 1992). However, studies show that teachers have trouble forming dialogue into an effective learning tool (Rismark and Sølvberg, 2005, 2006). Dialogues that elaborate, refine and instantiate require that the interlocutors share ideas, comments and questions. The exchange of ideas, comments and questions is a main feature of interlocutors establishing 'intersubjectivity' (Rommetveit, 1974). As understood here, intersubjectivity means the degree to which interlocutors in a communicative situation share a perspective, where Rommetveit emphasises that intersubjectivity should be viewed as one tendency that is characteristic of human communication.

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Step 1	Step 2	Step 3	Step 4	Test
Course in Basic Road Traffic Knowledge 17 lessons (incl. first aid and night driving demonstration		**Safety and Skid Pan Driving Course** 4 lessons (incl. 2 practical lessons)	**Course in Safe Road Driving** 13 lessons (incl. 8 practical lessons)	Theoretical Practical

☆ = specified level of competence   = voluntary education (professional or 🅻)

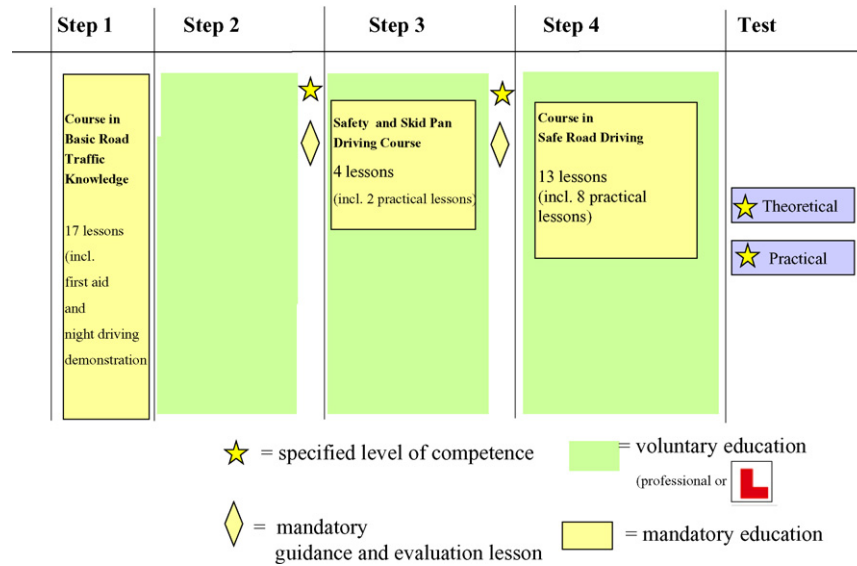◇ = mandatory guidance and evaluation lesson   = mandatory education

Fig. 1. Illustration of the Norwegian driver education, category B.

This particular tendency is also characteristic of social interaction and points out how two persons who engage in a dialogue can transcend their different private worlds (Wertch, 1998). Intersubjectivity appears to be a constructive force of the inter-related dynamic dialogical process, and it may thus be an asset to learning.

A key issue is to determine how the dialogue may work as a mediating tool to bring about intersubjectivity as efficiently as possible. The main purpose of the present study is to develop such insights. Our work has been guided by the following research questions: what characterises dialogues that achieve intersubjectivity? And how do teachers invite pupils into dialogues that develop arguments and co-construct understandings? Knowledge on these issues will enable teachers to form the dialogue into an effective learning tool during on-road practice.

2. The Norwegian driver education model

In general, Western societies have a basic belief in education as a powerful means for moulding citizens with respect to various functions and skills. Educators want to influence, change or enhance the minds and actions of their pupils—they want their pupils to be affected by what occurs in the educational process. These ambitions are also prominent in the strategic documents that constitute the platform for the relatively extensive driver education model for drivers of passenger cars in Norway (Isachsen et al., 2002). Bearing this in mind, the Norwegian driver education model is an interesting arena for the exploration of learning processes. While many countries offer a quick and easy route to the acquisition of a driving license (Williams et al., 1996), driver education in Norway is extensive, systematic and comprehensive. The Norwegian model includes a detailed syllabus that establishes a progression of the contents and the use of teaching methods. The 2-year driver education is a module-based, four-step training programme where pupils move through individual and group tutorials of both a theoretical and practical nature.

As shown in Fig. 1, an initial course in basic traffic knowledge (17 h) is the common starting point. After completing this course, the 16-year olds may also train when accompanied by persons with a minimum of 5 years' driving experience. The green areas of the figure illustrate this voluntary education. From steps two through four, pupil and teacher work closely together to achieve the educational goals. Altogether the mandatory training programme for passenger cars amounts to a minimum of 36 lessons before the driver may take the final driving test to earn full driving privileges.

The Norwegian model has a detailed syllabus and prescribed contents and methods. The intentions of the syllabus clearly emphasise such themes as self-insight and personal assessment in traffic situations. The overriding principle is to enhance the driver's reflection, understanding and attitudes that may foster good traffic behaviour. This creates the platform for the acquisition of more specific insights. Driving a vehicle safely involves a combination of 'anticipatory skills' (the ability to realize in advance what may happen in a traffic situation and thus be prepared to handle it) and 'responsiveness' to the needs of others (Sharpley, 2003). Overall, the syllabus intentions have high expectations for pupil learning, and in the learning situation the ability of teachers to utilise dialogue as an effective learning tool is put to the test.

3. Methodology

Over a 5-year period we have studied learning situations in all areas of the Norwegian driver education programme. The overall objective of this large study has been to develop knowledge on how to tap the learning potential that is embedded in driver education programmes. One underlying assumption has been that improved learning outcomes may influence traffic behaviour. During our studies we have collected data in various learning situations by means of interviews and observations. Some of the courses in the programme were de-contextualized and took place in classroom-like settings. Others were authentic learning

experiences with pupils driving on the streets and highways in their communities. Data was also collected in arenas especially modelled for safety and skid training. Altogether 51 teachers and 191 pupils have participated in our qualitative studies and the data material comprises 833 pages of transcribed text.

The findings in this article stem from a subset of observations in the larger data material. These observations deal with teacher–pupil dialogues while behind the wheel. Using this data material we explored how the dialogue may work as a mediating tool to create intersubjectivity during on-road practice. The first-hand information on the phenomena in question involved spending time in the back seat of the school's cars taking notes and tape-recording the dialogues between instructor and pupil. After every observation we also wrote extensive field notes and exact transcriptions of the dialogues. Each observation lasted from 45 to 90 or 120 min. All the 30 observations of teacher–pupil dialogues behind the wheel come to 337 pages of text with detailed information of the context in question.

Altogether 17 teachers (4 females and 13 males) and 32 pupils (14 females and 18 males) were observed. The teachers all had more than 5 years of work experience. The sampling procedures were purposeful in deliberately selecting teachers who could provide the most information-rich data possible. One main strategy in recruiting the teachers was to attend regional teacher meetings to inform them about our research interest in their field of work, and then to invite and recruit teachers to participate in our studies. We felt that our interest was highly welcomed and the teachers expressed great interest in sharing their experiences. There is reason to believe that those who became our informants were above average when it comes to work dedication. They showed that they were open to new input that could be helpful in developing their own practice and the field as a whole. The gender representation in our sample also reflects the mail dominance within this field of profession.

The data analysis involved the interplay between the researchers, transcribed data material and theory, and was undertaken both in the field and after the data had been collected. Our research approach has been inspired by Grounded Theory, which involves the generation of innovative theory derived from data collected in an investigation of "real-life" situations relevant to the research problem (Gasson, 2004). Bearing this in mind, the concepts we developed through analysis naturally emerged from the data material. Just as important, our subjective beliefs about the phenomenon in question may also have coloured the nature of the data we collected and the analytic processes in which we engaged. Our theoretical assumptions about the dynamic nature of 'intersubjectivity' provided a point of departure for the development and exploration of categories during the data analysis. Categories about the reciprocity of teacher–pupil interaction evolved from the use of "dialogue" as a unit of analysis. Such grounding in the literature may counteract bias by expanding the researcher's understanding of multiple ways of viewing the phenomenon (Morrow, 2005). During the analysis we moved back and forth between transcribed texts and theoretical assumptions on dialogical features of human interaction. Shifting between theory and data allowed us to capture multiple instances of dialogues. According to Strauss and Corbin

(1998), analysis is about maintaining a certain degree of rigor while at the same time the researchers search for appropriate categories, ask stimulating questions and make comparisons from masses of unorganised raw data. We aspired to maintain a certain degree of rigor through the establishment of work procedures for mutual construction of meaning between co-researchers. We continuously read and coded small extracts of data individually before mutually developing preliminary categories of dialogical features. Credibility was also enhanced by consulting with knowledgeable colleagues who had read the field notes and the transcribed dialogues before they served as peer de-briefers. They engaged in "critical and sustained discussions" (Rossman and Rallis, 2003) and thus served as a mirror, reflecting our responses to the research process.

4. Findings and discussion

Teacher–pupil dialogues give rise to intersubjectivity in three phases during on-road guided practice. Although we see learning as a cyclical process, the phases are presented in a linear manner to facilitate the discussion on conceptual issues. In natural educational settings, the phases may be intermingled and may not appear to be equally relevant during a particular lesson. The first phase, 'situation is selected' (I), is about how the teacher scaffolds the learner in the first moves towards 'intersubjectivity' (Rommetveit, 1974). As understood here, intersubjectivity refers to the degree to which interlocutors in a communicative situation share a perspective. A second phase, "situation is constructed" (II), is about how the teacher and learner move closer to the particular learning issues by means of two supportive approaches that pave the way to intersubjectivity. The initial phases (I and II) prepare the learner for a third phase, when "situation becomes practice" (III). In this third phase, the learner needs to apply newly gained insights from phases I and II when driving on roads and highways. The preparations in the initial phases enable the learner to realize in advance what may happen in a real situation, and such anticipation is vital for driving the vehicle safely.

The following analysis discusses dialogical characteristics of learning phases I and II. The analysis reveals how teachers seek to continuously inform and inspire their pupils through dialogues that instantiate, refine and elaborate the learning issues. It becomes evident that different teacher supportive approaches pave the way to intersubjectivity in qualitatively different ways.

4.1. 'Situation is selected': first phase and basic scaffolding towards 'intersubjectivity'

Throughout the first phase, when 'situation is selected', the instructors prepare the learners for the upcoming exercises. The analysis reveals how two dialogical categories occur in this initial phase. Basic scaffolding towards intersubjectivity is reflected in the categories 'purpose of exercise' and 'interplay between domain-specific concepts and everyday concepts'.

Touching upon the *purpose of the exercise* represents an initial move towards shared understanding. Through explicatory instructor initiatives of the type 'Today, we will control . . .'

'Today, we will start to . . .', or 'Today, we will repeat . . .' the instructor may or may not succeed in carrying out the purpose of the exercise as a shared stepping stone for the session. Such initiatives carry distinct information about the purpose of the lesson and are first moves towards establishing a shared platform for further dialogue and for future exercises. Although a shared understanding of the purpose of the lesson may be helpful, striving for mutual understanding of the complex situations at hand is a continuous dialogical process. The dialogic nature of intersubjectivity tends towards dynamism, heterogeneity and conflict among voices (Wertch, 1998). Thus, the interest is in how an interlocutor might use messages, ideas and so on as thinking devices and respond to them in such ways that new meaning is generated. In this way, explicatory instructor initiatives are only initial modicum moves towards communicating different private worlds.

A dialogical key to creating and sustaining a shared frame of reference is the *interplay between domain-specific concepts and everyday concepts*. The participants sometimes operate within different conceptual worlds of domain-specific concepts and everyday concepts:

Instructor: Do you have a precise driving technique for motorways with a high speed limit?
Pupil: What . . . mm . . . what . . . that I keep to the speed limit?
Instructor: Yes, for example.
Pupil: I try the best I can.
Instructor: It's also got something to do with observing and adapting to other traffic, and getting on and exiting motorways.
Pupil: Exit the road at high speed, like?

The example shows how teacher and learner operate within two private knowledge worlds: a world with 'scientific concepts' as transmitters of knowledge and another reality that operates according to 'everyday concepts'. Due to the conceptual mismatch of language use, the situation above seems to be less learning effective than desired. The dialogue mainly circles around finding out what the other person actually is saying. Obviously, the domain-specific concepts that the instructor uses are not carriers of meaning that facilitate pupil understanding. The instructor can hardly avoid the use of domain-specific concepts. In fact, several authors suggest that pupils learn domain-specific concepts by using them in spoken communication (Boxtel et al., 2002). The point is that the interlocutors need to engage in dialogical processes that elaborate meaning for the concepts that are being used.

When interlocutors operate within different conceptual worlds of domain-specific concepts and everyday concepts, there is a need to negotiate meaning. According to Engeström (2001), negotiating processes focus on how the participants engage in concept formation. He shows how scientific concepts may be transformed through a stepwise and seemingly thorough negotiation process. According to his findings, a series of alternative conceptualisations may arise in the process of trying to merge the possibly incompatible worlds of the 'scientific concept' of critical pathways and the everyday experience of the learners.

The way in which solutions are found in the dialogic categories 'purpose of exercise' and 'interplay between domain-specific concepts and everyday concepts' throughout the initial phase, represents basic scaffolding towards intersubjectivity as the dialogue moves into a second learning phase.

4.2. 'Situation is constructed': two supportive approaches to establishing 'intersubjectivity'

Throughout the second phase, when 'situation is constructed', the instructors continue to prepare the learners for the upcoming exercises. Our analysis reveals how two supportive approaches, the 'clarifying approach' and the 'elaborative approach' bring the learner closer to the upcoming driving exercises in qualitatively different ways. The two approaches have unequal potential for intersubjectivity.

4.2.1. Clarifying approaches
In general the instructors choose to specify and instantiate the upcoming exercises through a *clarifying approach*. This means that the instructor introduces details and supplemental information with the intention of facilitating pupil comprehension. Information on traffic challenges as well as assurances of social and motivational support may clarify the upcoming exercise:

Instructor: Seeing that your hill starts are as good as they are, I would like to propose . . . I would like to get you into situations where you'll need it—in natural situations. Preferably with cars behind you. Then we can agree that if you need help, you'll get it.

Such clarifications in advance of the driving exercise may provide a clearer picture of both general conditions and procedures concerning the upcoming exercise. In the teacher's utterance above, information about traffic conditions comes through specifications about a relocation of the hill-start practice to areas with more traffic density. At the same time, the instructor provides social clarification by promising support if needed. Belief in the learner's ability to handle the realistic situation ahead is also communicated and the instructor presents the upcoming situation as a natural challenge that goes along with the learner's progression. In doing this the instructor also touches upon motivational aspects when he supports the pupil's self-confidence and need to feel challenged. Lepper et al. (1997) suggests that expert human tutors give roughly equal attention to informational, social and motivational factors.

Clarifications are communicated with intentions to enable the learner to obtain a clearer idea of the upcoming exercise. These clarifications communicate information that the learner may make use of when the dialogue develops. The information may also provide support in the process of establishing a cognitive map to be used in upcoming exercises. From a dialogic point of view, however, the clarifying approach mainly reflects the instructor's ideas on the upcoming exercise, while the learner's ideas, questions and comments are not equally dwelt upon. As such, the clarifying approach does not involve the interrelated dialogical nature that brings about intersubjectivity.

4.2.2. Elaborative approaches

Another supportive approach that teachers use is *elaboration*. An elaborative approach implies that teachers and learners co-construct both a complex and dynamic picture of the upcoming exercise when considerable efforts are made to establish a cognitive map of the upcoming landscape. In these processes, participants engage in dialogues to 'transcend different private worlds' (Wertch, 1998). By doing this, they may establish a shared point of departure for discussions on how to act as responsible drivers and road users. A major challenge is to establish fruitful understandings so that the situations at hand may have a learning potential for pupils who, according to syllabus requirements, need to develop 'anticipatory skills' as well as 'responsiveness' to the needs of other road users.

The following story illustrates vital aspects of an elaborative approach:

> A pupil is about to drive into a traffic light situation. First they park the car while the driving instructor draws the pupil into a dialogue on driving in junctions with traffic lights. The driving instructor takes out a clean sheet of paper and outlines a junction with traffic lights. The illustration is gradually made more complex when new elements, such as vehicles, various other traffic elements and more detailed road markings, are added. At the same time the driving instructor provides information and invites the pupil to talk more about this by asking about the new elements that are being added. Eventually the illustration takes on a life of its own when the driving instructor invites the pupil to understand the outline as a dynamic picture of traffic with various changing or moving elements. In the dialogue the pupil is encouraged to reflect upon and make choices based on (1) his own position, (2) how other people perceive this position, and (3) how other people may understand this and act based on the total traffic picture. The driving instructor does this by turning the illustration upside down so the traffic picture may be considered from the point of view of others.

In this example we can recognize various levels of elaboration as the situation continuously expands by means of words and symbols that carry meaning into the situation. The teacher informs, asks questions and invites the pupil to evaluate the situations at hand as details are gradually added to the sketch showing a constantly expanding and more realistic traffic picture. In this way they establish a shared understanding of the multitude of factors in traffic situations. Such an *arrangement of complexity* constitutes a basic level of elaboration.

This basic level of elaboration is the point of departure when the instructor presents a progression of increasingly challenging problems for the pupil to solve. In this problem-solving approach that illustrates an expanded level of elaboration, the elements are pictured as *dynamics of an always changeable context*. When pupils come to comprehend that other road users are not static elements, but rather dynamic elements that move about within the social context of a traffic situation, they as learners may be able to realize in advance what may happen and thus be prepared to handle it. Such 'anticipatory skills' are highly evaluated and crucial for effective driving behaviour (Sharpley, 2003).

Through the basic and expanded levels of elaboration the participants develop some shared understanding of the complexity and dynamics of traffic situations. The example above also illustrates how the teacher strives to encourage the pupil to exceed his own perspective as a driver. This is a main challenge in driver education as driving a vehicle safely indeed requires responsiveness to the needs of others (Sharpley, 2003; Isachsen et al., 2002). In our example, consideration for others is effectuated as the teacher turns the sketch around to show how situations involve multiple perceptions. Being *responsive to the needs of others* constitutes a third and advanced level of elaboration. When a pupil is able to assume other people's perspectives, the complexity and dynamics of the situation form a full context into which the learner may meaningfully situate complementary information.

5. Paving the way for responsible driving

We have discussed how the dialogue may work as a mediating tool to bring about intersubjectivity as efficiently as possible. The education of responsible drivers requires that teacher–pupil dialogues bring about shared understanding of a full traffic context during on-road practice. With this learning platform, teacher and learner can truly strive to develop 'anticipatory skills' to judge traffic situations, as well as 'responsiveness' to the needs of others. In this way a full traffic context allows for the enhancement of drivers reflection, understanding and attitudes that may foster good traffic behaviour.

The elaborative and the clarifying approach leave the interlocutors with some shared understanding of upcoming exercises. In general terms, the clarifying processes mainly reflect the instructor's ideas on critical factors for the upcoming exercise. As such, this approach does not incorporate the interrelated dialogical nature that leads to intersubjectivity. Elaborative processes provide more than specifications that have reference to general conditions and procedures as perceived by the instructor. The learner's ideas, questions and comments are what is being developed when the participants co-construct shared knowledge on complexity and dynamics of an upcoming exercise. The establishment of mutual understanding is a continuous dialogical process in which concepts become mediating tools. How the two conceptual worlds of teacher and learner merge makes a basic level for subsequent scaffolding processes.

Intersubjectivity comes to operate at two levels in driver education; within the dialogue itself and as preparation of a tool to be used in the upcoming exercise. Shared understanding may be established within the teacher–pupil dialogue and this shared ground will work as a thinking device for interlocutors within the ongoing dialogue. At the same time, intersubjectivity points ahead—to a coming situation when 'situation becomes practice'. The learner needs to transform shared knowledge into practical driving that reflects particular priorities that have been negotiated at an earlier stage of the dialogue.

The findings presented here have implications for a broader discussion about the effectiveness of driver education programmes. Useful lessons about teacher approaches may be learned from our examinations of dialogical features and dis-

cussions of how to form the dialogue into an effective learning tool. We have argued that effectiveness is about getting the most out of teacher–pupil dialogues in learning situations where the learner has the luxury of working individually with the teacher. This study is, however, one of the first to address the 'how's' of driver education programmes as a means of effectiveness. The knowledge is not yet detailed enough to make firm recommendations about what makes driver education effective when it comes to driver behaviour and accident risks. In any case, it is reasonable to suggest that one should strive towards more effective teacher–pupil communication. Teacher awareness about which dialogical features enhance intersubjectivity is a key to improve the quality of driver education. At a basic level, teachers need to reflect upon their role in teacher–pupil dialogues. An initiative to increase teacher awareness is to use peer de-briefers. Colleagues may observe and comment on each other's teaching approaches in general and on dialogic effectiveness in particular.

Our study of teacher–pupil dialogues has limitations. The findings stems from pupil–teacher dialogues while behind the wheel. As such, our study only addresses one type of learning situation. It still remains to be seen if teachers apply the same strategies in other learning situations throughout driver education programmes. Furthermore, teacher–pupil dialogues as means for learning should be analyzed for other purposes than intersubjectivity. Thus, future research should search to identify additional dialogical features that may enhance learning. If teacher approaches influence learning processes, then learning outcomes and driver education effectiveness may be influenced accordingly. On this background we suggest that future research should develop additional knowledge about teacher supportive approaches. Such knowledge may bring about an effective driver education that actually influences the way learners come to handle the vehicle in practical exercises during driver education. This allows for the exploration of how driver behaviour and accident involvement in general may be linked to what actually happens during teacher–pupil dialogues in driver education.

Acknowledgement

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