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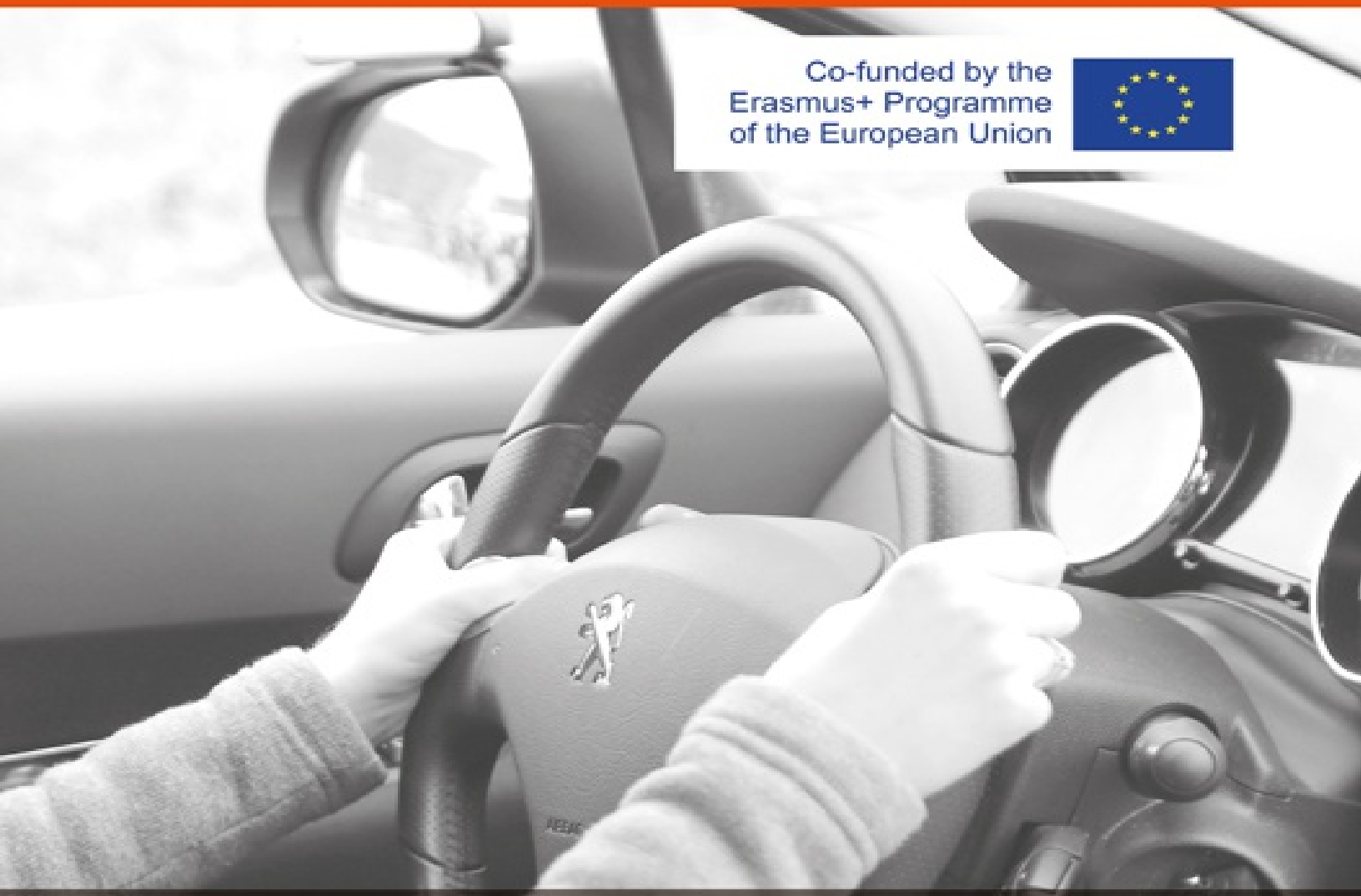

THEORY AND PRACTICE IN DRIVER EDUCATION

Edited by Marko Susimetsä
and Heli Ainjärv

GIGANTUM HUMERIS

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Tallinn University

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INTRODUCTION
PEDAGOGICAL CHALLENGES OF A MODERN DRIVING TEACHER

Marko Susimetsä

The Many Faces of the Modern Driving Teacher

Driving teacher education and driver training in general are organised in many different ways in Europe. There is no overall, shared conception of what driver training should include, how long it should last and what kind of a teacher is required in the process. In some countries, such as Norway and Estonia, driving teachers get their certificates at the university level, just like any other teacher working in the field of education. In others, like Finland, driving teachers need to have a so-called specialist vocational qualification. These are the highest vocational or secondary level qualifications, as opposed to the higher education programmes that teachers need in the Finnish context. Still in other countries, there are no specific driving teachers and the driver licensing system is test-oriented: as long as you pass an examination, it does not matter where and how you acquired your skills and knowledge.

In 2017, transport ministers from several EU countries undersigned the *Valletta Declaration on Road Safety*, which, among other things, calls for a

> Europe-wide road safety culture based on shared values and improve road users' behaviour through continued and effective education and training targeting different groups, taking into account the specific needs of vulnerable road users as well as professional drivers (MaltaEU2017 2017: 5).

In 2015, *CIECA-RUE (Road User Education) Project* released their final report which called for a more unified driving teacher education and driver competence standards. The aim is to make traffic safer and reduce the number of fatalities. The RUE report (Weiße *et al.* 2015: 7) notes that test-oriented driving standards rely only on observable behaviour, and while certain skills and attitudes can be detected in a short-term observation, it is important for drivers to behave as responsibly in a variety of situations, at all times, rather than only during the single test. This requires responsible drivers who are "committed to traffic safety and environmental protection" (*ibid.*, 7).

The report (*ibid.*) presents the so-called GDE matrix which divides driving competence into five levels: operational level (basic vehicle control), tactical level (mastery of traffic situations), strategic level (trip-related context and considerations), general level (personal characteristics, ambitions and competencies), and cultural level (culture, social, business background). It can be argued that traditional driver training focusses mainly on the two lowest levels: vehicle control and traffic situations (incl. traffic rules). Naturally, any teacher in interaction with a student also transfers values and attitudes as well as cultural mores, but – in traditional observable -skills-focussed driver training – this takes place accidentally and said values are not always conducive to training responsible drivers.

The report (*ibid.*) states that driving teachers need to be able to encounter their students as individuals and be able to recognise their strengths, needs and interests. They should also be able to motivate and support the students in becoming self-reflective drivers who learn throughout their lives. This means that they must be able to teach the students not only vehicle control and tactical level skills, but also transfer values and attitudes that are conducive to a culture respecting traffic safety and the environment.

This publication is the main product of a joint project between Tallinn University in Estonia, Traffic Section at Nord University Business School in Norway and Häme Vocational Institute in Finland. The project was called

Modernised teaching material and methodology for road safety educators and the main goal of the project was to share and develop pedagogical models and teaching methods that support driving teachers in their task of training responsible drivers for future traffic. The purpose of this textbook is to act as supporting study material for future driving teachers.

Content of the Textbook

This textbook, *Theory and Practice in Driver Education*, contains eight articles from various experts of pedagogy, psychology, driving teacher education and driver training. The goal of these articles is to introduce to the reader to the Nordic perspective of the pedagogical approach to driving teacher education. All articles focus on the philosophy and methodology of teaching related to the higher levels of the GDE matrix, rather than basic vehicle handling skills and traffic rules and regulations.

The first article, 'Teacher's Philosophical Thinking as a Basis for Pedagogical Choices' by Susimetsä, discusses educational philosophy and how a teacher's personal beliefs related to human beings and learning affect their pedagogical choices and teaching methods. The article demonstrates the development and variety of educational philosophy through various points of views and allows the reader to reflect on their own philosophy and realise how their beliefs affect their work as a teacher.

The second article, 'From Driving Skills to Driver Behaviour' by Nieminen and Susimetsä, gives a short introduction to the various levels of the GDE matrix and especially how the concept of skill includes more than just feats involving manual dexterity or handicrafts. Rather, when we consider different skills, we need to recognise the motivational, environmental and cultural relationships that surround those skills.

The third article, 'Social-Cognitive Processes Underlying Road User Behaviours: A psychological approach to road traffic safety' by Şimşekoğlu,

provides an overview of psychological factors, such as attitudes, norms and risk perception, that influence driver behaviour. The author shows how the understanding of these factors is necessary to train responsible and safe drivers.

The fourth article, ‘Integration of Refugees and Immigrants to Road Safety Culture’ by Brustad Dalland, digs deeper into the issue of sociocultural learning and discusses the situation of immigrants coming from countries that have a lower road safety awareness than the inhabitants of western countries in general. Such immigrants are seen as a high-risk group and the author argues that early intervention and introduction of the local traffic safety culture could decrease this risk.

The fifth article, ‘Responsible Driver’ by Ainjärv, delves into the nature of responsibility, especially when it comes to the concept of ‘responsible driver’. The author argues that a paradigm shift is needed from teacher-centredness to learner-centred teaching and responsibility must be given to learners from the very beginning. Simply by changing regulations, standards or requirements, teachers will not adapt their behaviour to meet the new requirements. We need to concentrate on developing and fostering new behaviour and new skills for driver teachers.

The sixth article, ‘Impulse Awareness’ by Ainjärv, discusses the issue of awareness and the methods of increasing self-awareness in traffic safety related topics. The author stresses that we can only be responsible for what we are aware of. The article also talks about the intervention in Estonian driving schools implemented to prevent young and beginner drivers getting into traffic accidents due to their personal qualities. Having an impulsive personality is an important predictor of risky driving. Acknowledging their impulsive tendencies may help novice drivers to drive more safely.

The seventh article, ‘Activating Study Methods in Teaching Drivers of Motor Vehicles’ by Hiiepuu, introduces various teaching and learning methods that activate the students and make the learners more involved in

and more responsible for their own development. The article also discusses the importance of self-assessment and of making the learner more aware of their own progress and goals.

The eighth article, ‘Reflecting Team’ by Kjelsrud, introduces a practical learning method that structures a lesson into a communicating, reflective setting. As a method, it requires practice in developing trust between the participants and listening skills that aim to understand the other person empathically, rather than just pretending to listen, or listening only to a part of the other person’s message. When used correctly, the reflecting team can be a powerful and fun method for teacher education.

The authors of this textbook hope that the reader will enjoy the perspectives to driver teaching that these articles provide and that they will be of some help to them in their personal paths as teachers.

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TEACHER'S PHILOSOPHICAL THINKING AS A BASIS FOR PEDAGOGICAL CHOICES

Marko Susimetsä

Introduction

To those who have not studied pedagogy, teaching may seem a simple idea: when you know how to do something, it is just a matter of explaining or demonstrating it to someone else. However, the act of teaching involves assumptions about what learning is, how people learn, how they approach learning, how teaching should be done, how the content should be structured, how learning (process) and competence (result) should be assessed and so on. Furthermore, there are hidden factors in any teaching situation that may go entirely unrecognised: the importance of the learning environment, distractions, emotions and student motivation and even the effects of the surrounding culture, our values and attitudes.

It is the aim of this article to present an overview of the background factors that affect any individual teaching or learning situation. This aim will be reached by looking at the philosophical thinking behind modern learning theories and pedagogical models, hoping to provide a concise package to serve as a kind of a 'Teacher's Philosophy 101' that every teacher should be aware of. Knowledge of this background makes it possible for a teacher to critically reflect on their own practices and develop them further. This treatment is structurally based on the following image (Figure 1) that was produced as part of the professional teacher education programme at the

HAMK School of Professional Teacher Education by Rönkkönen and Susimetsä (2014).

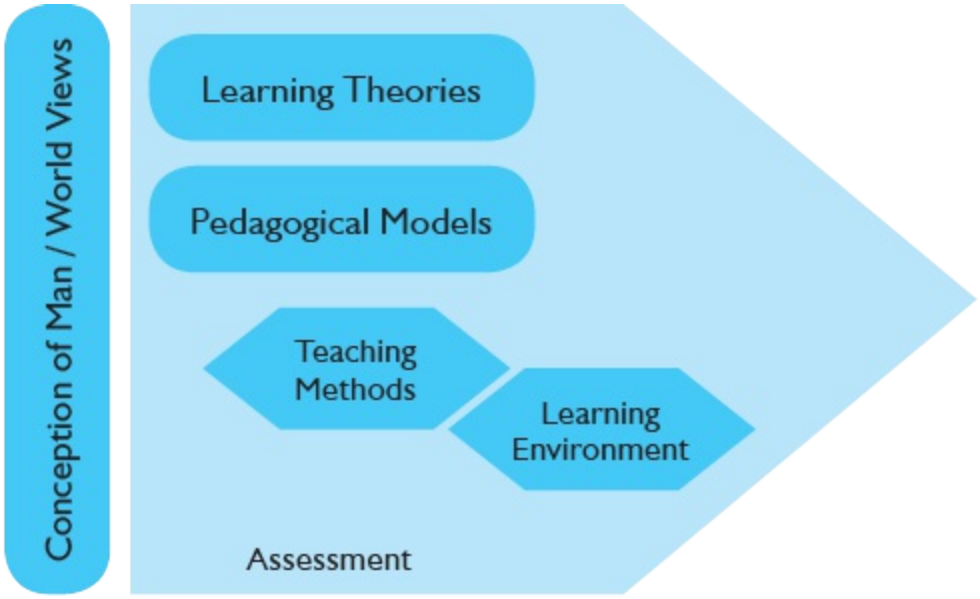

Figure 1. Cultural and pedagogical factors in teaching (Rönkkönen, Susimetsä 2014)

The above image (Figure 1) shows that the most important factor is the teacher's conception of man, or worldview. This includes cultural and personal values and attitudes but is not restricted to those. The next level is the learning theory that the teacher believes in. Learning theories are closely bound to conceptions of man in that they both consider the nature of man, but learning theories focus more on the question of how people learn. The choice of a learning theory leads to a variety of pedagogical models and these lead to individual teaching methods and learning environments. Teaching methods and learning environments are co-dependent insofar as many teaching methods require, or benefit from, a particular kind of a learning environment (a car for driving instruction, kitchen for cooking, a snowy hill for skiing etc.). Furthermore, our conception of man leads us to a certain point of view of how learning can be assessed, and this concept of assessment affects all the other factors and our ability to choose between them.

In the following subsections of this article, I will go over the top three factors – conceptions of man, learning theories and pedagogical models – one by one, attempting to show their interrelatedness and how important it is for a teacher to consider his or her underlying assumptions about the world and human beings for them to be able to make reasoned decisions about how they teach. Due to the constraints of the article format, this is necessarily only an overview and the reader is advised to seek out further reading on the topics that they find interesting. In order to facilitate this, I have tried – where possible – to use sources that are available online.

Conceptions of Man

The term *Conception of Man* refers to our beliefs, knowledge and values about what it means to be a human being, what is the essence of humanity, the origins and destiny of humans, their position or place in relation to each other and their environment. The conceptions of man are closely connected to the concept of *worldviews*, but unlike worldviews, conceptions of man often include a strong ethical point of view about what humanity essentially is and what an ideal human being is like (Krohn 1981: 10; Hirsjärvi 1984: 91). The reader should also note that the term worldview is sometimes confused with people's general political views, but it should be noted that the term refers to thinking that goes beyond politics.

For teachers, their conceptions of man are important, as they reflect their thinking on the people they teach. If we follow the idea of modern conceptions of man and the related learning theories (especially the sociocultural conception of man described below), an individual person's conception of man is always at least partially a reflection of the culture that they have been raised in. However, in today's world, we are all influenced to different extents by different kinds of philosophical thinking through our reading, encounters and life experiences; the people we have interacted with,

the books we have read, the political or religious ideologies that we have listened to. It may thus be that we find critical differences in the thinking of members of the same culture when it comes to their
conceptions of man.

Hirsjärvi (1984: 95ff) observes that some important aspects of the conceptions of man from an educator's point of view are the conceptions regarding the 1) ideals and goals of education, 2) the necessity of education and 3) the possibilities of education.

The importance of the first aspect is clear: teachers may have different opinions about the ultimate goal of the education that they provide. There are several questions that one can use to explore these differences, such as:

- Is the goal of education to acculturate the students to the dominant culture or to introduce them to a multicultural world?
- Is the goal to transfer existing skills to the next generation or to educate professionals who can create and develop new skills for the future?
- Is a teacher with strong religious or political beliefs allowed to express those beliefs to their students? And are they actually able to hide them at all?

The second and third aspects are closely related. When we talk about the necessity of education, we ask the question of whether education is necessary for a child to grow into a member of a society and to learn the skills that he or she needs. The question of possibility, on the other hand, asks whether rearing and education can have an appreciable effect on the child or a student or whether they would learn the same things even without someone expressly teaching them. (Hirsjärvi 1984: 96) Hirsjärvi (*ibid.*) takes an example from early child rearing and the so-called 'hands-off rearing' where parents do not set clear boundaries for a child's behaviour or choices and let them set their own limits, make their own mistakes and learn from them.

As was said above, many different kinds of conceptions of man can co-exist in the modern world and the conception that an individual person assumes is often an assortment of beliefs and ideas that come from different philosophical lines of thought. Basically, we all have our own conception of man that we have adopted more or less consciously. In order to study our own beliefs and our conception of man, it is important to briefly go through some of the most important philosophical conceptions of man and try to see the differences and similarities between them. This will allow us to reflect on our own beliefs and ideas and thus become more familiar with our own thinking and make more conscious choices when we move on to talk about learning theories in the next subsection.

The conceptions of man that I have selected for a closer view are only a narrow selection of the wide variety of possible conceptions and most of these are influenced by Western thinking.

In this article, I have chosen to categorise the conceptions of man into three main groups: predeterministic, deterministic and non-deterministic. The predeterministic conceptions of man see that the fate and future of individual human beings is set at birth because of certain essence, soul, biology or genetics. Examples of these include the *essentialist*, *biologically deterministic* and *genetically-oriented*, *differential psychological* conceptions of man. Deterministic conceptions of man, on the other hand, see that the fate and futures of humans is determined by their environment during their lifetimes. These include the *behaviourist, environmentally-oriented*, *differential psychological* and *(socio-)cultural* conceptions of man. Non-deterministic conceptions of man see human beings as having free will and being capable of shaping their own futures through their own choices. Examples of these include the *cognitivist*, *humanist* and *post-modernist* conceptions of man.

Predeterministic Conceptions of Man

Predeterminism is a philosophical idea that all events are determined in advance. This could mean the entire history of the universe and mankind, but it is also used in the context of biology and studies of heredity to refer to biological determinism. In the context of conceptions of man, I also include essentialism into this category, for reasons that will become clear below.

Essentialism, which was already seen in the thinking of Plato and Aristotle, sees that human beings have *inner potential* – essence – that can be defined, such as ideas, spirit, soul or intelligence. It is seen that this essential human nature is *rigid* and outside influences cannot change the inner essence and that any being would eventually fulfil its predetermined course of development (e.g. Kanovsky 2007). It is easy to see that essentialistic thinking has also led to immutable views of human races and differences between genders (e.g. Marton *et al.* 2009). From an educator's point of view, this conception of man is problematic in the way that it sees education as fundamentally unimportant to how an individual turns out.

Another conception of man, that shares some of the predeterministic aspects of essentialism, is the **biological** view. The Darwinistic biological view sees human beings as a result of the same process of evolution as other animals. The main difference between other primates and human beings is merely the size and capability of the human brain. According to the predeterministic biological conception of man, our genes define who we are and what kinds of adults we grow up to be so the effects of education are minimal (Hirsjärvi 1984; Burke, Embrick 2008).

A third predeterministic conception of man is the **genetically-oriented, differential psychological** conception of man. The differential psychological conception of man has two opposing schools of thought, one of which is the genetically oriented view and the other is the environmentally-oriented view. The ongoing discussion is mostly about where, on the continuum between these extremes, human beings actually reside. The extreme genetically-oriented point of view sees human beings as differing from each other from

birth in their intelligence, personality, mental illnesses and criminal tendencies. It is believed that these differences are quantifiable and thus a person's life is more or less predetermined at birth. (Hirsjärvi 1984: 196-205)

The common theme of the predeterministic conceptions of man is that people's lives are predetermined, and that education has little or no effect. This makes these approaches problematic to teachers, but that does not mean that teachers do not act according to them: a teacher who compares a child's attainment at school to those of his or her parents', or their race, is demonstrating a belief in genetic inheritance of intelligence or talent. Similarly, a teacher may believe that some of their students are innately more talented at a skill than others and that they cannot do anything to improve the performance of the lesser accomplishers who have already reached their 'peak'. In the same vein, we may often view highly accomplished athletes, writers or pianists as 'talented' and believe that their skills are somehow the result of their having inherited the talent – having innate ability – rather than having practiced the skill for longer than average.

Petty (2009: 288ff) cites the research by Ericsson *et al.* (1993, 2002) to provide evidence against the predeterministic conception of man. This research focussed on people of exceptional ability in academia, athletics, music, chess and other domains and showed that so-called innate ability played only a small part in the excellence of the individuals. Intelligence, for example, had only about a 5 percent influence on one's academic career attainment (cited in Petty 2009: 288). An example of violin players, where professors categorised their students into three groups (the best, the good and those studying to become teachers) showed that it was deliberate practice that accounted for the differences between the skills levels of these students. According to Petty (2009: 289) the lifetime hours spent on deliberate practice were 4000 hours for those aiming to become teachers, 8000 hours for good violinists and 10000 hours for the best violinists. There were *no examples* of students who needed fewer hours of practice to attain excellence than others,

which would have shown that some form of innate talent was responsible for their achievement.

Deterministic Conceptions of Man

Deterministic conceptions of man disregard the idea that human fate is sealed at birth or even earlier. Instead, they believe that our futures are determined by environmental influences. **Cultural determinism** or **environmental determinism** are schools of thought that claim it is our social development that shapes us into the individuals that we are; our environment is, at its basis, a cultural construct comprising our history, language, art, legislation, values and attitudes, beliefs etc. All these factors intertwine in complex ways to shape and, to a greater or lesser degree, determine the pathways that our individual development can take.

Perhaps the most well-known deterministic conception of man is based on behaviourist thinking. **Behaviourism** is a branch of psychology that appeared in the early 20th century and has strongly influenced 20th century educational thinking. Pavlov's (1927) studies with dogs led to the concept of classical conditioning and the questioning of the validity of human experiences as research data (Hirsjärvi 1984: 194). Hirsjärvi (1984) notes that scientists like Watson, Hull and Skinner focussed on the study of observable reactions of the research subjects. Research should, in their view, be based on quantifiable data that is retrieved through meticulous observation. Research subjects were given certain stimuli and the focus of study were the responses that the subjects elicited (operant behaviour), and the methods through which these responses could be altered by operant conditioning
(Skinner 1938: 19ff).

According to this view, human behaviour is learned as the result of all the feedback (responses) that a person has ever received for their actions (stimuli) from the environment; the behaviour eventually turns into reflexes.

Furthermore, human beings are seen as hedonistic and thus actions that result in pleasurable experiences will be repeated in order to re-experience the pleasure, while actions that lead to less likeable experiences will not be repeated. In short, a human being is a learning machine reacting to his or her environment. Watson, in fact, said:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. I am going beyond my facts and I admit it, but so have the advocates of the contrary and they have been doing it for many thousands of years. (Watson 1930: 82)

The above statement is a good extreme example of how scientists like Watson ignore any innate aptitude in young human beings and state that anyone can become (or be conditioned to become) anything. On one hand, this is a very positive conception of man for a teacher, in how it stresses the importance of educators in the development of young minds. On the other hand, it can be questioned whether the teaching method – operant conditioning consisting mainly of mechanistic positive and negative feedback and repetition aiming to create or readjust automatic responses to specific stimuli – could foster people who can think critically, analysing data and acting creatively in new situations.

The behaviourist conception of man (and the learning theory that is based on it) is often criticized for how it completely disregards human thought processes and *cognition* in how people react to their environment and how they *interpret* it. One of the conceptions of man that arose to oppose the behaviourist conception is the **sociocultural** conception of man. It claims that social interaction has an important role in the development of an individual's cognition – that our participation in social situations influences our

psychological development. According to this view, we are essentially both members of a culture as well as the creators of it (Fiske *et al.* 1998). Schweder (1990), a proponent of a related field, cultural psychology, even states that:

> … cultural psychology is the study of the way cultural traditions and social practices regulate, express, and transform the human psyche, resulting less in psychic unity for humankind than in ethnic divergences in mind, self, and emotion" (*ibid.*, 1).

This means that regional cultures influence the way human cognition develops and makes the representatives of various cultures different.

The sociocultural conception of man does not always take quite such a deterministic view of culture on human development, but even the least deterministic proponents stress the importance of the context in which a person lives. Sanderson notes that "culture can have a dramatic impact on how people think about themselves and the social world" (Sanderson 2010: 19, citing Matsumoto, Yoo 2006) and she goes on to say that the sociocultural perspective describes "people's behaviour and mental processes as shaped in part by their social and/or cultural contact, including race, gender, and nationality" (Sanderson 2010: 19).

Vygotsky is one of the most well-known researchers behind the sociocultural approach and he proposed that everything is learned on two levels, first through interaction and then through the integration of the experiences into the individual's mental structure.

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (Vygotsky 1978: 57)

Vygotsky criticised the cognitive concept of man (discussed below) and especially Piaget's theory of maturation as it is "viewed as a precondition of

learning but never the result of it" (Vygotsky 1978: 80). Vygotsky wrote:

> Learning is not development; however, properly organized learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning. Thus, learning is a necessary and universal aspect of the process of developing culturally organized, specifically human, psychological functions. (*ibid.*, 90)

Whereas Vygotsky was mainly focussed on the development of children into members of a culture, sociocultural theory can also be applied to the process of us growing into members of specific professional fields or subcultures. Lemke notes:

> Every community is heterogenous, and no individual learns and enacts all the roles in an institution. Cultures articulate across diverse subcommunities; they are never uniform or universally shared in their entirety among all or even most members […] Our individual ways of living and making meaning are different according to not only to which communities we have lived in, but also to which roles we chose or were assigned to by others – how we presented ourselves and how we were seen and treated by others. (Lemke 2001)

One could add that it is not only the communities that we have directly experienced, but all the ways of thinking that we have experienced through other people in cultural artefacts (from books to films to online discussion forums to art), that form us and make us different from each other.

Non-Deterministic Conceptions of Man

Non-deterministic conceptions of man are typified by the belief that there exists room for interpretations – or free will – that allows human beings to assess and analyse their situations and choose between different ways they can react to them. Proponents of free will argue that humans shape their own futures and even realities through their own choices and are therefore alone responsible for what kind of human beings they end up becoming.

Cognitivist psychology arose in the 1950s, to argue that behaviourists ignored cognition in their analysis of human behaviour. For example, Chomsky (1959) argued that language could not be acquired purely through conditioning and must at least partly be influenced by what he called mental states.

The cognitivist conception of man sees human beings as thinking creatures capable of analysing their situations, making interpretations, reflecting on their experiences and making decisions. Learning takes place inside the mind of an individual through various learning strategies and the efficacy of learning is affected by, for example, the learner's goal-orientation and self-efficacy beliefs. Later theorists have likened the cognitivist conception of man to human beings as information processors. In fact, Mayer (1996) compares the human mind to a computer and says that they both accept input and process this input to produce output. The procession of input is performed in so-called working memory that draws resources from long-term memory (containing previous knowledge). The ideal human being in cognitivist thinking is someone who has strong skills in self-regulation and can set short and long-term goals for themselves and then work meticulously to reach those goals.

It should be noted that the cognitivist conception of man does not refute behaviourism completely. Rather, it points out that the human ability to react to one's environment is more complex than a mere collection of learned stimulus-reaction processes.

The cognitivist conception of man is often criticised on how it, more or less, ignores the social and physical context or environment of individuals – treating these factors as mere input for cognitive processing – as well as their emotions. One conception of man that arose from this critique was the above-mentioned *sociocultural* conception of man, but there are also other conceptions that see human beings as more responsible for their own development and role in the world.

The humanistic conception of man has perhaps the longest history of all of them. Humanistic thinking can already be seen in the texts of early Greek and Roman philosophers. Cicero (106 BCE – 43 BCE) wrote:

> We are not born simply for ourselves, for our country and our friends are both able to claim a share in us. People are born for the sake of other people, in order that they can mutually benefit from one another. We ought therefore to follow Nature's lead and place the *communes utilitates* at the heart of our concerns. (Cicero, De Officiis 1.7.22, cited by Skinner 1986)

The long history of humanism has resulted in several slightly different schools of thought and ideas about what it means, but the basic tenet has been very well put into words in Wikipedia (2016):

> Humanism is a philosophical and ethical stance that emphasizes the value and agency of human beings, individually and collectively, and generally prefers critical thinking and evidence (rationalism, empiricism) over acceptance of dogma or superstition.

In the 1950s, humanistic thinking re-emerged as a reaction to behaviourism and psychoanalysis, and Maslow (1962) called it the 'third force' of psychology. Humanistic thinkers and humanistic psychology generally trust in human will, goodness and creativity, but they also stress man's responsibility for themselves and their choices. Maslow (1962) said that all humans have a need for personal growth and discovery and that it is present throughout their lives – they never reach the end of their growth. He divided these needs into the ubiquitous 'hierarchy of needs' that propose that human beings must first satisfy their physiological needs, then their need for safety, the need for social interaction and the need for esteem. Only after these four levels of basic needs are satisfied, will the person be able to satisfy the final (growth) need: self-actualisation. According to Maslow, everyone has an intrinsic motivation to self-actualise, but they may be stopped by a failure to satisfy the prerequisite basic needs. (Maslow 1962) People will also take very different paths on their way to self-actualisation:

> The specific form that these needs will take will of course vary greatly from person to person. In one individual it may take the form of the desire to be an ideal mother, in another it may be expressed athletically, and in still another it may be expressed in painting pictures or in inventions. (Maslow 1943)

Another 20th century proponent of humanism, Rogers (1962), sees that a person needs to have healthy feelings of self-worth and receive unconditional positive regard in order to develop into what he calls a fully functioning person:

> I find such a person to be a human being in flow, in process, rather than having achieved some state […] sensitively open to all of his experience—sensitive to what is going on in his environment, sensitive to other individuals with whom he is in relationship, and sensitive perhaps most of all to the feelings, reactions, and emergent meanings which he discovers in himself […] He is not bound by the structure of his past learnings, but these are a present resource for him, insofar as they relate to the experience of the moment […] Such a person is trustingly able to permit his total organism to function freely in all its complexity in selecting, from the multitude of possibilities, that behavior which in this moment of time will be most generally and genuinely satisfying […] Such a person is a creative person […] Finally, such a person lives a life which involves a wider range, a greater richness, than the constricted living in which most of us find ourselves.
> (Rogers 1962)

The key points in Rogers' description that differentiate humanism from predeterministic and deterministic conceptions of man and even cognitivism are the focus on personal meanings that people give to their experiences and the fact that they are not bound by their past learnings and rather use them as a resource.

Humanism has received criticism for its human-centredness – the tendency to see humans as somehow above the rest of the animal species that inhabit planet Earth. In addition, Foucault criticises humanism, saying that:

> Since the seventeenth century what is called humanism has always been obliged to lean on certain conceptions of man borrowed from religion, science, or politics. Humanism serves to color and to justify the conceptions of man to which it is, after all, obliged to take recourse. (Foucault 1984)

This has led to certain **posthumanist** philosophies and concepts of man, calling for the necessity of going beyond the human-centredness and speciesism of thought. Wolfe (2009) urges us to "rethink our taken-for-granted modes of human experience, including the normal perceptual modes and affective states […] by recontextualizing them in terms of the entire sensorium of other living beings" (Wolfe 2009: xxv). These new philosophical lines of thought are important developments in how we understand consciousness and our environment, but, overall, posthumanism is still largely undefined and its potential for the field of education is yet unknown.

Summary of Conceptions of Man

The above descriptions of the conceptions of man of various philosophical and psychological schools of thought were necessarily limited and the reader is urged to read more about them from more dedicated sources. However, the aim of the above handling of the conceptions was to show how many varied ways there are to think about human beings and their role in the world. Some of these conceptions are counter-productive when we think about the role and the necessity of a teacher: If we were to believe in any of the predeterministic conceptions of man, we should question the very idea of even attempting to teach another person. The deterministic conceptions give teachers a bigger role, but only as one part of more expansive environmental or cultural influences where they may be drowned underneath the general noise. The non-deterministic conceptions of man certainly provide the most reason for the existence of teachers, but they are not necessarily the complete and true answer.

The truth may very well lie somewhere between all these conceptions. According to research, some of our abilities and aptitudes are genetic in origin and even if these innate abilities produce only small variance between

human beings (Ericsson, cited in Petty 2008: 288) they are what make humans human. Extensive research on humans and other primates has shown that we share many characteristics with, for example, chimpanzees when it comes to short-term memory tasks and may even be inferior to chimpanzees where it comes to remembering visual cues, while potentially sharing similarities in bad performance at audial memory tasks (*cf*. Bigelow, Poremba 2014). Likewise, research on the vastly different intelligences of other species, such as octopods (*cf.* Albertin *et al.* 2015), puts to question the human-centric view of humanism and requires us to find new ways to see and think about the world.

The reader should remember that the above conceptions of man were only a small selection of a vast variety that exist in modern philosophy. In addition to those described, there are different kinds of mystical and religious conceptions of man, as well as Freudian, existential, modern, postmodern etc. In fact, considering all the possible points of views people can have on each of these conceptions, it could be said that we all have our own conception of man, perhaps resembling one described above, or perhaps something entirely different.

Overall, being aware of one's own conception of man is only the first step – the base upon which we must construct our identity and toolkit. For teachers, the next step is to look at the learning theories and understand their connection with their own conception of man. Even self-proclaimed humanistic teachers may well end up using behaviouristic teaching methods if they do not knowingly consider their choices of learning theories and pedagogical models.

Learning Theories

On the surface level, learning theories may seem separate from conceptions of man, but when we look deeper into them, we see that each learning theory

presupposes a certain kind of a human being, capable of learning in specific ways and requiring different kinds of approaches to teaching. Some learning theories are directly connected with one of the above-presented conceptions of man, such as the behaviourist learning theory, but others combine aspects of, for example, cognitive and sociocultural conceptions of man.

As was discussed above, the **behaviourist learning theory** dismisses the idea of free will and sees behaviour just as a set of learned responses. Standridge (2002) notes that Skinner's model of operant conditioning:

> … was based on the premise that satisfying responses are conditioned, while unsatisfying ones are not. Operant conditioning is the rewarding of part of a desired behaviour or a random act that approaches it. (Standridge 2002)

Behaviourism relies on the concept of transfer to allow for humans and animals to apply their learned responses in new situations, the strength of transfer being dependent on how similar the two situations are. Transfer is basically the ability to apply learned knowledge – or, as in the case of behaviourism, conditioned responses – into new situations.

In short, behaviourism claims that animals learn to react to certain stimuli in ways that either give them pleasurable experiences or help them to avoid painful ones. Therefore, learning can occur without a teacher in situations where the learner experiments with his/her surroundings and learns which responses lead to preferable outcomes. It is the role of the teacher to help the learner to unlearn undesirable responses and to cultivate the desired ones. In this way, learning is very teacher-centred, although the learners also need to be actively experimenting in order for the teacher to either cultivate or repress the responses that the learner professes to the offered stimuli. The teachers need to carefully plan the stimuli that they are going to submit the learner to in order to foster responses that conform to the desired outcome. When a behaviourist teacher tests a learner, there is no room for interpretation: either the response is correct (i.e. the one the teacher aimed to condition) or it is

incorrect. Feedback is either a reward or a punishment intended to further reinforce or repress the expressed behaviour.

Although behaviourism may sound very mechanistic, it and its methodology are widely used by teachers everywhere – either due to organisational demands or because they are unaware of the repercussions of their own choices. Activities like assessment often include elements that may be seen as behaviouristic reward/punishment feedback (e.g. good or bad grades) and these are usually things that teachers cannot even avoid, as numeric grading may be required by the education system itself. Similarly, teacher's classroom actions may be interpreted as rewards or punishments – praising 'good' responses, ignoring or even shooting down 'bad' ones – and there is no real way to avoid this as learners may quickly begin to interpret phrases such as "that's one way to look at it" as comparable to negative feedback if positive feedback is given more directly or more enthusiastically.

Non-behaviouristic critique towards the behaviourist learning theory sees that behaviouristic teaching methods may discourage learners from experimenting with new ideas, expressing their thoughts and understanding for fear of receiving bad feedback. However, proponents of behaviourism tend to see that there is no cognitive aspect to learning and thus this kind of interpretation and discouragement will not take place.

Having mentioned cognition, the next learning theory to tackle should naturally be the one most connected with the cognitive conception of man: the **cognitive learning theory**. Although cognitive psychology is interested mostly in how a human mind develops through so-called stages and how it works and processes information, rather than how people actually learn, the basic ideas do have something to offer as a learning theory as well. Perhaps one of the best-known concepts is Piaget's *schema*, which refers to the process of the human mind to construct abstract representations of concepts and aspects of the world, helping people to work their way through familiar situations (e.g. visiting a grocery store) and, for example, engaging in social

situations. Assimilation is needed when using an existing schema in a new situation. Accommodation is required when an existing schema does not work, and it needs to be adapted. Piaget (1955) wrote:

> As the schemata are multiplied and differentiated by their reciprocal assimilations as well as their progressive accommodation to the diversities of reality, the accommodation is dissociated from assimilation little by little and at the same time ensures a gradual delimitation of the external environment and of the subject. Hence assimilation ceases merely to incorporate things in personal activity and establishes, through the progress of that activity, an increasingly tight web of coordinations among the schemata which define it and consequently among the objects to which these schemata are applied. In terms of reflective intelligence this would mean that deduction is organised and applied to an experience conceived as external. From this time on, the universe is built up into an aggregate of permanent objects connected by causal relations that are independent of the subject and are placed in objective space and time. (Piaget 1955)

Piaget was mainly concerned with the development of young children and their intelligence. The educational implications of the theory support the kind of learning situations in which students can explore and study new things and issues, forming their schemata. Gillard (2004) discusses The Plowden Report that was heavily influenced by Piaget's theories and writes:

> One of the main educational tasks of the primary school is to build on and strengthen children's intrinsic interest in learning and lead them to learn for themselves rather than from fear of disapproval or desire for praise. The report's recurring themes are individual learning, flexibility in the curriculum, the centrality of play in children's learning, the use of the environment, learning by discovery and the importance of the evaluation of children's progress – teachers should 'not assume that only what is measurable is valuable. (Gillard 2004, quoting parts of The Plowden Report)

The above quote refers to some other concepts that are part of the cognitive learning theory, namely the idea of intrinsic and extrinsic motivation. Intrinsic motivation is an individual's personal desire to achieve mastery without any need for external rewards or approval. Extrinsic motivation is the opposite, doing or performing with the hope of receiving something in return, such as better pay, praise or the respect of others. Cognitive learning theorists

see that teachers should foster intrinsic motivation rather than make learners dependent on praise or grades and that teachers should "not assume that only what is measurable is valuable" (Gillard 2004, quoting the Plowden Report).

As was said above when we discussed conceptions of man, cognitive theorists mainly focus on individual development and so-called development stages, seeing development as a biological process. It can be seen as relatively mechanistic: building and adapting various schemata to deal with situations. Cognitive theorists also see, for example, language learning as a secondary process – something that is learned because the mind and physiology have developed to a certain stage.

A learning theory that attempts to bridge the behaviourist and cognitive learning theories is called **social learning theory**, or social cognitive learning theory. Bandura (1977) agrees with the principles of behaviourist learning (stimuli-response, operant conditioning), but argues that there is a mental mediating process between the stimulus and the response. He also shows how people can learn through observation (vicarious capability), rather than merely by their own actions. Observational learning refers to learning that takes place when a learner observes someone else working on a task. The mediation process shows that for imitation to take place, the behaviour to be imitated will have to grab the learner's attention and the memory will have to be retained. On the other hand, Bandura recognises that we observe many forms of behaviour that we may not be able to reproduce because of, for example, physical limitations, and this influences our decision of whether to try it or not. In addition, Bandura (*ibid*.) notes that the learner will assess the rewards and punishments that may follow a certain mode of behaviour (forethought) to moderate their behaviour. Bandura (1986: 20) stresses the importance of self-regulatory capabilities and self-reflective capability in shaping human behaviour and learning.

Social (cognitive) learning theory can be seen, as was stated above, as a relatively simple combination of both behaviourist and cognitive learning

theories. Its main applications are in master-apprentice learning situations, on-the-job learning, and other situations where the learner observes a skilled performer working on a task.

In contrast, **sociocultural learning theorists**, such as Vygotsky, see the influence of culture as an important factor in human development and, unlike cognitivists, Vygotsky sees language as a primary function that is largely responsible for the kind of cognitive development that occurs after language has been learned. It is through language that we interact with our sociocultural environment and this directly affects our further cognitive development. Vygotsky argued that:

> … learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological function. (Vygotsky 1978: 90)

Sociocultural learning theory sees that learners internalise a culture's tools of intellectual adaptation from its more knowledgeable representatives. Teachers or tutors therefore model behaviours or provide instructions for the learner, while the learner strives to understand and internalise this information. Lave and Wenger (1991) see education as a second socialisation or enculturation into a subcommunity through a process of *legitimate peripheral participation* where newcomers learn but also give to the subcommunity while internalising their skills and knowledge.

The most famous concept from Vygotsky is the *zone of proximal development*. This is an area of skills and knowledge that is just outside the current skills and knowledge of a learner; skills that are too difficult for the learner to perform on their own, but that can be achieved with the guidance and encouragement – so-called *scaffolding* – of a tutor. Once the task has been learned, the scaffolding can be removed and moved to a higher level. Beyond this zone of proximal development is the area of unknown skills and knowledge. The learner cannot perform at this level even with a tutor's support and if the tutor pushes the learner to this level, it may discourage the

learner. It is very important for the tutor to know the present skills and knowledge of a learner in order for them to adapt their teaching to a level where they give the learner positive learning experiences, but do not frustrate them with too difficult tasks.

It should be noted that Vygotsky did not come up with the idea out of nowhere – it was already spoken of by Comenius in the 17th century:

> There is in the world no rock or tower of such a height that it cannot be scaled by any man (provided he lack not feet) if ladders are placed in the proper position or steps are cut in the rock, made in the right place, and furnished with railings against the danger of falling over. (Comenius 1896 (English translation): 86)

This idea of scaffolding is widely used in modern classrooms and it is an intrinsic part of many pedagogical models, including apprenticeship training as well as collaborative learning, where learners of different levels interact and help each other to develop their skills and knowledge in tasks that are carefully designed by teachers to challenge the present general knowledge level of the students. This naturally poses problems when the student group is heterogeneous, and teachers are challenged in their ability to provide positive, motivating learning experiences to learners of all ability levels.

Humanist learning theory is often connected to Maslow and his theory of the hierarchy of needs (discussed earlier), importance of personal growth as well as his view that experiential knowledge is superior to spectator knowledge. In this, Maslow follows in the footsteps of earlier humanist educational thinkers, such as Johan Amos Comenius (1592–1670), also known as the father of western education, who stressed that the natural state of man is to crave knowledge and that learning should be experiential whenever possible:

> We arrive therefore at the following conclusion: men must, *as far as is possible*, be taught to become wise by studying the heavens, the earth, oaks, and beeches, but not by studying books; that is to say, they must learn to know and investigate the things themselves, and not the

> observations that other people have made about the things. (Comenius 1896: 322, italics by the present author)

Humanist learning theory is focussed on human growth as a whole and is interested in the study of self, goals and motivations. The aim is to develop self-actualised people, capable of critical thinking, in a supportive environment. Hongladarom states that humanistic education is "formulated by the central role afforded by language, meaning and interpretation" (1995) and that:

> The aim is that the properly educated does not accept a claim to knowledge solely on authority, or on success in bringing about material progress, but centers around questioning and critical attitude toward all claims to knowledge, with the purpose of finding a justification of belief which is based on thorough reasoning and dialogs. (Hongladarom 1995)

Humanist learning theory stresses the importance of meaning and interpretation and thus leads the learners towards discussion and the exchange of ideas. As Comenius wrote in the early 17th century:

> The scholars, when they meet one another after school hours, or when they go for walks together, should compare notes and discuss information that they have recently acquired, or should converse on anything new that attracts their attention. (Comenius 1896: 310)

Overall, humanistic learning theory advocates experiential learning and facilitative teaching, where the teacher supports the learners' learning through discussion and by taking their thoughts into account and thus supporting their own analysis and the development of their thinking. If the reader will excuse one more quote from Comenius:

> In the same way that teacher will greatly increase the value of his instruction who
>
> (i) Seeks out and obtains intellectual food for himself.
>
> (ii) Assimilates and digests what he has found.
>
> (iii) Distributes what he has digested, and shares it with others. (Comenius 1896: 308)

A learning theory very close to humanism is **experiential learning theory**. Like humanist learning theory, it stresses the importance of learning through one's own experience. However, it focusses even more on what the learner does after the experience. Kolb, Boyatzis and Mainemelis (2001) stress that they use the term experiential to differentiate the theory "from cognitive learning theories, which emphasize cognition over affect, and behavioural learning theories, which deny any role for subjective experience in the learning process" (*ibid.*, 227). They also state that the intellectual origins of the theory can be found …

> … in the experiential works of Dewey, Lewin, and Piaget. Taken together – Dewey's philosophical pragmatism, Lewin's social psychology, and Piaget's cognitive-developmental genetic epistemology – form a unique perspective on learning and development. (Kolb *et al.* 2001: 227)

Kolb's experiential learning model identifies four clear steps for the learning process: *concrete experience (CE)*, *reflective observation (RO)*, *abstract conceptualisation (AC)* and *active experimentation (AE)* (*cf.* Kolb *et al.* 2001). In short, this theory shows how the learner, after experiencing, will reflect on the experience and that these "reflections are assimilated and distilled into abstract concepts from which new implications for action can be drawn" (*ibid.*, 228). The last part of the process involves the learner testing the new theories by engaging in new concrete experiences. Based on his research, Kolb has named four basic learning styles:

1. *Diverging* learners are best at CE and RO and perform best at brainstorming and generation of ideas. They are interested in cultures and specialise in the arts. They prefer to work in groups and listen with an open mind.
2. *Assimilating* learners are best at AC and RO and perform best at understanding information and summarising it concisely and logically. They are interested in ideas and abstract concepts. They prefer reading, lectures and having time for individual reflection.

3. *Converging* learners are best at AC and AE and perform best at finding practical implementations for theories. They are problem-solvers and prefer technical tasks. They prefer experimentation, simulations and practical implementations.
4. *Accommodating* learners are best at CE and AE and perform best at practical tasks and rely on their gut feelings, rather than theories. They prefer to work in groups, set goals and do field work (Kolb *et al.* 2001: 230-231)

Summary of Learning Theories

Reading the above overview of the learning theories, it becomes obvious that the theories are not completely separate and tend to loan aspects from each other and are, essentially, responses to each other. It should also be noted that the learning theories that have been proposed as a response to behaviourism, such as cognitivism, do not deny the existence of simple operant conditioning. But they do point out the important ideas of human agency, social and cultural settings and support. The mere existence of conflicting theories also shows us that we do not have definite knowledge of how and why people learn – and that human beings are complex creatures affected by many factors, the importance of which cannot be determined exactly. It is most likely that the truth is somewhere between the theories; that we are affected by our genetic inheritance, our culture as well as our individual cognitive processes.

At this point, the reader may wonder why we have not mentioned **constructivism** when discussing the learning theories. This is mainly to keep the handling of the learning theories as clear as possible. Among others, Sjøberg (2007) notes that the term constructivism is used in so many different senses and different focuses that a reader must be careful not to confuse separate ideas with one another. Modifiers like social, cognitive, simple,

contextual, sociocultural etc. are used in connection with constructivism to refer to more or less different ideas of what constructivism is (Sjøberg 2007; Matthews 2000) and this makes it more difficult for a new reader to grasp the basic idea behind all that terminology.

One could say that the premise of constructivist learning theories is that knowledge is constructed by the learners, and it is not received passively from an outside source. Learners also have pre-existing ideas or theories about a topic and these ideas may be more or less true from a scientific point of view, but the teacher has to take them into account and understand them in order to be able to challenge or change them. Knowledge is personal, but it is constructed in a social setting including culture and language. (Sjøberg 2007) The various views on constructivism stress its different facets: those basing their constructivism on interpretations of Vygotsky's theories usually refer to social constructivism or sociocultural constructivism while more Piagetian theories may refer to individual or cognitive constructivism. They may also stress the determinism or the nondeterminism of the sociocultural environment to different degrees. In this light most of the learning theories presented in this subsection can be seen as constructivist: cognitive theory talks of schemata and how they develop over time, sociocultural theory shows how everything we do is based on something that someone else has done before (culture) and how we all feed into this cultural base of knowledge, and humanistic theory stresses the importance of learners constructing their knowledge over time, in a lifelong process.

Constructivist teaching methods often include cooperation or collaboration and are activating. They lessen the role of the teacher to that of a mentor or a facilitator who guides the process and helps the learners to sources of information but is not necessarily a source of information him/herself. An important goal of these methods is to foster self-guided and collaborative people, who are capable of critical thinking.

Pedagogical Models

Pedagogical models are the next step to consider when teachers plan their approach to their work. The overall philosophical framework of conceptions of man led to general learning theories and these theories can be realised in certain pedagogical models. Pedagogical models are outlines for teaching situations and the learning process, based on theory. The models presented below are all inquiry-based, learner-centred and require an active learner who possesses group work skills or is willing to learn them. They utilise student diversity and foster interaction and give the teacher the role of a facilitator. Each of the models realises these aspects in different ways and to different degrees, but, overall, they are congruent with the constructivist learning theories presented in above.

We will first take an overview of two underlying concepts for modern pedagogical models: experiential learning and inquiry-based learning. These are both general learning philosophies that are supported by most of the learning theories described in the previous section and are inherently part of most of the pedagogical models that we will look at later.

Experiential learning focusses on personal experience. It should not be confused with the more specific experiential learning theory, as described in the previous section, even though it shares a similar name. The experiential learning as a pedagogical model is a looser concept, based on the humanistic learning theory, where the aim is – following Comenius' advice – to learn through one's own experience rather than by reading what others have thought about a phenomenon. It is more than just cognitive processing of an experience and may aim to improve the learners' self-awareness in addition to specific learning goals.

It should be noted that in their review, Warner Weil and McGill (1990: 3) list four clusters – or villages – of thought on what experiential learning is and what people think of it:

1. Village One is concerned particularly with assessing and accrediting learning from life and work experience […].
2. Village Two [see experiential learning] as the basis for bringing about change in the structures, purposes and curricula of post-school education.
3. Village Three [see experiential learning] as the basis for group consciousness raising, community action and social change.
4. Village Four is concerned with personal growth and development and experiential learning approaches that increase self-awareness and group effectiveness. (Warner Weil, McGill 1990: 3)

Warner Weil and McGill (1990) reviewed the ideas of education professionals, but it is clear from the responses that not all respondents were familiar with this educational philosophy. Especially the first cluster seems to confuse the term with that of learners' prior knowledge and its recognition and accreditation. The second cluster is more pertinent in the context of this article, although here as well we see a curious interpretation that experiential learning is something to be used only after basic education. The change referred to in the description refers to a change from traditional classroom activities where the teacher is in charge and leads the students through the learning process. Warner Weil and McGill note further that the second idea stresses the importance of adult learners' prior learning and how it is used as a resource for further learning. Learning is also seen as active, meaningful and relevant to real life. The specific teaching methods expressing this model include role plays, simulations, field trips, project work etc. (Warner Weil, McGill 1990: 7)

The core of the concept is actually somewhere between the second and the fourth cluster: experiential learning includes all learning that takes place through experiences, but in educational situations it specifically refers to the teachers' choice to teach their topics through as much hands-on experience as possible. This can take many forms: baking cakes, dissecting frogs, observing

nature, mixing chemicals and driving a car. It can also take place at any level of education: from kindergartens to adult education. And, perhaps more important than the activity itself is the reflection on the experience, reviewing what was learned and what it means. This process increases our understanding and awareness of the topic and leads to personal growth.

Inquiry-based learning is learning that engages the learners in their own process of discovery. It is related to experiential learning in the way that they both activate the students, but the focus here is on research-orientation, rather than experiencing. Banchi and Bell (2008) have named four separate levels of inquiry-based learning that are aimed for learners of different levels of ability. *Confirmation inquiry* is used in situations where the teacher has set the question as well as the procedure to find the answer and the answer is known in advance. This is usable in situations where the teacher has explained an idea and then wants the learners to see it in action by themselves. *Structured inquiry* is used when the teacher provides the question and the procedure, but the learners will have to find out the answer or theory by themselves. The third level of inquiry, *guided inquiry*, is used when the teacher only provides the question and the learners have to come up with the procedure and method to find the answer. The teacher will still guide and support them where necessary. However, the fourth level requires the learners to work independently: in *open inquiry*, the learners come up with their own questions, design their own procedures and interpret and present the results according to scientific process. (Banchi, Bell 2008) This last level of inquiry corresponds with the humanistic idea of inquiry in which human beings are motivated to explore by their own curiosity and wish to learn.

Another pedagogical model underneath the general umbrella of inquiry-based pedagogical models is the **progressive inquiry** model. Developed by Hakkarainen and his team at the University of Helsinki, the model aims to bring the work methods of a scientific or expert community into classrooms. In this model, the teacher sets the scene, or introduces the context of a

theoretical or real problem or phenomenon. They will then guide the students to:

> a) systematically generate their own research questions, b) construct their own intuitive working theories, c) critically evaluate and assess various intuitive conceptions generated, d) search for new scientific information, e) engage in progressive generation of subordinate questions and f) new working theories [*sic*] as the process goes on. (Rahikainen *et al.* 2001)

In this model, learning takes place in a spiral-like process, where the research questions are redefined and deepened as the theory and knowledge are researched and developed. The model is based heavily on the cognitive conception of man and learning theory and the authors stress that the teacher needs to carefully monitor the learning situation to judge the student engagement and skills at carrying out the progressive inquiry, especially where it comes to their ability to critically evaluate their own working theories (Rahikainen *et al.* 2001: 8-9).

Both experiential and inquiry-based pedagogical models form the basis for other more detailed pedagogical models as well as teaching methods. Similarly, most modern pedagogical models are designed to be more or less cooperative or collaborative in order to foster and take advantage of the social and cultural aspect of learning.

Cooperative and collaborative pedagogical models are often confused with one another and/or treated as facets of the same process in everyday speech and in literature on teaching. However, although they both involve working together with others, there are some underlying differences that a teacher should be aware of when designing their learning activities. Cooperation may be seen as the shallower of the two, involving learners working towards a common goal on a clearly structured assignment. The students may have specific roles, such as group leader, information searcher or writer, and they may focus on specific tasks or facets of the assignment. Knowledge can be seen as something discovered in sourcebooks or from experts. In practice, cooperation often involves the learners dividing the

workload of an assignment and working on their parts separately and then bringing it all together for the final product.

Collaborative learning is a deeper process than cooperating learning. In it, the learners form a learning community. The teacher has less of a presence and does not actively help the learners' work. The learning assignments may be more open-ended or self-defined and the learners may be expected to continue developing their understanding of the issues even after a course (lifelong learning). It relies more clearly on the philosophy of sociocultural learning, where each member brings their own special understanding to the group. They may seek more information from other sources, but the main focus is on the group constructing their own, shared understanding of the topic.

When deciding between cooperative and collaborative models, the teacher should also be aware of the expectations these models put on the participants. The cooperative model requires fewer social skills, less interpersonal trust and less previous knowledge of the topics at hand from individual participants. Therefore, it may be more suitable for younger learners as well as people who are not very familiar with each other. The collaborative model requires group work skills and interpersonal trust as well as some previous knowledge or experience of the topic to be studied. It is also far more time-consuming, as the negotiation of shared understanding will require social interaction between the group members. Therefore, it may be more suitable for more mature learners and for academic studies.

Another pair of pedagogical models that are easy to confuse, especially since their acronyms are the same, are **project-based learning** and **problem-based learning**. Basically, the terms project and problem refer to the context in which learning takes place. A project aims towards the production of a specific product (organisation of a school fair, creation of a new marketable product etc.), whereas a problem may only need a solution. Projects usually come from the real world and have real-world goals, whereas problems can

be fictional scenarios (e.g. a patient with a selection of symptoms or a student with partially unidentified special needs) or theoretical problems, designed by the teacher. Projects also require different kinds of expertise from leadership roles to marketing to typesetting etc., while problems may focus on a team of 'specialists' from the same field. (*cf.* Edutech Wiki 2016; Larmer 2014)

However, despite their differences, both methods aim towards similar goals. Both are variations of the family of inquiry-based learning models and emphasise the role of students as an independent group of specialists applying their knowledge and skills in authentic situations or to authentic problems. Both models also require more time to organise and carry out than more traditional classroom teaching models. When considered on the axis of cooperation and collaboration, project-based learning may be seen as more cooperative – as it involves people of different specialities working on different facets of the same project – and problem-based learning as more collaborative – as there is a team of experts working on the same problem (imagine an episode of the *House M.D.* TV show) trying to reach a shared solution.

The reader may have noticed that the pedagogical models presented above stress the importance of learners' personal experience and it is this experience that allows the learning to become part of the learner's personality. The underlying idea is that *learning situations in which the learners engage in an activity and feel and breathe the experience on an emotional level create more lasting memories than reading a text or listening to a lecture or even observing someone else do something*. While this idea has been challenged and it is clear that there is no single best pedagogical model that fits all fields of study, there is one special pedagogical model that focusses strongly on a multisensory mode of learning: **drama education**.

Heikkinen (2010) stresses that drama education is not simply a pedagogical model or a form of art. Rather, it is a more expansive concept existing as a serious and open play aiming to actively examine and create culture (*ibid.*, 8).

Heikkinen (*ibid.*, 30) notes that a related concept, *drama pedagogy*, has been traditionally seen as a method to teach something, as a tool for increasing self-knowledge, or as a tool to learn, for example, collaboration. Thus, drama pedagogy is a more restricted concept than drama education which Heikkinen sees as a lifelong process that takes place in all interactions with people or situations – it is a state in which you study and create culture, rather than a tool to teach topics or issues that the society considers important (*ibid.*). Overall, drama education draws from sociocultural and humanist learning theories and its aim is to immerse the students into the learning experience and to increase their awareness of themselves and others through improvised or self-written dramatic situations. It is carried out in different kinds of learning environments and the drama is inclusive and the learning collective. Teaching methods could include the preparation of a theatrical play, individual or group storytelling, turning a script into a play, improvisation theatre or writing a drama text.

Importance of Self-Knowledge

The aim of this article was to show the interconnectedness of our philosophical thinking with the way we design our teaching. The pedagogical models that we use are based on different theories of learning and these theories are the product of our views on what human beings are essentially like. The author hopes that this treatment has also made clear why we cannot just pick a teaching method at random and use it in the classroom: the methods that we use must correspond with the way we think learning takes place and what kind of beings we are teaching:

- Are we teaching emotionless logical machines, thinking and feeling individuals or members of a community/culture?
- Is it our aim to transfer our own knowledge to other people, or to support the growth of their own knowledge and their own way of

thinking?

- Do we believe that our learners' prior knowledge and experiences matter, or are they merely in the way of us doing our job?
- Can we ignore the outside world when we shut ourselves into a classroom, or do we need to acknowledge our environment, our culture and the personal situations of each of our students?

The modern view of learning can be seen as being based on the sociocultural, cognitivist and humanistic conceptions of man. Our cultural background certainly shapes our thinking, even if it is not known whether it completely determines who we can and do become. It is also an impossible subject to research, since the modern man is affected by an innumerable and unpredictable variety of subcultures through books, media, hobbies, professions, friends and so on. The modern theories also believe strongly in human beings' ability to think and choose our own paths in life, meaning that there is a cognitive factor to our behaviour. Humanist teachers also believe in positive human curiosity, desire to know more, and they believe that safe surroundings and loving support is needed in order to foster learners' development.

Insofar as learning theories and pedagogical models go, the modern focus is on constructivist learning theories, be they cognitive constructivist, sociocultural constructivist or any other subset of constructivist thinking. We believe that people's prior knowledge is important and that it forms the basis for their learning. We have adopted the humanist idea that learning is a lifelong process and happens everywhere in our daily lives. We see affective factors as equally important – if we can make the learning situation fun and enjoyable, the learners will be more immersed in the learning activity and learn more and better than they would if they were bored and tired. We also try to use more engaging pedagogical models, taking advantage of inquiry-based and experiential learning where the teacher's role is that of a facilitator,

rather than the only source of information and correct answers, or the only model of behaviour.

In the words of the father of modern education from the 17th century, Johan Amos Comenius:

> Let the main object of this, our Didactic, be as follows: To seek and to find a method of instruction, by which teachers may teach less, but learners may learn more; by which schools may be the scene of less noise, aversion, and useless labour, but of more leisure, enjoyment, and solid progress. (Comenius 1896: 156)

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FROM DRIVING SKILLS TO DRIVER BEHAVIOUR

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Introduction

A driver requires a wide range of skills. It is easy to think that the ability to drive a vehicle is all about the control of the vehicle and the ability to cope with various traffic situations that one encounters. However, this is far from the truth: human behaviour is far more complex than a set of responses that we have learned to use in specific situations. This chapter explores the concept of skill and how skills are learned as well as the concept of responsible driver and what skills and competences are required from such a driver.

How is *skill* defined? One way of distinguishing between a skill and knowledge is to think of something that can be seen as an action or a performance, such as writing in a tens system, whittling or climbing a hill. A skill can also be more than a manual talent; it can be the ability to play chess or the ability to control a vehicle. As the reader has probably figured out already, every skill also includes a knowledge component: you have to know the rules of chess in order to play it and you have to know what kinds of handholds can be trusted when you climb a hill. Some skills are completely cognitive, such as the skill to perform complex calculations in our mind. However, for the purposes of this chapter, we will consider *skill* to be something in which manual activity plays a significant role. These include

both so-called “automatic” skills, that you do not have to pay any attention to in order to perform, as well as skills that require conscious attention.

This chapter consists of two main parts: the first part deals with the concept of skills and how they are learned and the second builds upon this and shows that driver behaviour is about more than manual driving skills.

Learning Motor Skills

When we are born, we do not have skills, apart from a few reflexes and characteristics typical of human beings. Those reflexes and characteristics affect our learning at the beginning of our lives, but the more our expertise accrues, the more existing knowledge affects what and how we learn.

In the introduction, we discarded Skinner’s behaviouristic concept of *operant conditioning* (McLeod 2015a) as being too simplistic, but it should be noted that there are some basic reactions that human beings will resort to in situations where there is no time to think. Such reactions can also be trained, and it is an important part of training in, for example, melee combat, where one cannot stop and consider one’s actions in the middle of a match or a fight.

However, whereas behaviourism sees that learning reactions is a simple mechanical process of receiving rewards or punishments (*ibid.*) we argue that – aside from our base biological reactions – all new learning requires a cognitive component. In the mid-20th century, Piaget introduced the cognitive concept of *schemata*. Although Piaget was more concerned with the development of children into adult human beings, and was not specifically talking about learning (McLeod 2015b), the concept of schemas is still a useful concept when we talk about how we learn to behave and act in new situations. As we grow up and experience the surrounding world, we build a so-called schemata or a concept of how our living environment is structured and how it works. At first, these schemata can be very simple, as in “cry and I

shall be fed", but later they will become more complex and will help us recognise gas stations and grocery stores from other human-made buildings and include the idea of what we can expect to find when we visit either one of them and how they are different from each other. (e.g. McLeod 2015b)

Whereas Piaget did not extend his theory to adult learners and his thinking was bound by his conception of developmental stages, the concept of schemata has been extended by later researchers to include learning as well. This extended view sees, for example, that the schemata are, at first, culturally bound and even the concept of, for example, 'table' may be different for people coming from different cultures. However, as we accrue more and more experiences and knowledge, the schemata will expand to cover different variations of the same basic concept. (e.g. McLeod 2015b)

For our purposes, when we talk about the skills required when driving a car in traffic, the concept of schema works relatively well. If we follow the path of a learning driver, we can imagine them enhancing their schema of a car through trying to drive one for the first time – they will add to their existing idea the knowledge of how the car behaves when one turns the wheel, switches gears etc. They will also learn to view roads and traffic in a new way: their existing schema of streets will now focus more, or in a new way, on traffic signs and other traffic users. They will learn to recognise one-way streets and can foretell other traffic users' behaviour to a certain extent.

We can also consider any trip taken by a car as a schema: the human being will have an overall concept of how to move from his or her home to the workplace. This is a top-level schema. This top-level conception is divided into a hierarchical model of sub-schemas, which can include anything from defrosting the car windows to the idea of the best route to take and what kind of traffic can be expected on the way. At the very bottom of this hierarchy are the almost automated motoric functions: shifting gears, reacting to traffic lights, increasing and decreasing speed according to traffic situations.

The above is based on the schema theory for motor control by Schmidt (1975). Schmidt saw that schemata contain generalised rules that involve and direct our muscle movements. Schmidt saw that our memory stores four things that generate movement: 1) the initial conditions of the movement, or the signal 2) the response rules for the motor actions, including speed and force, 3) knowledge of the sensory results of the movement, how it feels, looks or sounds and 4) the outcome of the movement, including knowledge of the results. These kinds of schemata help us to react consistently in future situations needing similar motor actions. (*ibid.*)

For most experienced drivers, gear shifting is a series of functions that, in normal driving situations, are done without further thought. What causes the driver to switch from one gear to another? Generally, the trigger for a changeover event for a higher gear is the engine noise becoming too loud, i.e. the engine speed increases over a certain point. On the other hand, phase 4 above will help us recognise errors or problems in the execution of the motor schema: if the result is different from what we expected, we may initiate some other, corrective measure. This can, for example, be an attempt to regain control after a car has lost traction on a slippery road. With enough practice, these corrective measures will be more and more likely to produce positive results, instead of exacerbating the
problem.

Signals that trigger routines and the routines themselves are always learned. The driver learns at the beginning of his journey to combine the engine's increased sound with the need to switch to a higher gear. The signal is the rise in the engine noise and the action routine is gear shifting. The significant importance of the signal is demonstrated in a situation where a bus driver has learned to drive a car where the engine is in the front and has to switch to another car where the engine is at the back of the vehicle. When the engine noise has normally signalled the need to shift gears, the driver cannot use that same signal when the engine is too far away for him or her to hear its sound.

Many drivers in such situations have said that they have inadvertently driven with a too low of a gear when they have not “noticed” the need to shift to a higher one. The situation has changed with learning – a trigger of the same activity has become a different signal, in this case the tachometer.

Similarly, one can think of a routine to drive in a traffic junction. A driver who is distracted by his or her own thoughts may suddenly wake up after a traffic junction to wonder whether he or she had a red or a green light. Many experienced drivers have reported that they have checked the situation immediately from the rear-view mirror and found that they were doing the right thing through the junction. One might think that the red light acts as a signal that triggers the routine to stop and the green signal as ‘go on’ for the almost automated routine.

In driving instruction, the teacher should be careful not to produce signals himself. For example, sometimes the teacher has the habit of snapping the door panel when the vehicle is not close to the right edge or raises the foot to pedal only when the speed is too high. If the teacher always does this, it may be that the student learns to react to the teacher’s snapping or foot movement instead of the traffic situation. In the same way, giving and scheduling instructions can contribute to signals that the teacher does not realise he or she is giving. Asking the learner to take the next turn can be a signal that triggers a run-in action routine or “turn left and immediately right after that” raises an action routine that includes an exception rule.

With an experienced driver, all the routines and skills associated with car handling are automated so that the driver does not need to think about what they are routinely doing. Finally, the series of actions can be automated so far that the performer can no longer even break them into the separate parts that were practiced during the training phase.

Automation is, in practice, an absolute prerequisite for being able to participate in road traffic, because automation means that we can do more things at the same time. How would we be able to drive a car if we had to

think about each hand and foot movement separately? We cannot share our attention between several things at the same time. We can walk, eat and discuss at the same time: walking and eating are handled by internal models and conscious attention is attached to the discussion. Compare this with the walking of a toddler: a child learning to walk can focus all of his or her attention to the act of walking and fall onto their bottom at the slightest distraction. Through training, routines take care of some of the tasks we are doing so that conscious attention can be directed to other activities. With an experienced driver, those automated functions cover most of the driving tasks.

Automation also has a flip side. All our operations tend to automate when the number of repetitions grows. Everything works well so long as the internal model that guides the action is correct or the situation is such that it will consciously keep us alert to think and act. However, if an automated set of operations is not desirable, it is difficult to change. A set of actions may be wrong for a given situation because it was originally learned wrong or the situation changes in a way that requires more or less different behaviour. It may be that the driver himself does not even know he is doing things in the “wrong way".

Learning Responsible Traffic Behaviour

The previous section described the principles of learning motor skills. However, a responsible driver needs to master more than just basic motor skills and routine traffic situations. Traffic is a social environment where we interact with other human beings and even pets and wildlife. We cannot always rely on automated reactions or past experiences to guide us to behave in the correct way. Human beings live and breathe in a sociocultural existence and they are not always rational in their behaviour. Our behaviour is guided also by our emotions and the culture in which we live. As

Susimetsä discussed in the previous chapter, behaviourist and cognitivist approaches to learning tend to ignore the affective component of human behaviour. Later in this publication, Ainjärv will discuss the affective components of behaviour in more detail, including the effect of youth subcultures. However, in this section we will look at one of the best-known models of driver's operations. This is the 4-level hierarchy called Goals for Driver Education, or GDE (Peräaho *et al.* 2003*)* where the authors provide a hierarchical representation of the components that comprise driving skills, including awareness of the factors that affect our behaviour generally and in individual situations.

In this matrix, the driver's own goals, motives and life management skills are prominently raised as the driving factors of a driver's performance. Later, this four-level matrix was complemented with a fifth level, presenting the culturally directed or affected level of behaviour (e.g. Keskinen *et al.* 2010). Because this fifth level offers a clear connection to the sociocultural conception of man, as discussed in the previous chapter by Susimetsä, we will here introduce this five-tier hierarchy (Figure 1). The top two levels of the matrix can be thought of as driving factors and driver's personal conditions while the bottom three levels are strongly involved in the actual driving event.

Figure 1. 5-Level GDE matrix (adapted from Keskinen *et al.* 2010, in Keskinen 2017)

In this hierarchy model, one of the basic assumptions is that the higher levels (level 5 being the highest) govern the activity at the lower levels, that is, in the driving event sub-areas. In the following, we will move from the bottom of this hierarchy to the top.

The bottom level of the matrix, level 1, is called **Vehicle handling and manoeuvring**. This level includes our skills and knowledge in gears, driving controls, tyre grip, direction and speed. They are the basic skills we need when we operate a vehicle and move it from point A to point B. Mastery at this level is only the most basic block of driving skill.

The second level, level 2, is called **Mastery of traffic situations**. This encompasses our knowledge of the traffic rules, our observation skills of traffic situations, our interaction with other traffic users and the use of safe driving distances. Together with level 1, these skills allow us to engage in basic traffic situations and are also what we generally consider “driving a car” and are the focus of traditional driver teaching. And, referring to the beginning of this article, these two levels are the ones that were considered in our discussion of schemes and motor schemes. The majority of the physical actions performed by a driver can be found on these levels. Mostly, driving is routine, regardless of whether it is related to handling, traffic or general driving. For example, it is customary to check the light traffic beyond the crossing road just before rolling into the cross-section. Similarly, it is a learned mannerism to drive too close or a proper distance away from the next car, or to leave school or work at the same time regardless of weather or other conditions.

The third level, level 3, asks us to consider the **Goals and context of driving**, and concerns driver’s goals and the driving environment of a certain journey, including why the journey is taken, where it takes us and by which vehicle. This level also includes the planning of the route and the choice of

driving time, as well as the driving conditions and with whom to drive. The decisions made at this level are under the guidance of the background conditions of the fourth (and therefore also the fifth) level. For example, the decision to drive too fast in relation to slippery conditions may be due to the desire to make it to an appointment on time.

Good planning can make a trip easy, while poor planning can make it very difficult. Realistic planning, the easiest route, or the most suitable driving time will not only save fuel, but also reduce the likelihood of encountering difficult situations and thus reduce demands for both traffic management and vehicle handling (levels 1 and 2). The driver can usually decide whether to drive or not and how. For example, he can choose the time of day and whether to use a family car or a bus. Likewise, he can usually influence whether he or she is going to be alert or sleepy or aggressive in the driving situation. If the driver decides to use a bus, he relieves himself of both traffic management and vehicle control.

The next level of the hierarchy, level 4, discusses the **Personal goals for life, skills for living**. This level of the hierarchy includes such personality features as one's self-concept as a driver, self-control and motives, but also the way of life, attitudes, gender, age, the role of driving as part of self-image and background factors that form the basis for an individual's way of living and behaving. Feedback from the environment, for example from social groups, is of great importance in the formation of these background factors, especially if the feedback comes from people that the individual perceives as important. For example, approval from friends will reward young people behaving in a way that garners them further praise and approval.

Some phenomena at this level are related to the immediate conditions of action, such as the driver's physical or mental ability. Their effect is either positive or negative, but driver education may have little effect on them, at least in the short run. However, they can be considered as factors that allow

things to be done or that limit available opportunities. With the awareness of their own limits, drivers can reduce the adverse effects of those limitations.

This second highest level is the most important and, at the same time, the most challenging for road safety and driver training. At this level, we consider what the driver is willing to do and how. It is therefore what is often called *attitude*. For example, the driver's safety knowledge, traffic rules or vehicle handling skills are irrelevant unless he is motivated to use them in his or her own driving (Rothengatter 1997). They also define the driver's own values, motives, and goals as to how he or she behaves in relation to the rules agreed upon by the surrounding society.

The top level of the matrix, level 5, is the **Social environment**. This includes the culture, legislation, enforcement, subcultures, social groups and their values and norms. These factors create boundaries for the life and activities of an individual, the framework within which behaviour can occur. Traffic, like all other aspects of life, is bound with the current society, the culture and its policies and norms. Our social surroundings (home, friends, vocation etc.) also create expectations and behaviours that the individual should follow in order to become a recognized member of
the group.

The term subculture refers to cultures within a culture. These cultures may create their own rules and norms, and these may even be completely opposed to the rules and norms accepted by the main culture of the society. However, subcultures are not necessarily opposing the main culture: they may merely have some additional rules on top of those accepted by the general society surrounding them. Thus, examples of subcultures can include anything from criminal gangs to Rotary Club members and reading groups.
(cf. Nwalozie 2015)

The importance of different social groups varies according to different life situations. In particular, the circle of friends and other important reference

groups are the sources of influences and social norms and goals, especially for young people.

Overall, there is a relationship between levels 5 and 4 in the sense that an individual usually strives to seek and choose their habitat according to their own goals, and the goals, in turn, are under the influence of the surrounding culture. And these levels, in turn, affect everything below them. This idea corresponds to the idea of the sociocultural conception of man, which sees that we are all both the creators of our culture as well as participants in it. We can never escape this connection and the responsibility that it brings: all our actions combine with the actions of other members of our culture and, in effect, create our culture. Therefore, whatever the traffic culture of our society, it is created by us all.

Conclusion

The purpose of this chapter was to shed light to the traditional focus of driving teaching – that of manoeuvring a car and successfully navigating traffic situations – and shows that it is only a small part of what actually forms the end result: driver behaviour. As driving teachers, we should never focus on just one level of the GDE matrix, especially the lower ones, but should always contextualise our teaching and give it a wider perspective. When we acknowledge and make apparent how culture, values, attitudes and other higher-level factors affect the actual act of driving, we will be better able to influence and educate young, learning drivers to take part in, and be developers of, future traffic culture.

We as teachers are in a crucial role in transferring values and attitudes to our students, be they in the classroom or in the car. It is difficult, if not impossible, to change the values that our students have learned from their parents and peers at a very young age, but it does not mean that it is not our responsibility to *try* to change them when it is necessary for the student to

learn to become a responsible driver. We should also be fully aware of our own values and attitudes and make sure that they are in congruence with the idea of responsible driver – if we speak one thing and act quite differently ourselves, the students will soon pick up on it.

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SOCIAL-COGNITIVE PROCESSES UNDERLYING ROAD USER BEHAVIOUR:

A Psychological Approach to Road Traffic Safety

Özlem Simşekoğlu

Introduction

Worldwide road traffic injuries are among the major causes of death especially for young people aged between 15-29 years (Organization 2015). In order to reduce traffic accidents, it is important to focus on the three primary components of traffic system, which are the physical environment, the vehicle and the road users (e.g. drivers, pedestrians, cyclists), and the interactions between them. Among these components, road user behaviour needs special attention because it is a well-known fact that most of the traffic accidents occur due to the human factor. Psychological knowledge is needed to understand the basic perceptual, cognitive and emotional processes underlying road user behaviour. In recent years, an increasing number of studies using psychological theories and approaches have been conducted in order to examine road user behaviour and contribute to the reduction of traffic accidents. Most of this research is conducted under the field of *traffic psychology*, which is a relatively young sub-field of psychology defined as "the study of the behaviour of road users and the psychological processes underlying that behaviour" (Rothengatter 1997). Researchers in this field examine various aspects of road user behaviour, such as attention capacity of drivers, traffic risk perception and road safety attitudes, using different theoretical approaches. Understanding and predicting road user behaviour by

using scientific methods and providing measures for behaviour modifications are among the most important goals of traffic psychologists.

One of the important countermeasures to reduce traffic accidents is to have a good driver education and training with an emphasis on the development of safety skills and motivations among the drivers (Keskinen, Hernetkoski 2011). Understanding basic psychological processes underlying road user behaviour is essential for training learner drivers at all levels of driver education to be good and safe drivers. The aim of this chapter is to provide an overview of the basic psychological processes underlying road user behaviour. In the first section, motivational aspects of driving, with an emphasis on the distinction between driver violations and errors, are discussed. In the second section, the role of social psychological constructs, such as attitudes and social norms, for road user behaviour is examined. Next, traffic risk perception and how it is related to road user behaviour is discussed and finally, social cognitive biases influencing risk perception and the behaviour of road users are summarized.

Motivational Aspects of Driving

Driving is a complex process that requires acquisition of basic and higher-order skills at different levels. At the basic level, a driver should have the psychomotor skills and physiological condition required for driving; however, these basic skills and conditions alone are not sufficient for safe driving. A driver also needs higher-order motives and attitudes for safe and good driving. Motivation is an internal process that leads the person to behave in a certain way. There are both safe and unsafe motivations, such as sensation-seeking and risk-taking, underlying driver behaviours. Forming safe motivations for driving is an important aspect of safe driving.

Models explaining driving often use a hierarchical approach, where they describe driving tasks in several hierarchical levels, such as operational

(control), tactical (manoeuvring), and strategic (planning) (Michon 1985). The goals and contents of driving education (GDE) framework (Keskinen 2014) is a commonly and successfully applied framework to explain driver tasks and skills using five levels: vehicle manoeuvring, mastering traffic situations, goals and context for driving, goals for life and skills for driving and social environment. Vehicle manoeuvring (controlling the vehicle) and mastering traffic situations (adapting to demands of the traffic situations) are the two basic levels required for operating a car in traffic. The next level refers to the goals and context of driving, which focuses on the important role of planning, trip-related goals and driving context for safe driving. The fourth level in the hierarchy refers to goals for life and skills for living and it focuses on lifestyle and motivational factors for safe driving. In 2010, the model was extended with the addition of a fifth level called "social environment" (Keskinen *et al.* 2010; Keskinen 2014). This level aims to cover aspects of social environment such as the culture, group values and norms that influence driving. All levels in the hierarchy are essential for successful operation in traffic and there are both top-down and bottom-up processes in the model (Hatakka *et al.* 2002). Therefore, changes at both higher and lower levels of the hierarchy affect the whole system. The GDE framework significantly contributes to other hierarchical approaches of driving by including higher-order lifestyle factors and motives as an important aspect of driving. There is clear research evidence that risk-increasing factors included in the highest level of GDE framework, such as high sensation-seeking and unsafe attitudes, are critical factors increasing risky behaviour and accident involvement among drivers (Dahlen *et al.* 2005; Iversen, Rundmo 2002; Iversen, Rundmo 2004; Parker *et al.* 1995). Therefore, traffic psychology research pays special attention to motivational and attitudinal factors causing risky road user behaviour.

Driver Errors vs. Driver Violations

The distinction between performance factors and motivational factors in driving is in line with the distinction between the concepts of “driver errors” and “driver violations”, which are two different types of driver behaviour with different psychological origins. Driver errors were defined as “the failure of planned actions to achieve their intended consequences” and they involve two sub-categories: “slips/lapses”, which refers to the undeliberate deviation of action from intentions, and “mistakes”, which refers to the departure of planned actions from a satisfactory path towards a desired goal (Parker *et al.* 1995; Reason *et al.* 1990). Misreading a traffic sign and driving away from the traffic lights in third gear are examples of slips/lapses, whereas underestimating the speed of an oncoming vehicle when driving is an example of a mistake (Parker *et al.* 1995; Reason *et al.* 1990). Driving violations, on the other hand, were defined as “deliberate deviations from those practices believed necessary to maintain the safe operation of a potentially hazardous system” (Reason *et al.* 1990). For instance, a driver not observing the speed limits on a certain road or driving against a red light is showing a driving violation. Later, a further distinction was made for driving violations as ordinary versus aggressive violations. Ordinary violations include driver violations that are not overtly aggressive, such as speeding, whereas aggressive violations include overtly aggressive driver behaviour, such as racing and showing hostility to other drivers (Lawton *et al.* 1997; Parker *et al.* 1998). In conclusion, errors result from information-processing problems; however, violations are related to motivations of drivers. Hence, when aiming to reduce driver errors and violations different remedial actions are required (Parker *et al.* 1995; Reason *et al.* 1990). Improving basic driving skills of the drivers might help to reduce errors; however, this is not enough to reduce deliberate violations, which requires changing attitudes, motivations and norms in a safer way by considering the cultural and social context of driving.

In order to measure driver errors and violations, Reason and others (1990) developed the so-called Driver Behaviour Questionnaire (DBQ), which has been widely used in many studies examining the relationship between driver errors, violations and accident involvement. Both driver errors and violations have been found to be positively correlated with accident involvement by previous studies (de Winter, Dodou 2010; Özkan, Lajunen 2005; Stradling *et al.* 2000); however, types of accidents tend to differ depending on driver behaviour. For example, driver violations, such as speeding, are often associated with loss-of-control and rear-end collisions; whereas driver errors, poor judgments in traffic, are often associated with collisions at junctions (Elander *et al.* 1993; Parker *et al.* 1995). Also, the contributory role of driver errors and violations in accidents vary depending on the age group of the drivers. Driver violations, such as speeding and drinking and driving, are stronger predictors of accident involvement among young drivers than they are among old drivers. On the other hand, driver errors, such as misreading traffic signs and failing to yield, are common reasons for accidents among elderly drivers (Hakamies-Blomqvist 1993; McGwin, Brown 1999; Parker *et al.* 2000).

Social Psychological Factors Influencing Road User Behaviour

Social psychological factors influencing behaviour include factors that are constructed in interaction with other people, such as beliefs, attitudes and norms. The roles of these factors in relation to road user behaviour have been commonly examined by using the Theory of Planned Behaviour (TPB) (Ajzen 1985, 1991), which is a successful attitude-behaviour model providing a useful theoretical framework for explaining how attitudes and beliefs influence a variety of road user behaviour. According to the TPB, people make rational decisions based on their evaluations of alternative actions. In

the model, the immediate predictor of volitional behaviour is the intention, which refers to an individual's readiness and desire to perform a certain act. The intention is determined by attitude, subjective norm and perceived behavioural control (Ajzen 1985, 1991) (see Figure 1). Attitudes refer to a person's overall evaluations of a behaviour, while subjective norms consist of a person's beliefs about whether significant others think he/she should engage in that behaviour (Ajzen 1985, 1991). Perceived behavioural control refers to the person's perception of control on engaging in that behaviour and has both direct and mediated effects (by behavioural intention) on behaviour (Ajzen 1985, 1991). The TPB only focuses on planned or volitional behaviour; however, there are also many habitual behaviours that occur without planning. Hence, not including the role of habits in the model is the main critique the TPB has received. Thus, later, in order to cover the effects of habitual influences on behaviour and improve the predictive power of the theory, the TPB was extended by adding the habit construct to the model (Verplanken, Aarts 1999; Verplanken *et al.* 1997). In addition, neglecting the role of emotions and feelings on behavioural intentions has been considered another major limitation of the theory. Studies applying the TPB to explain some behaviour after including the role of anticipated emotions for behaviour have shown that the extended model was more successful in explaining the intentions and behaviour (Conner, Armitage 1998; Perugini, Bagozzi 2001; Sandberg, Conner 2008).

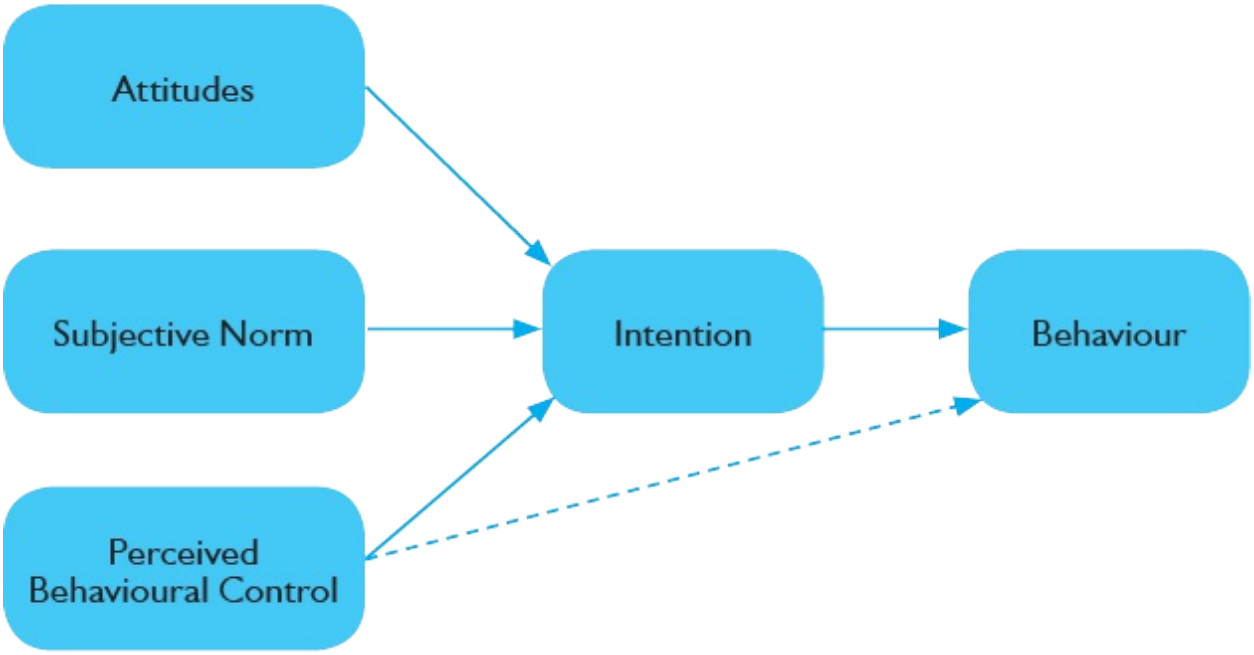

Figure 1. Theory of Planned Behaviour (Ajzen 1985, 1991)

Road User Attitudes

Road user attitudes can be defined as road users' positive and negative evaluations, which are basically based on their beliefs and feelings about various behaviours and situations in traffic. The link between road user attitudes and behaviour has been widely examined and research shows that there is a close link between road user attitudes and behaviour. Most of the previous studies applying the TPB to explain road user behaviour has shown that attitude is a strong predictor of intentions related to various road user behaviours. For instance, attitudes were found to be significant predictors of intentions related to speeding (Elliott *et al.* 2003; Parker *et al.* 1992; Warner, Åberg 2006), drinking and driving (Chan *et al.* 2010; Parker *et al.* 1992), seat belt and helmet use (Lajunen, Räsänen 2004; Şimşekoğlu, Lajunen 2008a) and pedestrian violations (Moyano Díaz 2002; Zhou *et al.* 2009). Most of these studies show that there is a positive relationship between road user attitudes and behaviour, thus, as the attitudes get safer the behaviour also gets

safer and vice versa. Therefore, to increase traffic safety, it is essential to form safe attitudes among road users as a first step. For example, a traffic safety intervention aiming to reduce drinking and driving among drivers is more likely to be successful if it first targets changing unsafe beliefs and attitudes of drivers related to drinking and driving.

Although attitudes are strong predictors of behavioural intentions in general, it should be noted that, sometimes there might be a weak relationship between road safety attitudes and behaviour. For example, research shows that although people report positive opinions about seat belts, their use of seat belts might still be low (Chliaoutakis *et al.* 2000; Şimşekoğlu, Lajunen 2008a). There could be several explanations for this discrepancy between attitudes and behaviour. First, it could be related to the social-desirability effect due to use of self-report surveys for measuring attitudes and behaviour. People might report that seat belts are useful, and they use it more frequently than they do in fact because this kind of a response is more socially acceptable and desirable. Another reason for the weak relationship between the attitude and behaviour might be related to the low perceived control for the behaviour. As postulated by the Theory of Planned Behaviour (Ajzen 1991), perceived behavioural control refers to the control people feel over engaging in a certain behaviour and it is about how easy or difficult people think it is to engage in that behaviour. Although people have a positive attitude towards a certain behaviour, if they have a low perceived control over the behaviour, they may not engage in that behaviour. In many studies, examining some road traffic behaviour, such as seat belt use and speeding, perceived behavioural control was a strong predictor of both behavioural intentions and behaviour (Elliott *et al.* 2003; Parker *et al.* 1992; Şimşekoğlu, Lajunen 2008a). Finally, habitual processes might explain the weak relationship between attitudes and behaviour in some cases. Previous research shows that when the behaviour is habitual people show less attention to new information and alternative actions and often attitudes and intentions

do not predict habitual behaviour strongly (Verplanken, Aarts 1999). For example, a car occupant with a strong habit of not using a seat belt is likely to avoid using a seat belt although he/she might have positive attitudes towards seat belt use. Therefore, in addition to forming positive attitudes towards road safety, turning safe behaviours into habit and replacing the unsafe habits with safe habits are necessary to increase traffic safety among road users.

Social Norms

People follow social norms to gain approval from others or to be correct in some ambiguous situations. There are different types of social norms governing human behaviour. Social norms based on people's perceptions about what is approved and disapproved by others are called injunctive norms, whereas social norms based on how people actually behave are called descriptive norms (Deutsch, Gerard 1955). How people behave in traffic is influenced by both injunctive and descriptive norms. A subjective norm, which was defined within the Theory of Planned Behaviour previously, is a type of injunctive norm because it is related with whether significant others, such as family members and close friends, approve our behaviour. Subjective norms have been found to be strong predictors of behavioural intentions related to many driver violations, such as speeding and drinking and driving, (Parker *et al.* 1992; Warner, Åberg 2006) as well as pedestrian violations (Moyano Díaz 2002). How people act in traffic is not always safe. Therefore, sometimes conforming to descriptive norms by following examples of others in traffic can lead to risky behaviour. For example, pedestrians have a tendency to cross the road at red lights, creating dangerous situations when the other pedestrians are doing the same (Nordfjærn, Şimşekoğlu 2013; Zhou *et al.* 2009). Similarly, drivers tend to show risky driver behaviour more when there are other examples of risky driving in traffic (Cestac *et al.* 2014; Forward 2009). In traffic environments where the majority are obeying the

rules and there are only a few violating the rules, descriptive norms are likely to have a positive influence on road traffic safety; however, if the majority are breaking the rules, following the descriptive norms can reduce traffic safety even more. Therefore, it is critical for traffic safety to start from individual behaviour to change social norms in a safer way.

Traffic Risk Perception

Traffic risk perception, which refers to subjective experience of risk in potential traffic hazards (Deery 1999) is one of the important psychological constructs influencing road user behaviour and attitudes. Traditionally, a distinction is made between objective and subjective assessment of risk in risk research. Objective risks in traffic can be calculated based on facts about probability and consequences of some negative events, such as traffic accidents. Subjective assessment of traffic risks, on the other hand, is determined by road users' information about potential hazards in traffic and their subjective assessment of their own abilities to handle these hazardous situations (Brown, Groeger 1988). Therefore, subjective risk or, in other words, perceived risk is more critical for determining road user behaviour. Previous studies focusing on accident risks in traffic often defined perceived risk based on perceived probability of being involved in a traffic accident and severity of the consequences of the accident (Nordfjærn, Rundmo 2010). Risk perception of the road users increases as they perceive the probability and severity of the consequences of an to be accident higher.

Previous studies have shown that there is a close link between traffic risk perception and road user behaviour. When people perceive risks to be high in traffic, they tend to engage in some risk-reducing behaviour. For example, as the car occupants perceive high risks in some driving conditions, such as driving in adverse weather and road conditions, they use their seat belts more often (Şimşekoğlu, Lajunen 2008b) and reduce their speed (Edwards 1999;

Kilpelainen, Summala 2007). In addition, some previous research shows that when drivers perceive high risks related to a certain transport mode, such as car use, they tend to decrease this risk by reducing or avoiding using it (Fyhri, Backer-Grøndahl 2012; Nordfjærn *et al.* 2014; Rundmo, Moen 2006). This line of research supports some social psychological models, such as the health-belief model (Rosenstock 1974) and the precaution adoption process (Weinstein 1988), which argue that risk estimates are positively associated with precautionary behaviours. Low or distorted traffic risk perception, on the other hand, is often associated with engaging in riskier driver behaviour. For example, compared to older drivers, young drivers, who have lower traffic risk perception and higher risk-acceptance, more often engage in risky driver behaviour, such as speeding and drinking and driving (Deery 1999; Machin, Sankey 2008; Ulleberg, Rundmo 2003). It should be noted that although road users modify their behaviour to reduce risk, their modifications might not be sufficient to avoid accidents especially when the actual risks are higher than the perceived risks. For example, previous research shows that drivers reduce their speed in adverse weather conditions, but this reduction is often too small to compensate for the increased risk due to bad weather conditions (Edwards 1999). Therefore, it is important to understand that traffic risk perception is open to some errors and biases, and in order to have a more accurate perception of risk, drivers need to be aware of theses biases. The next section will provide a brief overview of the common social cognitive biases that influence risk-related judgments of road users.

Social Cognitive Biases among Road Users

Instead of making rational judgements like a scientist, people mostly use cognitive shortcuts and heuristics to make sense of their social world because it is faster and more economical (Fiske, Taylor 2013). However, human thinking is prone to errors and biases, thus sometimes these mental strategies

lead to wrong conclusions. There are several social cognitive biases that have been examined in relation to road user behaviour and attitudes by previous research. In particular, optimism bias, illusion of control and actor-observer bias are commonly observed among road users.

OPTIMISM BIAS

One of the most common biases that has been examined in relation to traffic risk perception is optimism bias or unrealistic optimism, which refers to the tendency to underestimate the likelihood of negative life events one may experience in the future (Weinstein 1980). In traffic, many drivers are excessively and unrealistically optimistic when judging their driving competency and accident risk (DeJoy 1989). Previous research has shown that most drivers, especially young drivers, tend to perceive themselves as more skilful and competent as a driver and their accident risk to be lower, compared to their peers (DeJoy 1989; Delhomme 1991; Harre *et al.* 2005). Although it is common among all drivers, young male drivers are especially more prone to show optimism bias (DeJoy 1989; White *et al.* 2011). In addition, compared to non-professional drivers, professional drivers, such as taxi and truck drivers, tend to show more overconfidence with their driving skills and see other drivers as less competent. Therefore, they are more likely to show optimism bias related to the probability of accident involvement (Dalziel, Job 1997; Walton 1999). Optimism bias leads to reduced accident risk perception, which might result in higher risk-taking and less preventative behaviour in traffic. Informing the learner drivers about this bias during the driving education might help them get a more accurate picture of risks in traffic.

ILLUSION OF CONTROL

Another common social cognitive bias that is examined related to driver behaviour is the illusion of control, which is associated with optimism bias. While optimism bias results from a low expectancy for negative life events and high expectancy for positive life events, illusion of control is related to having a distorted judgement about our control over the events. People tend to overestimate their control over events and this way of thinking leads to the idea, “it won’t happen to me”. Some previous studies showed that compared to the times when the drivers imagined themselves as a passenger in a vehicle, when they imagined themselves as the driver of the vehicle, they rated the accident probability much lower (McKenna 1993) and chose more risk-taking behaviour, such as driving with a higher speed (Horswill, McKenna 1999). This line of research indicates that when the drivers feel personal control by driving the car themselves, they have a low expectation that an accident can occur; therefore, they tend to show some risk-taking behaviour. Traffic is a complex system including many factors that are not under the control of the drivers. Hence, an exaggerated feeling of control obviously increases the risks for the drivers. It should, however, be noted that, these types of social cognitive biases also have some positive consequences. For example, both optimism bias and illusion of control contribute to psychological well-being of individuals by serving as a self-enhancement and coping strategy. Therefore, awareness of the drivers about the potential role of these biases for increasing risk-taking behaviour should be increased while appreciating the functional aspects of such biases.

ACTOR-OBSERVER BIAS

There are different actors in traffic, such as drivers and pedestrians, and how the different actors explain the reasons for events in traffic can vary quite a lot depending on their role and perspective. This could be explained by attribution theory, which is about how and why people use information to make causal explanations about the events (Fiske, Taylor 1991). There are

two different types of attributions that people use for causal explanations: internal and external attribution. Internal attribution refers to explaining the causes of the events or behaviour with some internal and stable factors, such as personality traits of a person, whereas, external attribution refers to explaining the causes of the events or behaviour with some external factors that are not under the control of the person, such as environmental and situational factors (Heider 1958).

People tend to attribute their own behaviour to external factors arising from the environment or the situation and other peoples' behaviour to internal or dispositional factors, especially when there is a negative outcome. This is an attribution bias called "actor-observer bias" (Jones, Nisbett 1971). This is a common bias observed in human interactions in many domains, including traffic. When there is a conflict situation between two drivers, they often tend to blame the other driver for being a bad and risky driver; however, they tend to explain their own risky actions with situational factors, such as being in a hurry. Previous research has shown evidence for actor-observer bias among drivers; for example, young drivers tended to explain their friends' risky driving behaviour with more dispositional factors, such as "showing off", whereas they explained their own risky behaviour with more situational factors, such as being late (Harre *et al.* 2004). Also, previous studies indicate that when there is a negative event in traffic, making blaming and dispositional attributions about the offending driver leads to aggression and hostility towards the driver (Britt, Garrity 2006; Hennessy, Jakubowski 2007; Lennon *et al.* 2011). It is common to see that drivers lack tolerance and show anger towards the other drivers who commit offences. However, when they commit such offences themselves they think that they only made a mistake and expect some tolerance. Increasing the drivers' awareness about this attribution bias and discrepancy in their judgements of the self and others might help to reduce aggression and hostility in traffic and increase their self-responsibility.

Conclusions

Road traffic is a complex system including different components, which are road users, vehicles and road environments. Solving the problems related to these three components is important for reducing traffic accidents. Road user violations and errors have the biggest contributory role in traffic accidents; therefore, improving road user behaviour is especially critical for traffic safety. In order to change road user behaviour in a safer way, we need to know what kind of psychological processes underlie road user behaviour. Traffic psychologists have been examining the role of various psychological constructs, such as perceptions, emotions and motivations, for a wide range of road user behaviour. Among different factors influencing road user behaviour, motivations and attitudes of drivers have received a lot of attention from researchers because having safe attitudes and motivations towards driving are critical for developing safety skills among the drivers. Another psychological construct important for traffic safety is traffic risk perception, which might influence road user behaviour both directly and indirectly. Traffic risk perception is based on the subjective judgements of risk in traffic situations and, therefore, it is open to some errors and biases related to human thinking. This chapter addressed the role of motivations, attitudes and social norms for road user behaviour. In addition, traffic risk perception and some social cognitive biases, such as optimism bias, illusion of control and actor-observer bias, that might influence the risk perception were summarized.

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INTEGRATION OF REFUGEES AND IMMIGRANTS TO ROAD SAFETY CULTURE

Eva Brustad Dalland

Introduction

Challenges often arise when driving teachers are going to teach and coach immigrants in their driving lessons. A different language can be the clearest problem, but there can also be deeper challenges related to cultural differences, as reflected in the fifth level of the GDE matrix (Keskinen 2014). This study is about refugees and cultural differences related to road traffic safety in their new country. In Norway, immigrants who come from Middle Eastern and African countries, have a higher risk of being involved in a road accident than other inhabitants (Nordbakke, Assum 2008), and are seen as a high-risk group among road users (Vegdirektoratet 2014). Low road traffic safety awareness is not a problem among immigrants from Western countries, but the majority of the refugees and immigrants are coming from countries with a very high rate of traffic injuries and fatalities and with very different road safety cultures. This increases the overall risk in road traffic, and public road authorities say that special prevention initiatives have to be made (Vegdirektoratet 2014).

When the great wave of refugees came in 2015, the Norwegian government challenged universities and university colleges to solve how our institutions and employees could contribute in this special situation. In Road Traffic Section at Nord University, where driving teachers and examiners are educated, we decided to do a research and development project related to

challenges in road traffic safety for the refugees and immigrants. Many refugees arriving during a short period could lead to conflicts and increase the risk of accidents in road traffic in our community.

This project is about how to integrate refugees into the road safety culture in their new country in an early stage after arriving. The participants in this study come from Afghanistan, Eritrea and Syria. This study focuses on how to include them in the road safety culture. It is a research and development project consisting of two researchers, two practical supervisors and six driving teacher students in cooperation with a local refugee centre. Integrating refugees into road safety culture at an early stage after their arrival to their new country might reduce their accident involvement, also after they get their driving license. The findings and experiences in this project can be essential knowledge to use in driver education when immigrants come to the driving school to get their driving license. In that case, it is essential to think about cultural differences and lack of experiences, both in didactical planning and in communication in the learning process. This article is based on the pilot project and presents some of the findings and experiences. It also discusses what we will focus on in the next step of the process.

Primary Objective and Research Question

The overall aim of this project is to contribute to better road safety for refugees in our community, so that refugees and immigrants will be involved less in road accidents in the future. Reducing traffic injuries and fatalities will directly affect all inhabitants' safety and health in our community.

The primary objective of this research and development project is to provide knowledge about how our community can improve refugees' or immigrants' foundations and cultural qualifications to be road-users in their new community. It is an objective focussed on *how* road safety culture can be

a part of learning programs for immigrants. The aim is to contribute to a more concrete goal and emphasize *how* to integrate immigrants in the road safety culture in their new country, in the curriculum for learning programs for immigrants.

The research focuses on the immigrants' learning processes in becoming road users in different categories. We focus on how we in our community can supply and give refugees and immigrants a part of all the knowledge, experiences and attitudes children born in our country get during their childhood and adolescence, related to road safety. The research also brings findings about what kinds of previous experiences the immigrants have as road users, and how they see the road safety culture in their new country. The main research question is: *How can the community work to integrate immigrants in the road safety culture in their new country in a successful way?*

Our pre-understanding is that to fill the cultural gap in road safety thinking, much more needs to be done other than giving *information* to the refugees and immigrants about some road traffic rules and bus timetables. It is our pre-understanding that the refugees have to be involved in activity to get a deeper understanding, which has to be emphasized in the official introduction program as soon as possible after the refugees or immigrants have arrived in their new country.

Theory

This is an intervention study inside *The* A*ctivity Theory* (Engeström 1999a), emphasizing that the development of knowledge arises in collaborative activity, and that individual thinking is strongly woven together with context and cultural tools. Language is seen as the most important tool and basis for an individual's development and helps to make cognitive connections (Vygotsky 1978, 1986). Cultural artefacts are essential in individual

development, and can be both physical and linguistic in character, as language, signs and symbols. Road signs and symbols, traffic lights, cars, buses, motorcycles, bicycles and reflective equipment are all cultural artefacts. There is an interaction between the individual and the social and cultural context. The individual constructs understanding with and through cultural artefacts and can be part of an inner dialogue about how to behave and act. The language helps the individual to overcome impulsive actions and contribute to individual self-regulation (Vygotsky 1978, 1986), which is essential when being a road-user.

The Activity Theory is described through five principles (Engeström 2001). The first principle is that individuals are members of collective, artefact-mediated and object-oriented activity systems with network relations to other activity systems. The second principle is the multi-voicedness in the activity system, where individuals have different historical backgrounds, traditions, interests and views, and work together in different roles. The third principle is historicity, and historical changes are an important part of understanding activity theory and individual actions in the system. The fourth principle is that contradiction in the system is seen as a source of change and development. Inconsistency and differences in the system will be sources of innovation. The fifth principle focuses on the possibility of expansive transformations in the activity system when inner contradictions and tension arise, and somebody starts asking critical questions about the established norms. (*ibid.*) *Expansive learning* goes on for a long time, in processes like a spiral, with different phases and spaces for discussing and sharing experiences from the process. In some cases, a new, thoroughly discussed change and collective view emerges in the activity system (Engeström 2001).

The activity system is a model inside Activity Theory which can be employed as a tool to describe, analyse and understand people's actions and complex activities in the community inside an activity system, and in interaction with other activity systems (Engeström 1999a; Engeström,

Sannino 2010). An activity system consists of subject, object, cultural artefacts, community, division of labour and rules, which influence each other. The subjects represent the participants in the system, and the division of labour defines their roles and positions (Engeström 2001). When changes arise in one part of the activity system, or when contradictions and tensions arise between some of the parts, there can be a need for changes in the whole system. When new ideas coming from outside take place in the system or other changes emerge, tension can arise, and bring a need for new thinking and changes. Inner contradictions in the activity system represent a power to change and development, not problems (Engeström 1996, 1999b, 2001).

In this case, when the wave of refugees came, the community asked for universities' help to handle the new situation with a diversity of tensions and challenges, which arose when many refugees were arriving at the same time. One of the contradictions we saw was that dangerous situations arose when newly arrived refugees were moving in the road traffic system. We were all subjects in this overall activity system with different roles. In our role as researchers inside road safety and driving teacher education, we focused on road safety, which in this case is the object in the model. Inhabitants were talking about situations in which refugees were walking along highways in darkness, where Norwegians never walk, and they talked about refugees who were crossing streets in towns in an irregular and dangerous manner. The refugees behaved unexpectedly in their encounters with new cultural artefacts. The community was worried that serious accidents might happen. There was tension in the system, and a need for research and development arose.

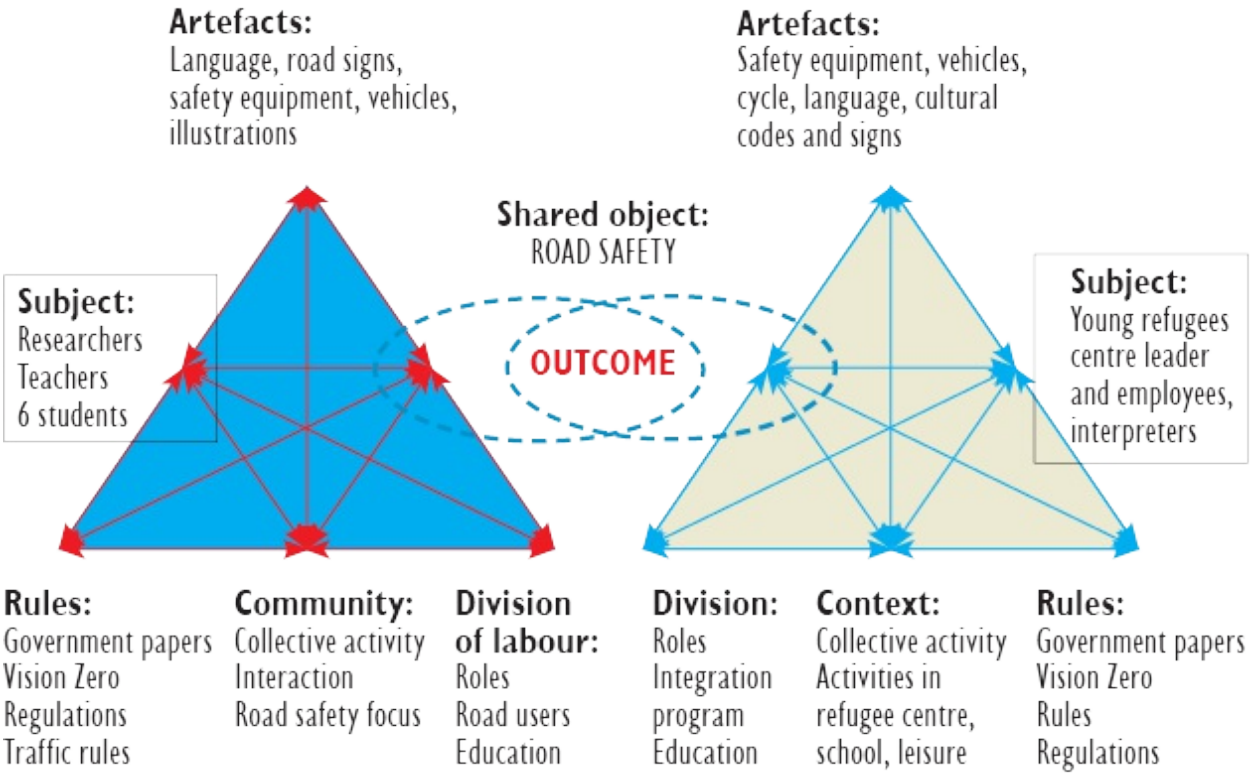

Figure 1. Interacting activity system in the project, adapted from Engeström (2001: 6)

Figure 1 illustrates the project as two activity systems, collaborating and acting together around a shared problem. The object in this case is road safety in our community. The researchers, practical teachers and students constitute one activity system, and the refugee centre, young refugee boys and two interpreters constitute the other activity system. The outcome is the findings and experiences in the project. The main points in this model are described in the text below.

Community, Historicity and Road Safety Culture

In Norway, the community emphasizes road safety in dissimilar ways from the refugees' home countries, both from the governmental and individual perspective. Road accidents lead to a greater health problem in the world, and road safety is a focus in the *World Health Organization (WHO):*

> Road traffic injuries claim more than 1.2 million lives each year and have a huge impact on health and development. They are the leading cause of death among young people aged between 15 and 29 years (WHO 2015: vii).

In order to handle this great health problem, Norwegian authorities have built a road safety culture over the years, through a number of measures and actions. A road safety culture has gradually emerged, and the native inhabitants learn it in a sociocultural process. Through a white paper, The Norwegian government presented The Vision Zero as a road safety approach, which targets zero fatalities and serious injuries in road traffic (Samferdselsdepartementet 1999). This white paper states that in our community and culture, we cannot accept death or serious injuries in road accidents. It is an ethical question about being respectful of other people's life and health. The Vision Zero is the main approach for every official document about transport and road safety. Some of the measures in the community to reach The Vision Zero is to educate competent driving teachers and driving examiners at a university level, and a comprehensive model for the driver education with a curriculum based on the GDE matrix (Hatakka *et al.* 1999; Peräaho *et al.* 2003) and modern pedagogical theories. Other measures include comprehensive work to get better road quality and to do strategic police controls for speeding, as well as alcohol and drug use.

The system for drivers' education is quite comprehensive and consists of mandatory driving at driving schools in parts of the driver education, combined with private companion driving. The Norwegian Public Roads Administration highlights a long learning process to get enough experiences in driving before learners get their driving license, and recommend a two year learning period for 16 to 18-year-olds (Vegdirektoratet 2004). The curriculum emphasizes the development of experiences through reflections and self-assessment, to be in group discussions and to use a logbook in the learning process. The qualifications of the driving teachers changed to work more with coaching, less with instruction. Therefore, the driving teachers

need good competencies. The driving teachers' education is two years of study at university level, with both theory and practical training together with a supervisor in a driving school located at campus with real learner drivers. A unique model in driving teacher education is focusing on training and coaching immigrant pupils both in the simulator and in the car, organized in cooperation with a local adult learning centre for immigrants. The idea is to learn more Norwegian in the process, and if they want to, they can be a lerner-driver in the next step. The students learn to adjust their communication, so it is easier to understand, and in-car they often demonstrate how to do something in order to enhance the learning process.

All the strategic measures to reach The Vision Zero, seem to influence road safety in our community in a good way, and the number of road fatalities goes down every year, even though there is continuous growth in traffic and the number of vehicles. Temporary statistics show that 109 persons died in road accidents in Norway in 2017 (Vegdirektoratet 2018), and this is the lowest number since 1947. In the last years from 2015 to 2017, Norway had the lowest number of road fatalities per million inhabitants in Europe. In 2016, Norway received a road safety prize, Road Safety PIN Award for Outstanding Progress in Road Safety, given by The European Transport Safety Council (ETSC) in Brussel, for the reduction of road fatalities in an exemplary way from 2001 to 2015: the fatality rate was lowered by 47% (Adminaite *et al.* 2016). Together with the inhabitants, the public authorities have contributed to reduce road accidents and thereby enhanced the road safety in our community, which also influences the populations' health situation in a good way.

Subjects in This Activity System

Native inhabitants in Norway are immersed in a continuous learning process: the system and the participants influence each other in building a road safety

culture. In one way, road safety culture is part of a good activity system for immigrants to live in. In another way, the road safety culture in the activity system can be influenced in a negative way, if immigrants do not understand the system with its rules, cultural artefacts and interactions between people who are moving there. Norwegians learn road safety step-by-step during childhood and adolescence, and there are even teaching resources for elderly car drivers. Road safety is focused all the way, from being a baby seated in a car, at home or in day care facilities and later in the school system about wearing reflective equipment and being a pedestrian, a bus passenger or cyclist. The community expects parents to teach their children to act carefully in traffic situations, and to learn to be a pedestrian or cyclist. The system and the participants influence each other in building a road safety culture.

However, public road safety authorities point out that there are still high-risk groups among road users in the community. The National action plan for road safety 2014–2017 (Vegdirektoratet 2014), says that immigrants are one of the high-risk groups related to road traffic accidents. This official plan is based on a TØI-report describing immigrants as higher risk for being involved in a road accident than Norwegians, especially if they come from Middle Eastern and African countries (Nordbakke, Assum 2008), even when they have a Norwegian driving license. The risk of being involved in a road accident in Norway is more than double for men coming from those countries in all age groups, compared with other native inhabitants. Similarly, women coming from non-western countries are twice as likely to be involved in a single road accident, compared to Norwegian women.

Tensions in the System

The fact that there are high-risk groups among immigrants related to road safety can cause potential conflicts in the activity system between them and other road users. When the cultural differences in road safety awareness

between different road user groups are ignored, dilemmas and goal conflicts might arise. Problems with integrating refugees and immigrants into Norwegian road safety culture might have serious consequences, such as increased traffic injuries and fatalities, which directly affect both the populations' and individuals' safety and health.

In 2015, when the great wave of refugees emerged, the community mobilized and established refugee centres and temporary facilities all over the country. In this chaotic situation, there was no time to discuss the environment and issues like road safety. Native inhabitants were talking about dangerous situations in which refugees were moving in the traffic system as pedestrians, and the inhabitants were anxious about accidents that could happen. For instance, people said that refugees living in a temporary institution were observed walking along a motorway in the neighbourhood in darkness without reflective equipment. It is not allowed for pedestrians or cyclists to walk there, and Norwegians know that it is dangerous to walk there. Nobody in Norway does so, even in daylight, and drivers do not expect them to be there.

The *National action plan for road safety* (2014–2017) points out that some special actions for this high-risk group should be carried out, and recommend that the introduction program for immigrants should contain needed *information* about the Norwegian system of driver licenses, traffic rules, the need to secure children in cars and road safety culture (Vegdirektoratet 2014). In the curriculum for this subject, *Learning the Norwegian language and society knowledge*, this theme is only mentioned in small part; it states that they shall receive information about local public transport and simple road user rules (VOX 2012). This National Action plan for road safety also says that we have to create *guidelines* to focus on immigrants' road safety. There are no descriptions of what these guidelines ought to contain and how it should be structured or carried out. *The national action plan for road safety*

2014–2017 (Vegdirektoratet 2014) emphasizes the need to focus on this, but no changes have been made in the curriculum during this plan period.

The Project

We initiated this project to find a way to meet the refugees in an early stage of their residence, and to find a good way to create a learning process about the road safety culture in their new country. In the first step, we wanted to get more knowledge about the gap between their knowledge and experiences related to road safety from their home country, and how they understand the traffic culture in their new country. Our thinking was that it is essential to create activities to include refugees in our road safety thinking and attitudes as soon as possible after their arrival to our country. We wanted to gather experiences and get ideas about how we could explain and influence young refugees and integrate them in the road safety culture in their new country. We developed a project where we wanted to try out some activities for the young refugees, in a pedagogical way.

This is an intervention project, and the process can be described by *The Expansive Learning circle* (Engeström 2001), which is a model for research and innovation inside The Activity Theory. This model states that a project first has a planning phase, where researchers ask critical questions about the existing practice, and do historical and theoretical research. Then the group members are invited and come together to plan and interact in the project before they try it out in real situations. The researchers carry out data collections in the process, and after a period of time, the group comes together to discuss their findings and experiences and make some changes before a new circle with practical work begins. In this way, the process runs in circles, until a new model arises and can be consolidated in the system. So far, this is a pilot project: the focus is on how to act in a group of young

refugees, 15-18 years old, relating to road safety. The plan is that the project will expand later on and include adult immigrants.

Project Process and Roles

The author of this article is one of the two researchers who initiated this project. In the first step we studied official documents about the theme, and the curriculum for the integration program. We established cooperation with a refugee centre, with the leader and one of the staff who organized the activities for the refugees, and two interpreters. Eight young refugee boys participated in the project, coming from Syria, Afghanistan and Eritrea, and they had been in the centre for about three months. At that time, there were no refugee girls in this centre. We invited two practical training supervisors and six students in our university to be co-operators in discussions and in the practical actions in the project.

The group had meetings, discussing what could be the need for the young boys at that time, related to road safety. Especially because we wanted to meet the refugees in an early stage after arriving to our country, the language and cultural differences was a great challenge. The group agreed that it was necessary to meet them in the practice area as road users and stay together with them in the context. The group decided to focus on their road user role at that time, as pedestrians, and especially in darkness, as passenger in a car or bus, and as a cyclist, and not about how to get a driving license or being a driver. In this planning period the researchers, the supervisors and the students went together in the practical area to plan the activities, as demonstrating in darkness differences when wearing reflective equipment or not, and to point out how concrete dangerous situations can arise. In this planning phase, the researchers were driving around together with the supervisors and students, discussing some risk situations in the road regulations, to agree about what we should focus on in the demonstration.

The roles were distributed. The students performed the teaching part in the classroom and the demonstrations in the practical field, and a supervisor and an interpreter were support persons. The researchers were in charge of data collection and analysis.

Two groups with four refugee boys in each were organized according to their language skills, and an interpreter followed each group. Two students emphasized the use of good illustrations, engagement in dialogue and the use of simple examples of how to interact with other road- users and focused on what the risk could be in some of the illustrated situations. After a sequence in the classroom, they went into the practical field in three groups, consisting of one student, one supervisor, one interpreter and two refugee boys in each car. The action in the practical field consisted of three parts. The first one was to explain the need for using seat belts in depth. Part two consisted of demonstrations in darkness where the student was emphasizing the need for using reflective equipment, and how difficult it is to discover a person in darkness, without reflective equipment. Part three consisted of a driving trip in the surrounding area, pointing out some regulations where the participants focused on how risk situations could arise, especially where pedestrians were involved. In the practical area, the researchers were vulnerable road users, wearing the reflective equipment, making good situations in the demonstration. In that way, the researchers ensured the quality of the demonstration. After the demonstration, we had a dialogue with the group in each car.

Research Methods and Context in Data Collection

For the data collection we did qualitative research interviews and participating observations. In a qualitative research interview, the aim is to provide information and nuanced descriptions about the focused theme seen from the interviewee’s perspective. We did focus group interviews, which are

interviews on a topic with groups of people (Merriam 2009). The main intention is to provide good data in a social context to get special information about other people's thinking, knowledge and feelings, or how they experienced various situations or events (Kvale, Brinkmann 2009; Merriam 2009; Patton 2002). The dynamic and interaction between the participants in the interview is an important part of the context for the interview, and influences the quality of the data. In cooperation the researcher and the interviewees construct meaning and unique understanding about a topic (Kvale, Brinkmann 2009). The interview method can be described as *semi-structured interview*, structured by an interview guide with main, open questions, and a set of second questions to ask to get deeper or complementary answers if required (Kvale, Brinkmann 2009).

Our decision to do group interviews instead of single ones was based on our thinking that the young refugees would feel more comfortable in that situation, instead of being alone with two researchers and a language assistant. In an interview, the researcher has to act in a way that gets the interviewees to feel enough trust to be open and honest in the dialogue. Everyone has his or her own boundaries for what they feel comfortable to talk about, and researchers in general have to be careful to avoid ethical violations. In this group, we had to be careful and not ask questions that could lead to traumatic memories. To solve the language problems, we used two interpreters who knew the boys from their work in the institution. The groups were conducted in the refugees' common language. We decided not to tape the interviews because the refugees' situation with residence permits was unclear and they could have felt more anxious about what they said if there had been a microphone on the table. Also, because of the foreign language we would not have been able to go back many times over the material to search for nuances and alternative meanings. We decided to have two researchers in the room, one asking questions and showing pictures, while the interpreter translated, and the other took notes. We qualified the data by

discussing the notes together after the interview. To ensure that the refugees understood the special traffic concepts and regulations mentioned in the questions, we used a slide with illustrating pictures. For instance, if the question was about how to use a crosswalk, we showed a picture of a crosswalk on the computer. Participating observations were done when students were teaching them in the classroom and when they were demonstrating cases in darkness when driving, e.g. about reflective equipment. In a group meeting we discussed the supervisors' and the students' experiences.

The analysis strategy is consistent with comparative analysis (Postholm 2010; Strauss, Corbin 1998), which Postholm claims can be used in all qualitative studies where coding and categories of the data is substantial (Postholm 2010). In a dynamic process we did an open coding (Strauss, Corbin 1998). During the analysis process, the researchers organize the data in groups with a shared meaning and give them a suitable name. The researchers do both a reduction of the material and connections to create meaning. Data analysis and findings are woven together with the researchers' theoretical knowledge and cultural framework (Merriam 2009).

Reliability in the Research

In a data collection where there are cultural differences and language problems, the reliability can be reduced, compared with an interview where the researcher and the interview persons have a shared language and cultural background. We compensated for some of those challenges by using two interpreters, and it strengthened the reliability that they knew the boys through earlier work in the asylum centre. The interpreters were immigrants coming from their country, and they had recently been in a learning process to get their Norwegian driving license. We trust that the interpreter really interpreted correctly for both parties. Pictures on the computer supported the

communication and strengthened the reliability. In such a group of young people, we should have told them to switch off their mobile phones, which took some of their focus in the dialogue for a couple of them.

As a part of the group interview, we tried to use a simple graduated scale to get some individual data about their risk understanding. This tool, which we thought would be a simple way to do an individual data collection, did not work, because the young refugees were not used to answering on such a scale. They were reading the scale from right to left as they are reading their language, and the interpreter used a lot of time to explain the tool. It became a dialogue between the interpreter and the refugees, and we did not know exactly what he told them. The data from this graduated scale became too doubtful as individual answers, because all the participants had answered just the same. Therefore, we ensured the reliability by not using this data. The experiences we did about this tool are very useful in the future both in research and education related to refugees or immigrants.

We were two researchers in discussion about the data material and findings, instead of one, which strengthened the reliability. We were also discussing together with the students and the supervisors about their experiences, especially related to when they were driving. We made notes, however the reliability could have been better if we had taped that group discussion and understood their
language.

Findings

CULTURAL DIFFERENCES AND LACK OF RISK AWARENESS

The young refugees' understanding of the concept of road traffic was a lot of vehicles, police and crashes. They described the need for traffic rules and signs to avoid chaos. None of them mentioned vulnerable road users or

themselves as a part of the concept of road traffic, either as a passenger, pedestrian or cyclist. The group with three boys from Syria and one from Eritrea, said that the road traffic in Norway was generally moving very slowly and one of them emphasized that the speed of Norwegian traffic was really too slow. Those who came from Syria said it was no problem for teenagers to get a car in their home country, and to drive without a driving license. One of them claimed that he started to drive a car when he was thirteen years old, and the whole group agreed that it would be much safer for them to drive a car without a driver license, than moving on a bicycle in that road environment. That was their subjective opinion. If an accident happened, the best solution was to disappear.

We asked about their understanding of risk factors related to vulnerable road users in Norway if they were moving along a road with high speed, exemplified by the European Road nearby the asylum centre. They laughed and answered that for them this road was a small, narrow road. None of the young refugees in those two groups saw any risk for accidents by moving along this European Road, in any way. They had not considered any risk of road accidents at all after coming to Norway. A great road, as they saw it, was a road with more traffic lanes and tight and close traffic.

THE LOCAL COMMUNITY CARE ABOUT THE YOUNG REFUGEES

The young boys had already had some positive experiences as road users in Norway. They had been in a learning process as pedestrians, especially when moving to school and sport activities. They said it had been difficult to understand the traffic system in their first phase. As pedestrians, their experience was that the drivers acted very respectfully and seemed to follow the traffic rules very well. Their understanding was that they had very good rights as pedestrians in Norway, in contrast with their home countries. They said that all the drivers stopped when they used the crosswalk.

A story told by the refugee boys in the interview, shows that the native inhabitants in the community cared about them and wanted to protect them. The boys were very engaged when they spoke about a happening on their way home from school one day:

> Some of us were pushing and twiddling on the road, like a fight. A driver stopped and went out of his car, and came to stop our fight. He thought it was a serious fight! It was a good feeling that somebody wanted to stop our fight! It was nice that he showed interest and cared about us, – even though we are immigrants!

This story shows how those young refugee boys got good feelings and really cooperatively reflected on that, when they experienced this driver's care for them. That he was willing to use his time to stop and offer his help in the situation. This was one of their positive experiences in the road traffic related to cultural differences. This would never happen in their home country, they said. The way they described it also speaks to their feelings of being outsiders in the community and that they are not expecting this kind of care; they said, "though we are immigrants". They did not expect this kind of protection from a stranger.

The leaders in the asylum centre said that other road users had contacted them to tell them that the young refugees' behaviour along the local roads was unstructured and unregulated. Once, a truck driver had informed them that the young refugees had been crossing the European Road on their way to school, instead of using the sub passage as expected. Those other road users in the neighbourhood can be seen to share collective responsibility, to make sure that the young refugees become safer road-users, and to prevent accidents.

USE OF REFLECTIVE EQUIPMENT

The boys coming from Afghanistan had never seen any reflective equipment before coming to Norway. The boys from Syria and Eritrea had seen

reflective equipment before but had never used it. After arriving at the refugee centre, they all got a package with different reflective equipment to use in darkness, a reflective vest, band and reflector disc. Employees at the centre said they had told the boys to use it, but they were not willing to do so, and some of them had lost the reflective equipment. The employees were a bit frustrated about that. In the interview, the refugee boys said that they tried to remember to take it on, but sometimes they forgot it, or could not find it. They also told that they had recognized that the leaders and workers in the centre always used reflective equipment in
darkness.

In the project, we demonstrated for them in real situations, how much better the driver could discover a pedestrian in darkness when wearing reflective equipment compared with not using it. During that evening, they clearly became more conscious that using reflective equipment could help to protect them in traffic situations. It was clearly useful for them to have it demonstrated and explained deeply, instead of only being told by someone that they have to use it. It is about adapting it to oneself, and to see that “I do it to protect myself, not only because others tell me to do so”.

UNDERSTANDING CONSEQUENCES AND DEVELOPING RESPONSIBILITY

The four boys from Afghanistan came from rural areas in their home country, and their experiences with road traffic was quite different from those who came from Syria. The boys from Afghanistan had seldom been passengers in a car, and it was not usual that families at home had a car. As passengers, it was normal to have ten passengers in a five-seated car. Two of them had never seen a bus before they came to Europe, only a few mini buses and none of them had been bus passengers before coming to Norway.

None of the boys were used to seatbelts in their home country. In Afghanistan, there were not usually seat belts in the cars; in Syria there may

be, but they did not use them. In the interview, they argued that they perhaps would not be able to leave the car if it were to jumpe into a lake. We had such arguments from learner drivers in Norway forty years ago. One boy was an exception. He said he had seen a film where a person was hurt because he did not use seat belts. If he had used them, he would not have been hurt. He had clearly been reflecting on the film and that the use of seat belts could protect him. The boys said that in the refugee centre, they had learned and understood that it is obligatory to use seat belts in Norway, both in the car and on the bus. It became very clear that they did it to conform to the rules and had no thought that it was to protect them. Remember, they thought that there was no risk in road traffic situations in Norway, which for them seemed very safe.

Half a year after our first meeting with the boys, we invited them to an open day at the university, focusing on road safety for youth. One activity was to try to sit in a simulator truck cabin as it turned around, so they were hanging in the seat belts. In the interview afterwards, one of them said that when he observed his friend turning around in this cab, he became very anxious because he thought that he had forgotten to fasten his seat belt, and that he could be hurt. He was happy when he saw that his friend had fastened his seat belt. The other boy also thought about his friend's safety, and that seat belts are valuable when being a car driver or passenger. When using stronger actions and tools in the learning process, when feelings are included, the learner will get a deeper and more permanent learning than if he or she is only told something.

After arriving in Norway, the boys had often been passengers on the bus. They focused on the high standards of the buses; that they could watch films on the bus. They had no idea what kind of risk situations could arise when they were moving on or off the bus.

In the planning phase of the project, our idea was to teach the refugees to cycle in the Norwegian road system, by cycling together with our students and talking about signs, rules and risk situations and how to act in different situations. We also wanted to argue and influence a deeper understanding regarding their use of helmets. Therefore, the most unexpected finding in the pilot project was that half of the boys did not know how to cycle, those who were coming from rural areas in Afghanistan and Eritrea. In our community, the bicycle is a usual cultural artefact in our daily life, and we take it for granted that adults know how to cycle, even if they are immigrants. It is easier to see that they cannot go skiing, but the fact that they cannot cycle, or have never seen a bus before, is probably not expected. Many of the refugees have been living in communities and countries where hunger, distress, war, violence, and natural disasters were a part of their lives. Therefore, they may not be familiar either with cycling or being passengers in cars or buses.

Corresponding findings have been made in other studies. In a European project called *Together on the Mov*e, the report says that there are quite a lot of immigrants, especially women, who do not cycle for different reasons (Assum *et al.* 2011). This report points out that transport by bicycle in daily life has the potential to increase among immigrants, especially among women. In some cultures, women are not allowed to cycle because of religious beliefs (Rismark *et al.* 2002), and in our community we have to realize that we cannot require all of the immigrants to learn to cycle, but we have to facilitate their learning to cycle when they want to learn it. When cycling, there is also a risk of becoming involved in accidents (Samferdselsdepartementet 2016), thus, it is essential to train individuals to cycle in a safe way. Our society expects that parents take the first step in training their children in cycling and teaching them about simple road traffic rules. However, immigrant parents who cannot cycle have a lack of qualifications and experiences to train their children to cycle.

Discussion

Immigrants coming from countries with war, poor road traffic safety and poverty, get the good feeling of safety in our community, and estimate that risk situations can also rise here. The refugee boys in this project had not at all been reflecting on whether there could be risk in road traffic situations in their new country. The young refugees had probably passed a period in their life with dangerous situations, in their meeting with war and unregulated traffic culture, and during their flight. They did not see any risk in walking along a European road with an 80 km/h speed limit, either in daylight or in darkness. Perhaps their level of risk acceptance is much higher than the Norwegians' acceptance. They did not prefer to wear reflective equipment and did not see how it could reduce any risk of being hurt in road traffic.

To make such reflections, it is essential that learning programs for immigrants contain learning sequences with learner-oriented activity, where they are given the possibility to learn in a deeper way than when they are only told how to do it. It is essential to stay together with them in the context and to demonstrate what can be a risk in different situations. The findings indicate that the use of simulators, to feel how seat-belts really protect them, and to bring emotions into the training situation, is a good way to develop the young refugees' responsibility as road users.

The refugee boys had experienced in a positive way that the drivers always stopped when they used crosswalks. In one way, this shows that we take care of the pedestrians in our community, and in another way, their experiences can lead to a false feeling of safety, which can lead to accidents. It can be dangerous if they trust that everyone will stop, and then walk into the crosswalk before they ensure that the driver really did stop. Native inhabitants in our activity system know that there is a risk that the drivers do not stop, even in crosswalks regulated with traffic lights. In childhood, they learn to check it. Native pedestrians also have experiences about the need for

a long braking distance in ice-covered ground, and often take an extra look before moving into a crosswalk. This is about the interaction among drivers and others. In our community, we act to reduce accidents even though we have good rights as pedestrians. Nobody wants to be hurt. As described, the young refugee boys crossed a European Road in an unusual way, which made a truck driver use his time to inform the refugee centre. The refugee boys could have been crossing this road expecting that all drivers stop for them, just like their experiences when using a crosswalk. In the interview, we asked the young boys especially about this incident, and they said that there was a lot of water in the sub-passage that day, so they would be wet if they had walked there. If native youth had to cross the same European Road, they would probably do it in a way that would not require such attention from the drivers.

The community ought to organize so that immigrants are given possibilities to learn cycling in an early stage after arriving. This will probably be beneficial in many ways; for transporting themselves, good health and integrating in the community, as well as later on when they learn to drive a car. Norwegian public authorities recommend that inhabitants cycle instead of driving a motor vehicle, especially in urban areas (Samferdselsdepartementet 2013). The national bicycling strategy focuses on bicycles as a basic tenant of *The national transport plan (2014–2023)*, which states that increasing use of bicycles will give our community cross sectorial benefits and preventatives both at the society and individual level (Vegdirektoratet 2012). It will have positive influences on health, economy and the environment in our community (CIVITAS 2012; Vegdirektoratet 2012). This public recommendation and goals seem to be based on an assumption that everybody learns how to cycle as they grow up.

When immigrants come to the driving school to learn driving, the driving teacher has to think about the highest level in the GDE matrix, and that the students truly have not learned much about the road safety culture of their

new country. There is a lack of all the small road safety influences and experiences native young people have gotten growing up. The driving teacher has to try to fill in some of the gaps, so the immigrant drivers not only know what to do, but also why they should. To give homework and to engage in dialogue about themes such as how to interact and take care of others could be a way to work. A dialogue in which the teacher is not only telling but also asking and trying to see how the immigrant is thinking. The curriculum for driver education (Vegdirektoratet 2016) tells us to work like this for every learner, but the native learners will normally have other experiences as a part of road safety culture. Therefore, in driver training, there is a need for in-depth discussions with immigrants both in the classroom and in the car, about how to respect and take care of health and life, and that we have to interact and take care of others as well. For instance, to help others who are hurt is deeply rooted in our culture. Some of the immigrants are coming from cultures where there is a risk if they stop and perform first aid when accidents happen, because they can be charged with the accident. The boys from Syria described having to leave if something happened when they were driving. Compared with our community, this is a very different practice, as the result of not giving first aid leads to opposite consequences. Our community's law says that we have to stop and give first aid, and we can receive a penalty if we do not.

In driver training, the driving teacher ought to find the learners' level in the learning process. In the first meeting, it is quite normal to check and ask if the learner has tried to drive a car before, if they have a license for a motorbike, or perhaps a tractor. Who asks about cycling? In our community, we have an expectation that everyone can cycle, and has learned this when they were children. Does it matter? Our experiences through years of driver training indicate that learners who cannot cycle have more difficulties learning to drive a car than learners who can cycle. In what way can experiences from cycling influence driver training? Compared with driving a car, cycling also

consists of a technical part, a road user part, a social part and a cultural related part. To balance the cycle, we need to use our senses (especially looking far ahead), feeling the balance and coordinating different movements with our arms and legs. If the course is unstable, or the coordination of the body movements are bad when driving, it can be a good idea to ask about the learner's experiences with cycling. When cycling, we learn to regulate speed before crashing, to see the need for braking distance and risk relative to the road grip, weather moving on wet or ice ground, or small stones. A learner, who has handled a bicycle with gears, will probably transfer some of this insight when learning to handle gears when driving.

Cyclists have some basic knowledge and understanding of rules and signs in traffic situations, and they have experiences from moving together with others, to perceive and expect the other one's actions, and to avoid crashes. They have understanding and experiences in interaction with other road users. In addition, they have knowledge about cycling as a part of our culture, and that cyclists are vulnerable road users who the car driver has to take care of. This makes a difference to the findings of the project, where the boys from Syria claimed that it was more dangerous to travel by bicycle in the road traffic in their home country than to drive a car without a driving license at thirteen-years-old. The priorities and share of responsibility in road traffic can be quite different in the immigrants' home country than in Norway. In some countries, drivers feel less responsibility for vulnerable road users' safety. A research report from IRIS points out that immigrants from countries in the high-risk group have a different way of thinking about their rights when driving compared with Norwegians. They think that the vulnerable road users, such as cyclists and pedestrians, are less important and have less rights in the road system (Berg *et al.* 2008), which can be related to cultural differences. In communities where cycling is a part of the culture, the road user has knowledge and experiences which in some ways is converted and put to use when he or she is learning to drive a car, more or less consciously.

A small question to the immigrant learner about whether he or she has learned to cycle, can be a good tool for the driving teacher to see the learner's problems at an early stage.

Conclusion

To integrate immigrants in the road safety culture in their new country, findings in the project point out that it is essential that the community has an introduction program in which road safety culture is included. It is essential to try to fill the gap between the road traffic culture immigrants have grown up with in their home country, and the road safety culture in their new country. When refugees or immigrants get a deeper knowledge and understanding about the road safety culture, they take it upon themselves and feel ownership of it. This can reduce road accidents among the risk group of immigrants related to road safety.

Road user authorities have to focus more on the large group of refugees and immigrants who cannot cycle, which can influence how they act in traffic situations after they have their driving license. There is a need for a good system through which refugees and immigrants get the possibility to learn cycling as soon as possible after arriving, if they want to. There could be a cooperation between adult learning centres and volunteer organizations, because often many hours together in context are needed to learn cycling. This could be a good investment both for road safety and health activity, as well as a good transport option for immigrants.

When refugees and immigrants learn to cycle at an early stage after arriving in their new country, there could be a good basic training for their driving training afterwards, as well as after they have gotten their driving license. If adult immigrants can cycle, they can help their children to learn cycling, which is expected in the community.

In driver training, there is a need to see cultural road safety differences in the immigrants' background, and to have in-depth discussions with immigrants. It is a need to focus on how to respect and take care of health and life in traffic situations. There is a need for learner-oriented education, and not only instructions. This can be a great challenge related to language and cultural differences.

Further Studies

This pilot study leads to new studies. It can be interesting to conduct more research about how we can work to teach adult refugees and immigrants to learn cycling. In the next step, it could be a research and development project about how immigrant parents can teach their children to cycle and act in road traffic situations. In other research and development projects, the focus could be to develop useful tools to use in education focusing on road safety culture, on cycling and driver training. A part of this project could be to make a webpage or an application with tools and illustrations, which can be used in asylum centres, refugee centres, schools and driving schools all over the country, and perhaps internationally.

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RESPONSIBLE DRIVER

Heli Ainjärv

The Concept of Responsibility

The main objective of driver education is to promote the development of responsible drivers. The purpose of European driver training is to provide persons with necessary competence to drive a vehicle in a safe, responsible and environmentally sustainable manner (Weiße *et al.* 2015; RÕK 2011; Norwegian Public Roads Administration 2004; Suomen Autokoululiitto 2016). Therefore, equally, all teachers should be able to teach their pupil to:

> Coordinate the use of the vehicles/machine's controls to manoeuvre and make safe and responsible progress through traffic, in a variety of road conditions (Weiße *et al.* 2015).

What is responsibility? Responsibility according to the dictionary is:

> … the state or fact of being responsible, answerable, or accountable for something within one's power, control, or management (dictionary.com).
>
> … is an obligation to ensure the smooth operation of something, the good behaviour of someone, the right behaviour, etc. (EKSS)

In the context of road traffic, responsibility means an obligation to ensure the smooth operation of road traffic**.** In this sense, being responsible does not only mean that in the event of being stopped by the police, I will pay a fine or in the case of an accident I will compensate for the damage. Sher (2009:3), in his book about responsibility, points out that:

> Following Aristotle, most subsequent philosophers have agreed that responsibility has two distinct necessary conditions: one pertaining to the will, the other to knowledge. An agent is responsible only if his action is unforced, that is, if he acts freely. An agent is responsible only if she both knows (and can reasonably be expected to know) the facts surrounding her action, and acts with the proper sorts of beliefs and intentions.

On the one hand, it is not possible that we will always know all the facts relating to a specific traffic situation, and thus we could only be responsible for what we were aware of. Therefore, it often matters whether the agent is aware of the range of alternative actions he might perform, of the different outcomes that each action might have, and of the rough likelihoods that the different possible outcomes will eventuate (*ibid.*, 5).

On the other hand, once again, the concept of "responsible driver" includes the knowledge and skills necessary for driving with consideration of other road users and environment, knowledge of risk factors and the possibilities of reducing those risks through one's own behaviour and awareness of the strengths and weaknesses associated with one's own driving.

The definition of responsibility is often associated with the terms of situational awareness and consciousness. The most common definition of situational awareness is provided by Endsley (1995: 36):

> Situation awareness is the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future.

Improvement of a learner driver's situational awareness is obligatory, if we want them to be responsible drivers. Of course, good situational awareness does not guarantee good performance, but good performance becomes more likely (Endsley 1995). Implementation of free will must be practiced in driving school as well, for example by encouraging learners to make their own choices and decide themselves.

Responsibility includes the moral and ethical aspects as well. Dempsey (2015) argues that all members of an organisation that participate in a

corporate culture acquire a degree of individual moral responsibility for the actions of all other participants in that culture, where those actions promote cultural values. This is because, by sharing a culture together *o*rganisation members support and facilitate each other's actions, therefore making each complicit in what the other does (i.e. *ibid.*).

We can also think of traffic as an organization. The value of a traffic culture is safety and many countries have formulated it as a Vision Zero. Vision Zero started in Sweden and was approved by their parliament in October 1997 (Sverige Riksdag 1997). Vision Zero stresses the fact that the road transport system is an entity, in which different components such as roads, vehicles and road users must be made to interact with each other so that safety can be guaranteed. Vision Zero also proposes an ethical approach to the health problems associated with road traffic:

> It can never be ethically acceptable that people are killed or seriously injured when moving within the road transport system (Johannson 2009).

Recently, in the white paper on transport "Roadmap to a single European transport area – Towards a competitive and resource efficient transport system" (2011) the European Commission has adopted Vision Zero, with the target that by 2050, the number of fatalities due to road traffic crashes should be close to zero.

Sharing the traffic environment, we own moral responsibility for all participants in this environment. We must support and facilitate each other's activities. With every act in traffic, we make other road users accomplice in this situation. By Auhagen and Bierhoff (2001) the concept of responsibility implies at least three relations: being responsible for something, towards someone, and in relation to an instance and responsibility includes aspects of morals, of action, and of consideration of the consequences of action. A human acts responsibly when he or she is acting with reference to ethical and moral points of view and accepts that she will be accountable for the

consequences of his or her actions. The emphasis of this definition lies in responsibility as a social phenomenon which may be experienced individually, and on responsibility being closely related to moral and ethical actions including the consideration of the consequences of acts. (Auhagen, Bierhoff 2001)

It is assumed that responsibility in everyday life is accompanied by psychological processes. These psychological processes include cognitive, emotional and behavioural aspects. (i.e. *ibid.*) In this sense the responsibility is also related to the concept of attitude as well. Attitude is the tendency of a person to evaluate the nature of objects (e.g. persons, events, phenomena) in a way that is favourable or not (Figure 1). This estimate is usually expressed as a cognitive, emotional (affective) or behavioural response. (Albarracin *et al.* 2005)

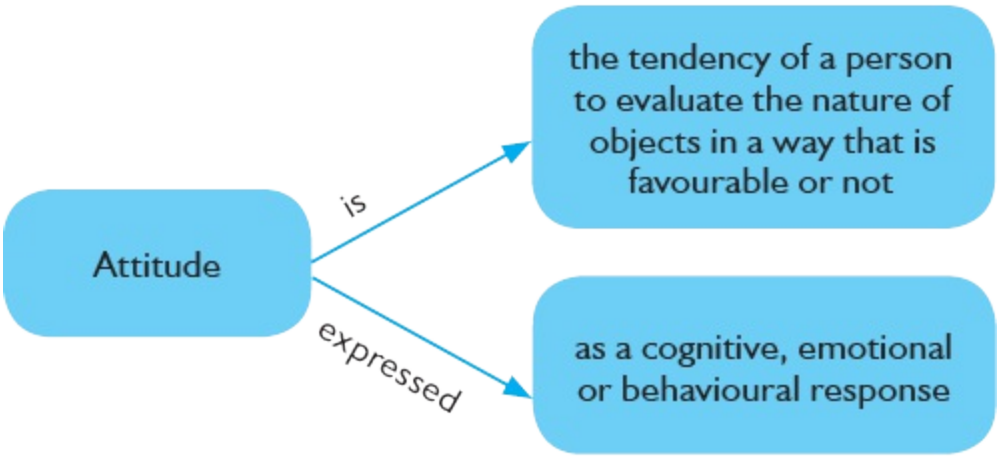

Figure 1. Attitude definition (adapted from Albarracin *et al.* 2005)

Can it then be said that acting responsibly, we act according to our attitudes? For example, if my attitude is:

> If there is summertime, the police are not usually here, I have a good car and I can manage the vehicle, then speeding is acceptable.

It depends on what we mean by ‘the responsible driver’. Is it a driver who knows that speeding can be penalized and he is ready to pay a fine, but excludes the possibility that someone may suddenly come on the road at night or appeal to his excellent driving skills in the event of a risk to react quickly or a driver who takes into account all possible risks – an unexpected animal or person on the road, a load that has fallen on the road, a stroke, a tire burst, consequences of an accident at different speeds, etc. – travels at a speed that is appropriate to the situation?

Responsibility as a construct by Auhagen and Bierhoff (2001) does not immediately provide units of analysis, which would make its investigation possible in everyday life. Therefore, the concept of a responsibility situation has been developed. A responsibility situation (in a specific traffic situation for example) refers to a state in which an individual thinks that she is responsible. This subjective conviction may or may not correspond to an official responsibility. (Auhgaen, Bierhoff 2001)

Responsibility situations in everyday life can be described and analysed by lot of facets and elements, for example importance of the situation, kind of situation, moral and social aspects, cognitions concerning control, emotions, result of the responsibility situation, the manner of undertaking responsibility and cognitions concerning control (Auhagen, Bierhoff 2001).

What responsible behaviour is in a particular situation depends on a lot of things. It really depends on the perspective from which you perceive the situation or how important the situation is. Is it important for me to drive according to the traffic rules or is it more important for me to get to home as quickly as possible? Is the traffic situation at hand created by me, do I want to drive like this or is it forced up on me? A traffic jam for example. Am I driving from work to home or am I just driving around in the city with my friends looking for a thrill? Are the surroundings familiar to me or am I driving in a new environment? Is speeding in accordance with my, my friends or society’s morality norms – what kind of behaviour is expected from me?

How do I assess my capabilities in handling a challenging situation? Will I arrive to a destination faster without causing an accident if I exceed the speed limit? Can I remain calm if another driver, in my opinion, behaves wrongly? Would I feel safe if I were to act in a certain way? Do I only see one option for a solution or do I have multiple options in between I can choose?

The consequences of action may provide an important element in responsibility situations. Am I aware of the possible consequences for my actions or do I rule out (consciously or subconsciously) some of them? For example, when relying on the logic that at 2 AM there aren't other people moving around in traffic and therefore it is ok to exceed the speed limit? But do I consider in this situation wild animals that can come on the road? Am I aware of the effect of emotions on my behaviour and do I have the skills to regulate my emotions? Answers to these questions will determine what I think responsible behaviour is and how I will behave in traffic.

In traffic, drivers do not have such a great amount of opportunities – to get a driver's license, a driver must prove at the test that he or she meets the driver's qualifications. Requirements for the qualifications are set out in national and international law. Simply demonstrating the skills and knowledge does not guarantee implementation of the idea noted in the CIECA – RUE report (Weiße *et al.* 2015):

> … it is important for drivers to behave as responsibly in a variety of situations, at all times, rather than only during the single test. This requires responsible drivers who are committed to traffic safety and environmental protection.

Therefore, we need a completely different driver training and testing from the traditional one wherein all of the abovementioned responsibility-related facets and elements are considered as in the GDE matrix (Hatakka *et al.* 2002). Nieminen and Susimetsä's article earlier in this book introduces the GDE matrix in more detail. Acting as a responsible driver requires knowledge, skills and awareness in all performance indicators described in the GDE matrix (Keskinen, Hernetkoski 2011).

Implementing the GDE Matrix to Support Development of Responsible Drivers – Lessons from Estonia

The GDE matrix (Table 1) was taken as a theoretical background for assessment and development of the Estonian B-category driver education curriculum, as the framework has been widely acknowledged within the European traffic research community as a fruitful starting point for developing traffic education (Peräaho *et al.* 2003). On the basis of this framework, several countries have been redesigning their driving courses (Engström *et al.* 2003; Keskinen *et al.* 2009; Molina *et al.* 2014; Passmore, Mortimer 2011).

The changes initiated in driver education were also related to the Estonian Lifelong Learning Strategy 2020 (Ministry of Education and Research 2011). This document is the basis for ongoing developments in education. The Estonian Lifelong Learning Strategy 2020 identifies everyone as a learner – children, young people and adults, including students in driving schools. The strategy emphasises that the role of the teacher as a facilitator of learning, as opposed to a font of knowledge. This shifts the emphasis away from passive to active learners and from didactic to Socratic teaching. The teacher thus becomes responsible for the development of critical and creative thinking, the development of analytical skills and enhancing the learner's intrinsic motivation to learn. The role of the teacher is to support the student's development as a self-directed learner, who is responsibility for their own learning decisions.
(i.e. *ibid.*)

All the formal education curricula that have been nationally adopted in Estonia within the last decade have emphasised learner-centredness, the importance of key competences, the need to integrate pre-knowledge and new knowledge in the study process, to connect it with various fields of subject

and life, to teach/learn not only facts but also to learn how to learn and solve problems in a team. In coming years, efforts should be made to implement these requirements in all curricula (i.e. *ibid.*).

The same aspects are emphasised in the GDE matrix and in a number of research studies and strategic documents concerning driver education across Europe (Bartl *et al.* 2002; Bartl *et al.* 2005; Bartl *et al.* 2010; Bartl 2000; Betuw *et al.* 2005; Christ *et al.* 1999; Keskinen *et al.* 2009; Keskinen, Hernetkoski 2011; Keskinen 2014; OECD/ECMT 2006; Passmore, Mortimer 2011).

The GDE encourages driving instructors to extend their training beyond a focus on basic car control, to consider other road users, as well as trip-related conditions, such as time of day, weather and the state of the driver, plus personality aspects of the driver and passengers, and how these factors impact on their driving and decision making (Passmore, Mortimer 2011). The key to the higher levels in the GDE hierarchy and to an increase in self-evaluative skills lies in the activity of the learner (Keskinen, Hernetkoski 2011).

Previous research studies have shown that, the primary focus of current training across Europe is on lower order car driving skills, (Brijs *et al.* 2014; CIECA, 2007; Hatakka *et al.* 2002).

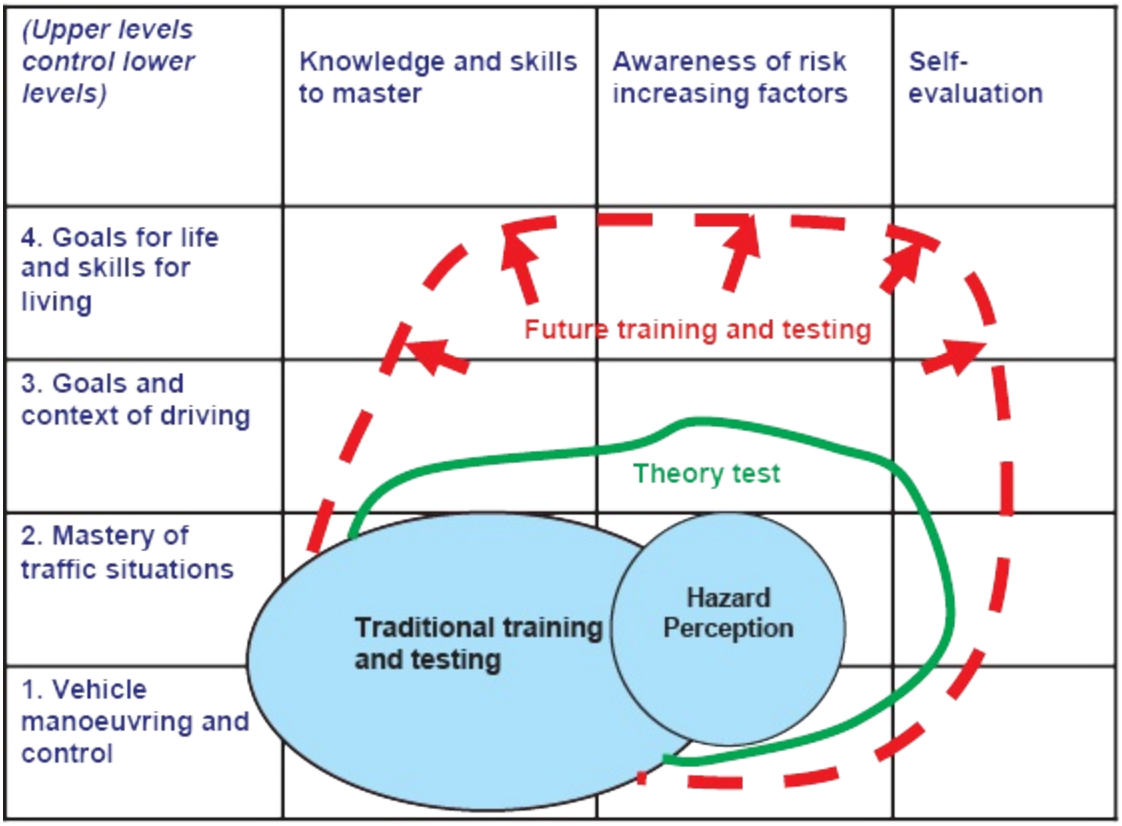

Figure 2. Extending education, training and the test to address 'missing' safe driver competencies (CIECA 2007)

Table 1. Driver education goals at different levels of driver behaviour (Ainjärv 2010; adapted from Keskinen *et al.* 2009)

	Knowledge and skills	**Risk-increasing factors concerning**		**Self-evaluation**
		safety	**environment**	
Goals for life and skills for living	**4.1.** The student is aware of the influence of his/her values and attitudes on his/her behaviour as a driver and has strategies to prevent this harmful effect.	**4.2.** The student values safety in his/her life goals, behaviour, norms, drug and alcohol consumption etc.	**4.3.** The student values environmental safety in his/her life goals, behaviour etc.	**4.4.** The student knows how general life goals and values, group norms etc. influence the behaviour of the driver.
	3.1. The student knows the impact of travel aim,	**3.2.** The student knows the hazards	**3.3.** The student knows the impact	**3.4.** The student is

Goals and context of driving	route selection and social stress etc. on the behaviour of the driver.	that are related to the psychological, mental and health conditions of the driver, social stress, travel aim etc.	of the selection of driving style, the condition of the driver, social stress etc. on the environmental friendly driving style.	aware of the extent of his/her activity planning, the aims, motives etc. of driving.
Mastery of traffic situations	**2.1.** The student has the knowledge and skills that are necessary for coping in traffic situations (giving signs, safe length distance, driving sequence, location, considering other drivers etc.).	**2.2.** The student knows the hazards related to improper speed and length distance, ignoring the traffic rules and other drivers/passengers.	**2.3.** The student knows the harmful impact of short length distance, improper speed and limited attention on the environmental friendly driving style.	**2.4.** The student knows the strengths and weaknesses that are related to his/her coping in traffic situations.
Vehicle handling	**1.1.** The student is able to handle the vehicle (change of gear, braking, taking curves etc.).	**1.2.** The student knows the hazards related to improper vehicle handling.	**1.3.** The student knows the environmental hazards related to improper vehicle handling.	**1.4.** The student knows the strengths and weaknesses of his/her vehicle handling.

Figure 2 (CIECA 2007) overleaf shows the GDE matrix, the parts or ‘cells’ of the matrix which are traditionally covered in training, and the parts which are less comprehensively covered, if at all. Achieving the goals of the upper level levels of the GDE matrix as well as developing a responsibility, is not possible with the help of the teacher’s centred teaching and teaching methods, in which the learner’s activation is minimal. In order to support the development of a responsible driver and in order to achieve all the objectives described in the GDE matrix, a learner-centred (client-centred) approach

must be used in the training of motor vehicle drivers with the help of methods that increase a learner's accountability and activity in the learning process (Bartl *et al.* 2010; Keskinen, Hernetkoski 2011; Bartl *et al.* 2005; CIECA 2007).

In 2010, together with traffic safety students from Tallinn University, we compared the learning outcomes of the national driver education curriculum that was in force at this time with the GDE matrix learning outcomes. All learning outcomes in curriculum (*N*=799) were listed in an excel row. First, every student and I made an encoding separately – next to each learning outcome was marked the number or numbers (for example 1.2; 3.4) which marked the connection with different columns in the GDE matrix (Table 1). Later we compared our encodings, and in the case of an encoding difference, we discussed the matter until we reached consensus on coding. Analysis demonstrated, like the CIECA (2007) study, that the Estonian curriculum for driver training also focus mainly on lower order car driving skills (Table 2).

Some learning outcomes of the B-category driver education curriculum were related to two or more learning outcomes described in the GDE matrix. Therefore, the sum of numbers (percentages) listed in all cells (Table 2 and 3), is not 100 %, but more. Cell colour in Tables 2 and 3 are visualizing the same as the numbers. The greener, the bigger % – the redder, the smaller the %. In 2011, the new B-category driver education curriculum was introduced in Estonia. The curriculum had less numbers of learning outcomes (*N*=144) which evenly coated the entire GDE matrix (Table 3).

Table 2. Relationships between the learning outcomes of the curriculum valid in 2010 and the learning outcomes in the GDE matrix (% of all the learning outcomes in the curriculum)

Number of learning goals N=799	Knowledge and skills	Risk-increasing factors related to the safety	Risk-increasing factors connected with the environment	Realistic self-evaluation
Goals for life and skills for living	1.1 %	0.2 %	0.1 %	0.0 %

Goals and content of driving	4.9 %	1.2 %	0.5 %	0.6 %
Mastery of traffic situations	53.6 %	13.8%	0.7 %	1.4 %
Vehicle handling	21.8 %	3.8 %	1.4 %	0.2 %

Table 3. Relationships between the learning outcomes of the curriculum valid since the 1st of July 2011 and the learning outcomes in the GDE matrix
(% of all the learning outcomes in the curriculum)

Number of learning outcomes N=144	Knowledge and skills	Risk-increasing factors related to the safety	Risk-increasing factors connected with the environment	Realistic self-evaluation
Goals for life and skills for living	21.5 %	23.6 %	24.3 %	27.1 %
Goals and content of driving	24.3 %	25.7 %	26.4 %	29.9 %
Mastery of traffic situations	34.7 %	34.0 %	36.1 %	34.0 %
Vehicle handling	28.5 %	27.1 %	27.8 %	26.4 %

Before (Ainjärv 2010) and after (2014) the implementation of the new curriculum, the Estonian driver teacher's self-reported survey was conducted.

Survey Population

The population of the research study comprised driver teachers who were assigned as a theory teacher for at least one study group and/or as a driving instructor for at least one student in the training group for motor vehicle drivers of category B registered by driving schools in the Estonian Road Administration for the years 2010 and 2014.

The sample only included teachers with a valid driver teacher certificate, registered in the Estonian Traffic Registry. The Estonian Traffic Registry database for driving licenses includes the following details: the name of driving school, the number of the training group, the list of the students in the training group, the driving vehicle category to be obtained, the full name of the driver teacher, the dates of start and end of the training course (Liiklusregistri pidamise põhimäärus 2011).

According to the data of the Traffic Registry, there were 976 teachers with a valid driver teacher certificate on the 1st of January 2010, 603 of whom belonged to the population of the present research study. On the 1st of January 2014 there were 764 persons with a valid driver teacher certificate – 522 out of them belonged to the population of this study.

Sample

In 2010, the Estonian Road Administration sent a questionnaire to all the driving schools that had an education licence recorded in the Traffic Registry (N = 253). The aim of that survey was to collect the data needed for the identification of the current situation. The driving schools were asked to forward the driver teacher's self-reported survey questionnaire to their driver teachers. There is no data about the teachers to whom the questionnaire was forwarded by the driving schools, but the response rate of driving school questionnaire was 57% (Ainjärv 2010). The questionnaire for driving teacher's received 247 responses, 208 out of which belonged to the specified population of the study in 2010.

In 2014, follow up research was conducted. A driver teacher's self-reported survey questionnaire was sent to the previous sample. Of these, 32 mails were returned, as the persons were not available. In addition, a further 76 e-mail addresses were identified in the websites of the driving schools. In total,

the questionnaire was sent to 300 driver teachers (out of 522 teachers in the population) and with 211 responses being received.

Table 4. Background data of the respondents belonging to the population

In 2010			In 2014		
	N	%		N	%
Number of teachers in the population	603	100	Number of teachers in the population	522	100
Number of respondents	208	34	Number of respondents	211	40
Teachers in population were teaching:			**Teachers in population were teaching:**		
only theory	71	12	only theory	52	10
theory and driving	257	43	theory and driving	223	43
only driving	275	46	only driving	189	36
Teachers who responded were teaching:			**Teachers who responded were teaching:**		
only theory	23	11	only theory	17	8
theory and driving	105	50	theory and driving	115	55
only driving	80	38	only driving	79	37
Teachers in the population:			**Teachers in the population:**		
male	554	92	male	470	90
female	49	8	female	52	10
Teachers who responded:			**Teachers who responded:**		
male	225	91	male	182	86
female	22	9	female	29	14
Teachers in the population:			**Teachers in the population:**		
40 years or less	156	26	40 years or less	140	27
Over 40 years	447	74	Over 40 years	355	68
Teachers who responded:			**Teachers who responded:**		
40 years or less	59	24	40 years or less	59	29
Over 40 years	188	76	Over 40 years	145	71

Based on the registry data, the population can be distributed according to gender, age, and the area of teaching (only theory, theory and driving, only driving) of driver teachers in 2010 and 2014. Background data of the respondents belonging to the population is provided in Table 4.

Questionnaire

The questionnaire used mirrored the early survey from 2010, which sought to explore teacher perceptions (Ainjärv 2010). The teachers were asked to assess how much training time they spend on helping their students to achieve the learning outcomes connected with the learning outcomes at different levels of driver behaviour (GDE matrix) using the following rating scale: “Very much” (76–100 % of the time), “A lot of time” (51–75 % of the time), “Not much” (26–50 % of the time), “Very little time” (1–25 % of the time) and “Not at all” (0 % of the time). Assessed learning outcomes were:

1.1. The student can handle the vehicle (change of gear, braking, taking curves etc.);

1.2. The student knows the hazards related to improper vehicle handling;

1.3. The student knows the environmental hazards related to improper vehicle handling. 1.4. The student knows the strengths and weaknesses of his/her vehicle handling;

2.1. The student has the knowledge and skills that are necessary for coping with traffic situations (giving signs, safe length distance, driving sequence, location, considering other drivers etc.);

2.2. The student knows the hazards related to improper speed and length distance, ignoring the traffic rules and other drivers/passengers;

2.3. The student knows the strengths and weaknesses that are related to his/her coping with traffic situations;

2.4. The student knows the strengths and weaknesses that are related to his/her coping with traffic situations;

3.1. The student knows the impact of travel aim, route selection and social stress etc. on the behaviour of the driver;

3.2. The student knows the hazards that are related to the psychological, mental and health conditions of the driver, social stress, travel aim etc.;

3.3. The student knows the impact of the selection of driving style, the condition of the driver, social stress etc. on the environmental friendly driving style;

3.4. The student is aware of the extent of his/her activity planning, the aims, and motives etc. of driving;

4.1. The student knows how general life goals and values, group norms etc. influence the behaviour of the driver;

4.2. The student values safety among his/her life goals, behaviour, norms, drug and alcohol consumption etc.;

4.3. The student values environmental safety among his/her life goals, behaviour etc.;

4.4. The student is aware of the influence of his/her values and attitudes on his/her behaviour as a driver and has strategies to prevent harmful effects.

Numbers (1.1., 1.2 etc.) before the listed learning outcomes shows the connections between questions and the learning outcomes of the GDE matrix provided in Table 1.

The teachers were also asked to name the teaching/learning methods they used in theoretical studies and in driving training. The questionnaire also included some questions about the respondent's background (gender, age, duration of teaching experience). The questionnaire was compiled with the help of the *LimeSurvey* programme. Data analysis was performed using the software SPSS 15.

Results

The results of the survey conducted in 2014 demonstrated that based on the assessment of the Estonian driver teachers, they place more emphasis on risk-prevention and self-evaluation skills related to the strategic (Goals and content of driving) and personal levels (Goals for life and skills for living) of

driving behaviour in comparison with the results of the study that was conducted before the curricular change (Ainjärv 2010), but that the change was modest (Tables 5 and 6). The table shows the teachers' answers, who reported, that they spent "Very much" (76–100 % of the time) and "A lot of time" (51–75 % of the time) helping their students to achieve the learning outcomes connected with the learning outcomes at different levels of driver behaviour (GDE matrix).

Table 5. % of teacher's spent very much and lot of time helping their students to achieve the learning goals related to the GDE matrix in 2010

Teacher perception in 2010	Knowledge and skills	Risk-increasing factors related to the safety	Risk-increasing factors connected with the environment	Realistic self-evaluation
Goals for life and skills for living	46.0 %	54.2 %	42.5 %	52.2%
Goals and content of driving	51.3 %	50.4 %	44.3 %	51.3 %
Mastery of traffic situations	78.9 %	66.2 %	50.4 %	56.6 %
Vehicle handling	54.6 %	55.3 %	38.6 %	50.4 %

Table 6. % of teacher's spent "Very much" and "Lot of time" helping their students to achieve the learning goals related to the GDE matrix in 2014

Teacher perceptions in 2014	Knowledge and skills	Risk-increasing factors related to the safety	Risk-increasing factors connected with the environment	Realistic self-evaluation
Goals for life and skills for living	47.9 %	62.6 %	47.9 %	56.1%
Goals and content of driving	58.5 %	51.5 %	47.4 %	52.6 %

Mastery of traffic situations	83.6 %	81.9 %	61.4 %	67.2 %
Vehicle handling	66.7 %	66.7 %	47.4 %	69.0 %

Although the learning outcomes in the new curriculum are evenly distributed over the GDE matrix, there was no significant change in emphasis – most of the study time taken to achieve the learning outcomes is described in the lower and the left sections of the GDE matrix. In 2014 even more than in 2010. The colors in the Tables 5 and 6 has the same meaning as in Tables 2 and 3. As the content of one lesson could have been several learning outcomes, the sum of all numbers (%) could be more than 100 (%).

Surveys in 2010 and 2014 show that teachers' method-awareness is still low, and teachers are using more teacher-centred teaching methods (Table 7).

Table 7. Description of methods the teachers used in theoretical and driving education

	2010		2014	
	More teacher-centredness	More student-centredness	More teacher-centredness	More student-centredness
Did the description of methods used in theoretical education demonstrate more student-centredness or more teacher-centredness?				
Was teaching theory to at least one group and driving to at least one student	85.6 %	14.4 %	50.8%	49.2 %
Did the description of methods used in driving education demonstrate more student-centredness or more teacher-centredness?				
Was teaching theory to at least one group and driving to at least one student	87.4 %	12.6 %	67.2 %	32.8 %
Was teaching only driving to at least one student	91.4 %	8.6 %	84.2 %	15.8 %

All	**88.1 %**	**11.9 %**	**67.4 %**	**32.6 %**

A total of 13 % of the teachers in 2010 and 7% of the teachers in 2014 did not describe teaching methods in their answers. For example, the question about the use of teaching/learning methods was sometimes answered in the following ways:

… individual teaching that considers the student's abilities;

… in general, according to the curriculum;

… the use of the driving training track.

Answers about the teaching methods used by teachers were divided into two categories according to two characteristics: more teacher-centredness (e.g. lectures, test solving and demonstration of exercises) and more student-disregard (e.g. coaching, discussion and problem-solving tasks). The answers concerning the use of teaching methods in theoretical studies and driving training differed significantly in the years 2010 and 2014. In theoretical studies, more student-disregard methods were used; 14.4 % of the respondents in 2010 and by 49.2% of the respondents in 2014. The respective results of teachers who were teaching theory to at least one group and driving to at least one student in driving training were 12.6 % in 2010 and 32.8 % in 2014. Student-disregard teaching methods were less often used in driving training by teachers who were teaching only driving (Table 4), that was the case in 2010 (8.6 %) as well as in
2014 (15.8 %).

Summary

The new curriculum, introduced in Estonia in 2011, was intended to change the emphasis of teaching, towards a greater focus on higher levels of the

GDE matrix, and a more student-disregard teaching method, which encouraged active learning. The results suggest that while some change has taken place, these changes are significantly less than might have been anticipated given the change in policy. There remains a focus on the bottom-right corner of the GDE matrix (Table 1), while the upper-left corner of the GDE matrix remains a minority feature. Secondly, greater emphasis was placed on knowledge and skills related to the operative and tactical aspects of driving, whereas less importance was given to risk-prevention and self-evaluation skills related to the strategic and personal levels of driving behaviour. Thirdly, the implementation of the new curriculum has not lead to the desired changes described earlier in this
article.

How can these results be explained, given the change in stance by the European Union and Estonian government? These changes reflect the challenges of encouraging behavioural change in individuals at all levels of society and that by simply changing regulation, standards or requirements, individuals will not consistently adapt their behaviours to meet the new requirements.

Further action is required to facilitate such behavioural change. Through communication to improve understanding of the new requirements and what this means in terms of new behaviour and new skills for driver teachers. Secondly, the training and courses must support individuals to make the change. Thirdly, their behavioural assessments, grading and compliance to identify actual behaviours, provide feedback and direction to encourage change. This may include aspects of behavioural nudge, where more compliant teachers receive a higher competence grading on the public driving instructors register than those who continue to use didactic method. The paradigm shift in driver education does not occur either by itself or by command. Today’s teacher needs counselling and motivation – it is necessary to demonstrate that learner-centred education is easy and makes work more

interesting. Only the emphasis needs to be changed – from the teacher's responsibility to the learner's responsibility. If the main objective of driver education is to promote the development of the responsible driver (and it is), responsibility must be given to learners from the very beginning. We just have to figure out how to do it.

There are a lot of good practises available. For example, the HERMES project (Bartl *et al.* 2010) showed that a four-day training was enough to introduce driving teachers to the new way of thinking and teaching – as well as coaching. EU HERMES Project (Developing the coaching and communication skills of driving instructors) documentation and manuals are available on the CIECA homepage. The course documentation includes the training-of-trainers, audio-visual support, user manuals and practical coaching scenarios for learner and novice driver training.

In the beginning, the CIECA (The International Commission for Driver Testing) was an association of Driving test authorities, but lately the CIECA has widened the scope and they have more and more members working in the field of traffic education. In the CIECA-RUE Road User Education Project (Weiße *et al.* 2015) the guidelines were given on how the driver training and examinations should be carried out in the future and what kind of teachers and examiners are needed. To support all the recommendations, the project contains plenty of examples of how to draw up a GDE-based curriculum, how to choose client-centred (student-centred) learning methods, etc.

We did not repeat here the best practises mentioned in these projects, or list all the best practises we know, but in the next chapter we introduce the successful Estonian intervention training in driving schools to increase impulse awareness and Ene Hiiepuu's overview of the teaching methods used in the Tallinn University Haapsalu College teacher training. All the methods have been proved well-suited for adult (mostly male) learners in the field of road safety curriculum. These methods complement the methods described in HERMES and CIECA-RUE project at a slightly different angle.

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IMPULSE AWARENESS

Heli Ainjärv

Introduction

Too many people are killed or injured in traffic accidents. Young drivers show high levels of risky driving and are over-represented in motor vehicle crash statistics worldwide. Young people have a higher risk in traffic than the general population (Berg 2006; Starkey, Isler 2016; ITF 2017). Each year, 32 000 young people under the age of 25 have been killed in road accidents in the WHO (World Health Organization) region in Europe and it is the leading cause of death in young people (Sethi *et al.* 2007; Sethi *et al.* 2008).

Accident-proneness in young drivers has several causes. As well as personality and attitudinal factors, high rates of risk taking during adolescence may be due to poorly developed executive functions, a result of the slow maturation of the prefrontal cortex of the brain (Starkey, Isler 2016). Heightened vulnerability to risk-taking in middle adolescence may be due to the combination of relatively higher inclinations to seek rewards, mediated by the fully developed limbic and paralimbic areas of the brain and still maturing capacities for self-control mediated by the lateral prefrontal cortex (Steinberg 2010).

Contrary to conventional wisdom that increased risky behaviour during adolescence is attributed to the immature brain, it has been found (Kwon *et al*. 2014) that it takes brains to take risks. Adolescents who engage in more dangerous (e.g., more adult-like or mature for their chronological age) behaviour may have a structurally more mature brain than relatively conservative peers. The maturation of the adolescent brain can be influenced

by both environmental experience and genetic factors. Thus, adolescents who engage in exploratory and risky behaviour may gain more experience in various domains, promoting maturation of the brain, while their conservative peers may not have much experience in life and thus have less mature brains.

Developmental psychology explains risky behaviour with adolescent developmental roles. By Erikson's (1968) lifespan theory there is a problem to be solved at every stage of life. The task of an adolescent is to achieve a clear self-image (identity versus role confusion). An adolescent is faced with the question ''Who am I?''. Different roles are being tried to answer this question, taking risks, being opposed, etc. So, it is necessary to take risks to fulfil the developmental role of the adolescent. Adolescents are more impulsive in their activities and thus more open to a variety of new experiences that bring risk, but through which they learn and evolve. The more experience they have, the better they can define themselves. So, youngsters are frequently involved in risky behaviour (Evans 1991), but this is not for the risk itself, but because such behaviour serves youngsters' developmental needs (Hatakka *et al.* 2002). Engagement in some risky behaviours (e.g., binge drinking) at various life stages (e.g., young adults at university) may be purposeful and planned, as opposed to impulsive and emotionally reactive (Willoughby *et*
al. 2014).

Personality or temperament describes a person with some degree of persistent behaviour, action goals, and style. Sensation seeking and sociability (as a social need), the ability to control own feelings and introversion or extroversion, are directing the behaviour of young people to a significant extent. Sensation seeking directs them to look for new experiences and risks, sociability manages to seek feedback on their behaviour from the reference group, the ability to control emotions is reflected in considerate or impulsive behaviour, and extroversion drives active and often motorized activity. All these factors are related to road safety. (Keskinen 2014) Studies

have shown that poor impulse control, sensation seeking, low constraint and attention problems are the psychological factors that best predict risky driving (Paaver *et al.* 2013).

What is Impulsivity?

Impulsivity has been variously defined as behaviour without adequate thought, the tendency to act with less forethought than most individuals of equal ability and knowledge, or a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences for these reactions (International Society for Research on Impulsivity). Impulsivity is a behavioural and personality variable, which is described as thoughtlessness, unplanned behaviour or acting on the spur of the moment (Eveden 1999; Paaver *et al.* 2006).

An impulsive person tends to make fast decisions, act thoughtlessly, give in to impulses, ignore the probable consequences of his or her behaviour, may not consider important aspects and not realize risks to a sufficient extent. Impulsive people may not have control over their impulses, wishes and emotions, which decreases their alertness in traffic, and disperses their attention in a way where impulsive behaviour becomes a problem for both themselves and the others driving together with them.

Most people, at some time or another, have engaged in impulsive behaviour – such banal examples as taking one more drink, an extra purchase at the supermarket or just stopping and chatting to a friend met unexpectedly in the street (Eveden 1999).

Impulsivity can be defined as the tendency to deliberate less than most people of equal ability before taking action. The consequences of this lack of deliberation for cognitive functioning seem to be viewed generally as negative, but it could be positive as well. (Dickman 1990) Sometimes it is necessary to make quick decisions based on a good feeling in business and

politics. Many creativity-demanding activities or occupations need spontaneous and thoughtless reactions at least in the phase of idea generation. Also, success in sports may be assured by risk-taking without worrying about the consequences.

Impulsivity is a multi-factor phenomenon including various facets (Eveden 1999) and it appears, in one form or another, in every major system of personality (Whiteside, Lynam 2001). Dickman (1990) has proposed a two-dimensional theory of impulsivity based on an information processing approach to personality– functional and dysfunctional impulsivity (Figure 1). Dysfunctional impulsive people respond quickly and accurately when this style of responding is a source of difficulty (negative or nonoptimal outcome) and functional impulsive people respond quickly and accurately when this style is optimal (positive outcome).

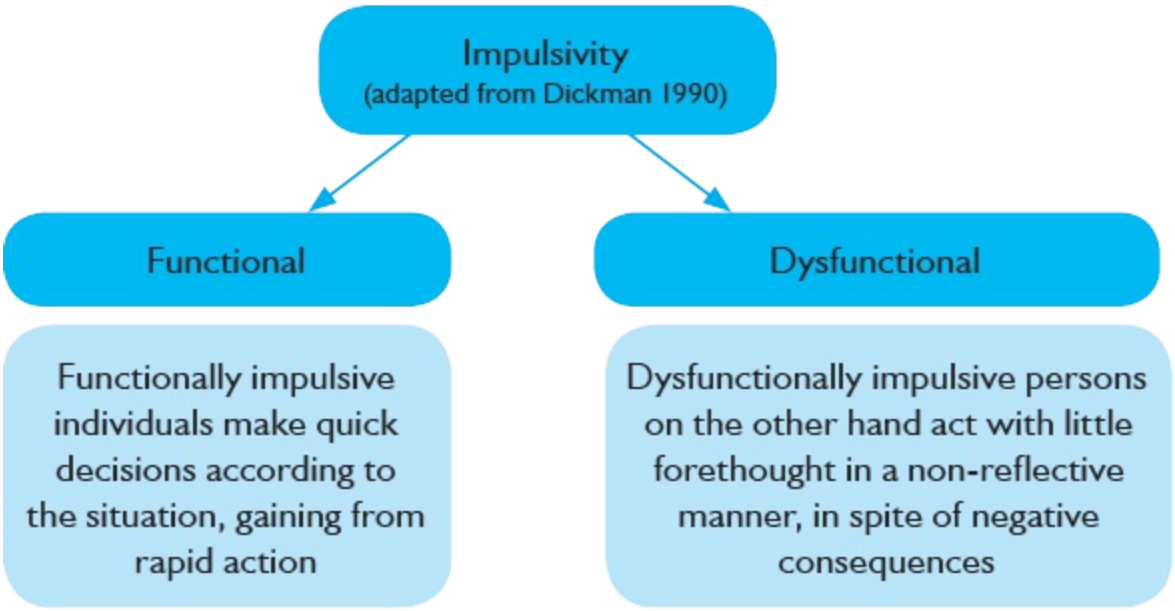

Figure 1. Two-dimensional theory of impulsivity (adapted from Dickman 1990)

Functional and dysfunctional impulsivities are two different kinds of impulsivities and therefore lead to the different kinds of the behaviour (Dickman 1990). It has also shown within studies carried out by the

University of Tartu, in cooperation with the Estonian Road Administration among Estonian male drivers (Eensoo *et al.* 2005; Paaver *et al.* 2006).

Data of drink drivers was collected during the year 2001 (described in detail in Eensoo *et al.* 2005). Data of drivers exceeding the speed limits was collected in 2002–2003. The groups of drink drivers and drivers exceeding the speed limits were formed of the male subjects from the police database of driving violations. The control groups were formed of male subjects with a driving licence and were derived from the driving licence database of Estonian Motor Vehicle Registration Centre by computerised random choice; their police records were checked. Drivers exceeding the speed limits were divided into two groups: (1) speed limit exceeders, subjects exceeding speed limits at less than 20 km/h at least twice or more than 20 km/h once during the previous year and (2) high-risk drivers, subjects exceeding speed limits at more than 20 km/h at least twice during the previous year. (Paaver *et al* 2006)

Functional and dysfunctional impulsivity were measured using a short instrument based on the Dickman impulsivity inventory (Dickman 1990) and impulsivity related sub-scales of NEO-PI-R (neuroticism, extraversion, openness-personality inventory), impulsiveness subscale under neuroticism and excitement seeking sub-scale under extraversion (Costa, McCrae 1989, adapted into Estonian by Pulver *et al.* 1995). Altogether four scales were created: Fast Decision Making and Thoughtlessness based on the Dickman Inventory, and Excitement Seeking and Disinhibition based on NEO-PI-R subscales. Fast Decision Making and Excitement Seeking are functional or adaptive types of impulsivity and Thoughtlessness and Disinhibition (or Low Self-Control) are dysfunctional or maladaptive types of impulsivity (Figure 2). Thus, the questionnaire is called Adaptive and Maladaptive Impulsivity Scale (AMIS, Paaver e*t al.* 2006) and consists of 24 statements, 6 in each scale.

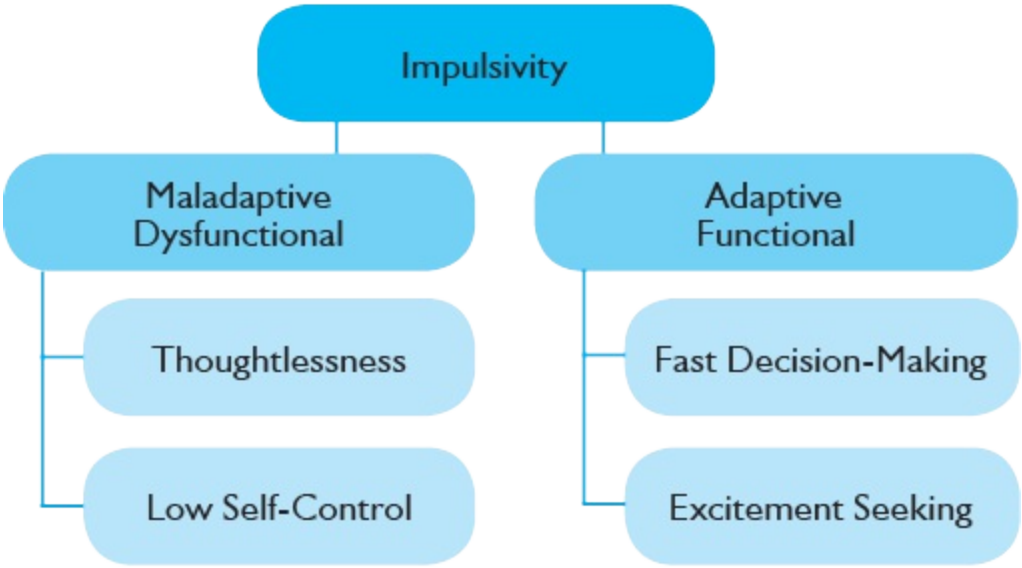

Figure 2. Measures of impulsivity (adapted from Dickman 1990; Paaver *et al.* 2006)

Fast decision-making (functional impulsivity) is the personality-related tendency and ability to process information and make decisions quickly, as well as daring to take a risk in situations where it is needed. Excitement seeking **(**NEO-PI-R) is the proneness of a person to seek and find variety and thrilling experiences, need for changes, novelties, and excitement that does not allow staying in one spot for a long time. People with a high excitement seeking and a low sense of risk think that they can exceed speed limits because of their good driving skills, keep an insufficient distance to the car ahead, drink and drive and still be able to drive the car safely. People with a high need for excitement may sense the risk, but they need and enjoy it based on preliminary positive experiences too much to give it up. Thoughtlessness is part of impulsiveness where a person chooses small and immediate benefits by sacrificing long-term goals and future vision, for instance, enjoying fast driving or arriving earlier at the price of life or health. Thoughtlessness is a cognitive tendency to decide and act fast without thinking about consequences. Disinhibition is the tendency to follow impulses and the moment's mood; difficulty in controlling one's wishes and desires. A person

with low self-control is not adhering to his or her goals or responsibilities. (Tangney *et al.* 2004)

Based on Tartu University studies (Eensoo *et al* 2005; Paaver *et al* 2006), we can tell that the personal qualities of a driver really predict his or her belonging to a particular group of traffic violators. Males caught drunk driving by the police had higher scores in dysfunctional types of impulsivity (thoughtlessness and disinhibition) and high-risk driving with more functional types of impulsivity – fast decision-making and excitement seeking compared to control group with no violations (Figure 3).

Whiskers mark 95% confidence intervals. The post-hoc differences between the groups are given accounting for age as a covariate. Difference from controls: a p<0,05, aa p<0,01, aaa p<0,001. Difference from speed limit exceeders: b p<0,05, bb p<0,01, bbb p<0,001. Difference from high-risk drivers: c p<0,05, cc p<0,01, ccc p<0,001. (Paaver *et al.* 2006)

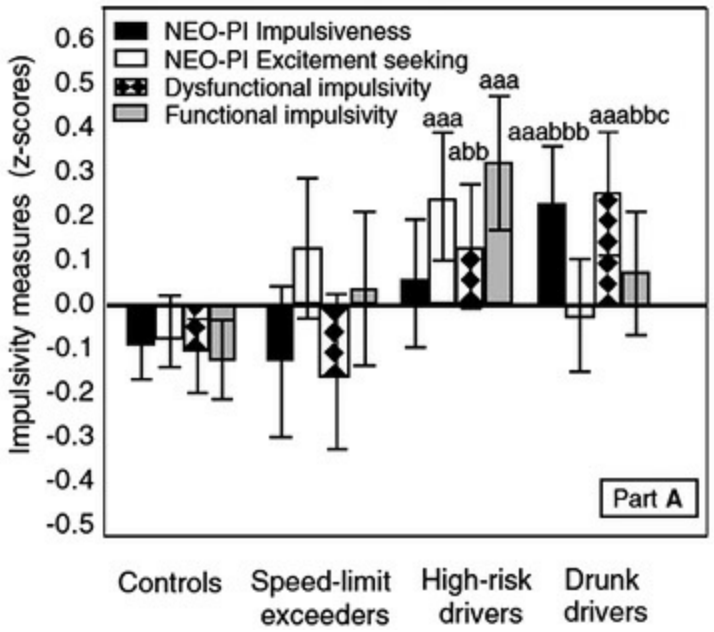

Figure 3. The types of impulsivity in speed limit exceeders, high-risk drivers and drunk drivers compared to controls (Paaver *et al.* 2006)

The same was shown in my 2017 graduation thesis (Ainjärv 2017), where I explored impulsivity among drivers (*N*=106) who participated from July 2015 to May 2017 on Tallinn University follow-up training for traffic offenders. The same questionnaire (AMIS, Paaver *et al.* 2006) was used as in the Tartu University study. Impulsivity scores of participants in follow-up training are different depending on the type of violation (Figure 4).

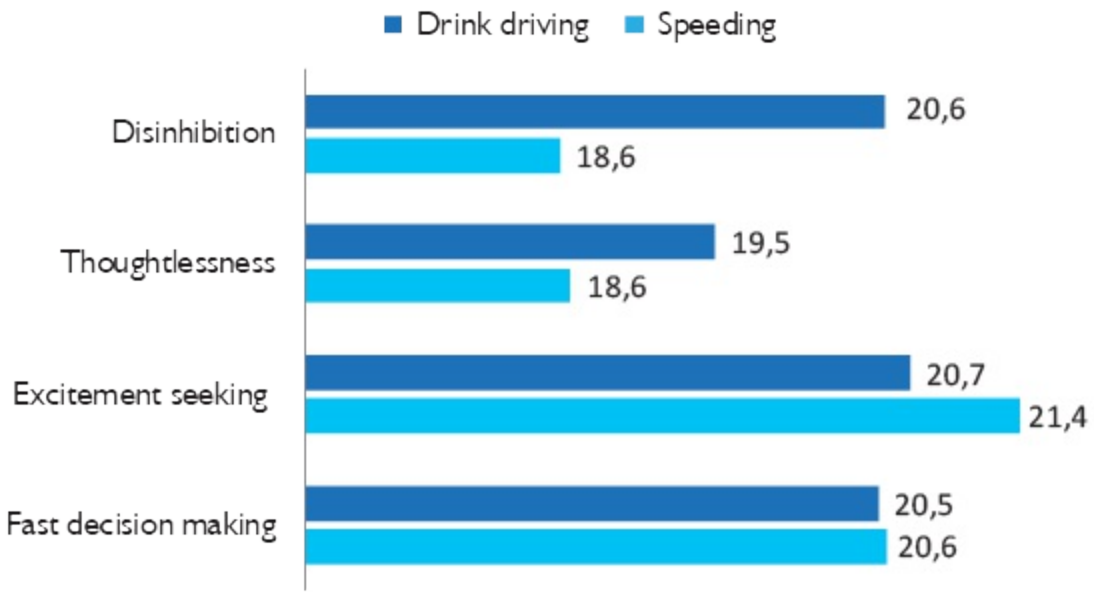

Figure 4. Scores for the subtypes of impulsivity of participants in Tallinn University follow-up training for traffic offenders (Ainjärv 2017)

Speed limit exceeders had higher scores in adaptive impulsivity subtypes (fast decision making and excitement seeking), while drink drivers had higher scores in maladaptive impulsivity subtypes (disinhibition and thoughtlessness). Speed limit exceeders in Tallinn University traffic offenders study are drivers who exceeded the speed limit by more than 20 km/h, therefore it is the same as high-risk drivers in Paaver *et al.* (2006) study.

Brief Intervention Focusing on Acknowledgement of Personal

Risk Factors

It has been shown that an important risk factor in novice drivers is low risk awareness. A prerequisite for solving the problem is to understand the reasons behind these processes. (Berg 2006) Being aware of a system's threats and vulnerabilities is a prerequisite for its safety, so it is generally accepted that safety and awareness are positively correlated (Chatzimichailidou, Dokas 2015).

Reflection on one's individual risk factors and weaknesses should be part of driver education. The formulation of the GDE (Goals for Driver Education) matrix has emphasized the importance of recognizing risk increasing factors, individual and social circumstances, and drivers' self-control and self-assessment skills (Keskinen *et al.* 1998; Hatakka *et al.* 1999; Hatakka *et al.* 2002; Peräaho *et al.* 2003). Thus, acknowledging one's specific impulsive tendencies should be one target for intervention in novice drivers (Keskinen, Hernetkoski 2011; Molina *et al.* 2014). Next, we introduce the brief intervention in Estonian driving schools (described in detail in Paaver *et al.* 2013) on acknowledgement of personal risk factors.

The idea of teaching awareness of impulsive tendencies and self-regulation in traffic schools grew out of earlier studies on personality traits of unsafe drivers (Eensoo *et al.* 2005; Paaver *et al.* 2006). The intervention in Estonian driving schools (Paaver *et al.* 2013; Eensoo *et al.* 2018) was implemented to prevent young and beginner drivers getting into traffic accidents due to their personal qualities. Impulsive personality is an important predictor of risky driving. The impulsivity indicators are individually very persistent and have a considerably positive relationship with traffic violations (Harro, Eensoo 2008). Acknowledging their impulsive tendencies may help novice drivers to drive more safely. The aim of the Tartu University study in Estonian driving schools was to evaluate the efficacy of a novel brief intervention targeting novice drivers' risky behaviour in traffic, considering potential moderator

effects. Driving school students (*N*= 1866) were divided into an intervention group and a control group (Figure 5).

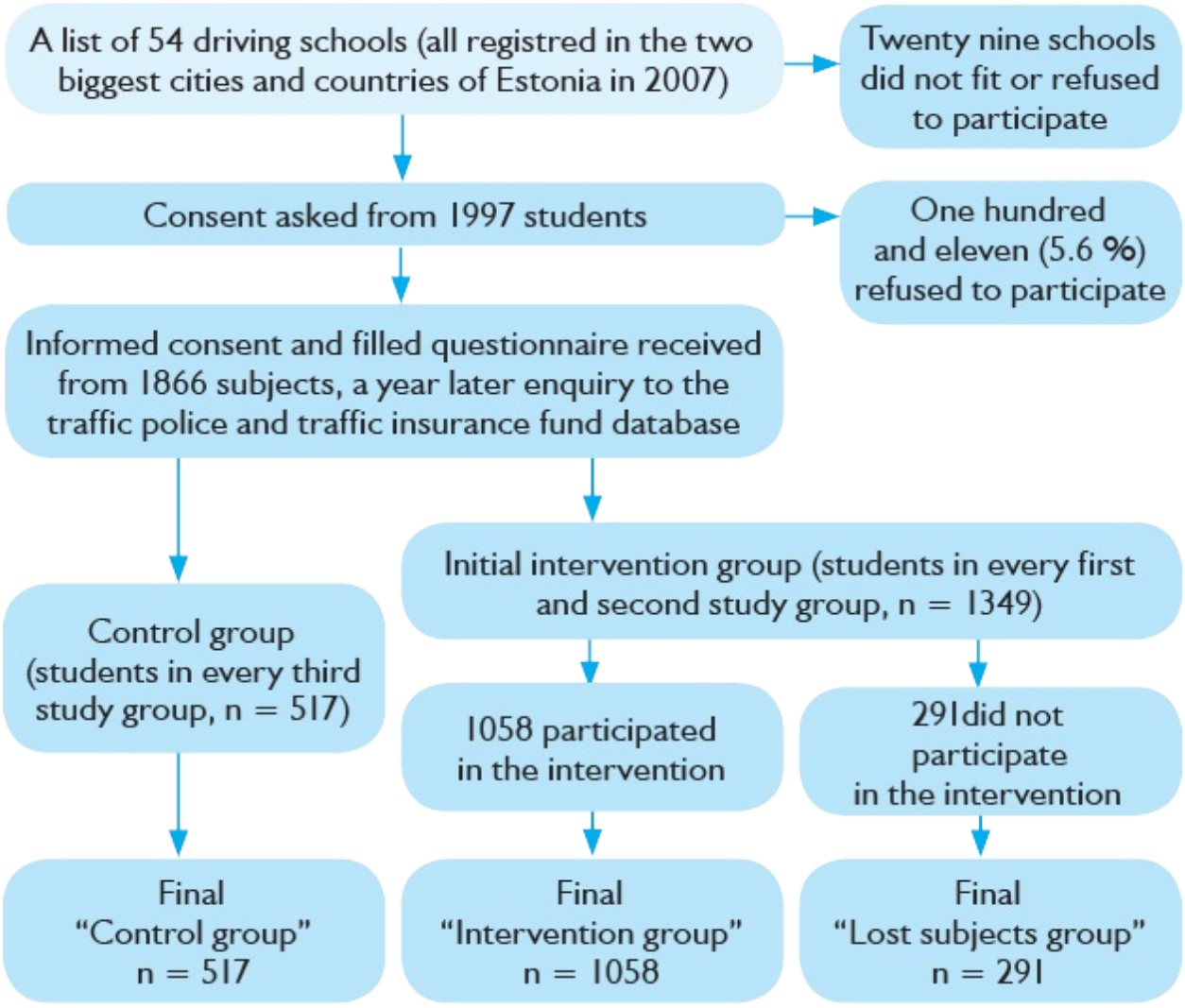

Figure 5. Formulation of study groups (adapted from Paaver *et al.* 2013)

Subjects' traffic offenses and crashes were monitored during the following year using police and traffic insurance fund databases. The groups were similar in their baseline characteristics. (Paaver *et al.* 2013) The subjects completed the same questionnaire measuring impulsivity as in previous studies (Eensoo *et al.* 2005; Paaver *et al.* 2006).

The intervention focuses on impulsivity as a personal characteristic and a risk factor in traffic behavior. The intervention seminars were led by Tartu University psychologists as a regular driving school lesson. The control group did not participate in the intervention and did not complete any other form of training instead. The intervention was administered as a seminar composed of a lecture (45 min) and group work (45 min). The lecture focused on three topics: (1) the idea of impulsivity as a personality feature and information processing style that is partly biologically determined and can lead to risky behaviour in traffic; (2) different types of impulsivity, how they are related to risk-taking and how to recognize impulsive tendencies in oneself; and (3) potential situational factors triggering impulsive behaviour and encouragement of subjects to note situations in which they behave impulsively or take risks (Paaver *et al.* 2013).

To teach self-monitoring and self-regulation, some ideas and examples were derived from cognitive-behavioural techniques, e.g., conceptualizing risky behaviour in the framework of a cognitive model including a situation, automatic thought and reaction (Paaver *et al.* 2013).

The lecture was interactive, provoking subjects to evaluate in their handouts their level of impulsiveness and to note which risky situations are relevant for them. In groups, participants completed a task of: (1) identifying the psychological factors involved in real life traffic accident cases and (2) estimating their own risk for this kind of traffic accident and generating ideas of ways to decrease this risk. (Paaver *et al.* 2013) The group discussion method, which has been successfully applied in this field in prior research (Gregersen *et al.* 1996), was used to facilitate active participation and peer-to-peer knowledge exchange (Paaver *et al.* 2013).

My driving school (Niguliste Autokool) belonged to the study sample, so I had the opportunity to attend an intervention seminar as an observer. In 2013–2015, Tallinn University was a partner for Tartu University (together with Road Administration and National Institute for Health Development) in

the Ministry of Education and Research project TerVE VIGA (Project to develop and implement research-based measures to prevent injuries and risky behavior). The sub-objective of the project was to find out if the psychological intervention for driving school students to reduce risk behavior used earlier can be successfully implemented by the driving school teachers. My role in the project, as a representor of Tallinn University, was coordination of partner activities, preparation of the content package, development of a training program, conducting training courses for driving school teachers, consultation of the intervention group's lecturers during the conducting of the study, the development of methodological material for lecturers and data analysis. There are no results yet available showing how successful the intervention was when implemented by driving school teachers.

Based on that experience, I can give some more examples of topics covered by the seminar: What could help? The most important thing is to get to know yourself and to acknowledge your personal risk factors. Many young drivers' beliefs are myths. Experience is not the only thing that matters. A state of mind and other qualities are important as well, and they could become dangerous if understated. The illusion of control is boosted by experience in people who have recently obtained their driver licence. If no negative experiences are related to driving in risky situations, it can lead to unrealistic optimism and excess of self-confidence, which cause typical beliefs of a young driver about how traffic functions. Risky driving allows a person to distinguish and demonstrate one's adultness, earn the acceptance of friends, demonstrate the ability to cope with risk and exceed one's limits. Thus, risky behaviour at a young age fulfils developmental functions and needs: a car-focused lifestyle, spending leisure time driving, or arranging fun driving. The main reasons for accidents caused by young drivers are either driving mistakes or a careless attitude to traffic risks. A balanced decision-maker takes important decisions after thorough consideration, by focusing on

achieving as beneficial a result as possible, without being worried about failing or making a perfect impression. Our interpretation of the situation is more important for the emotion than the actual event. If we could calculate how little benefit fast driving gives us, we would not connect calm driving with being late. When upset by mistakes or violations made by others, we may want to teach them a lesson. All-or-nothing thinking, hints for generating more adaptive thoughts. It is important to acknowledge your personal motives for speeding and reckless driving. What to do about the desire to drive too fast? Learn to plan your time. Find safer alternatives for fast driving or sensation-seeking. Drink driving is common for people with problematic impulse control. Stress weakens impulse control. After a tiresome and stressing activity that exhausts self-regulation resources. Self-regulation is an intrapsychic process – do we need to be alone to restore our resources? Impulsiveness is often accompanied by attention and concentration difficulties.

The focus of the driving school intervention was not to change the person or his or her views, but to provide knowledge concerning his or her own weaknesses. The effectiveness of the intervention may have been enhanced by the fact that it was carried out as primary prevention in young driving-school students who had no actual experience with driving and therefore no established behavioural habits. (Paaver *et al.* 2013)

These results of the study (i.e. *ibid.*; Harro, Eensoo 2010; Eensoo *et al.* 2018) suggest that integrating brief psychological interventions focusing on impulsive decisions and on one’s own individual risk factors for traffic accidents into a driving education program may be helpful in the prevention of speeding, drink driving and involvement in traffic accidents.

Driving school intervention with the aim of enhancing self-acknowledgement of personal impulsive tendencies, together with information on the adverse consequences of impulsivity in traffic,

significantly reduced exceeding speed limits within the period of one-year post-intervention (Paaver *et al.* 2013).

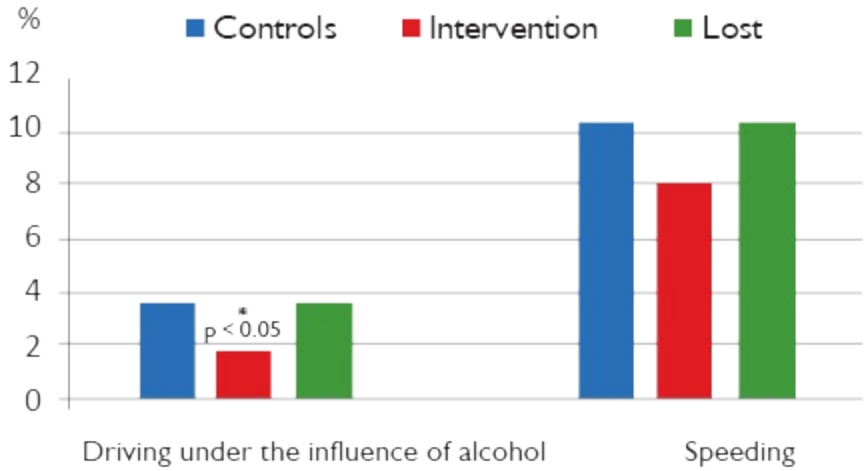

Figure 5. Traffic offenses for three years committed by drivers participated in the driving school intervention and controls (adapted from Harro, Eensoo 2010)

Figure 5 shows that in the nearly three-year observation period, there was a direct link between driving under the influence of alcohol (DUI) and psychological intervention – subjects from intervention group were caught DUI less likely compared to control group. The intervention group had less speeding violence compared to control group, but the difference was not statistically significant. (Harro, Eensoo 2010)

Earlier (Paaver *et al.* 2013) it turned out that, following a one-year observation period, psychological intervention had a stronger correlation with speeding due to DUI compared to the control group. This can be explained by the fact that in the context of Estonia's traffic culture, driving under the influence of alcohol is a less common occurrence than speeding, as well as by the low police surveillance due to DUI in earlier years. During the last three years there have been many changes in Estonian society that may affect the results of the study, such as the installation of speed cameras on highways and the economic downturn for example. (Harro, Eensoo 2010)

For the four-year observation period after the intervention, speeding, drink driving and involvement in traffic accidents were significantly lower in the intervention group (Eensoo *et al*. 2018). Eensoo *et al.* (2018) demonstrated that the effect of intervention persisted and was still significant for the period of four years post-intervention (Table 1, Figure 6).

Table 1. The number and proportion of subjects with speeding offences and accidents (adopted from Eensoo *et al.* 2018)

	Control group		Intervention group		„Lost“ group	
	n	%	n	%	n	%
Speeding	73	14.1	115	10.9	45	15.5#
Drink driving	20	3.9	24	2.3	13	4.5#
Traffic accidents	119	23	192	18.2*	49	16.8*
Active accidents	62	12	114	10.08	28	9.6
Passive accidents	77	14.9	103	9.7*	31	10.7

* p < 0,05, significant difference compared to control group;

# p < 0,05, significant difference compared to intervention group

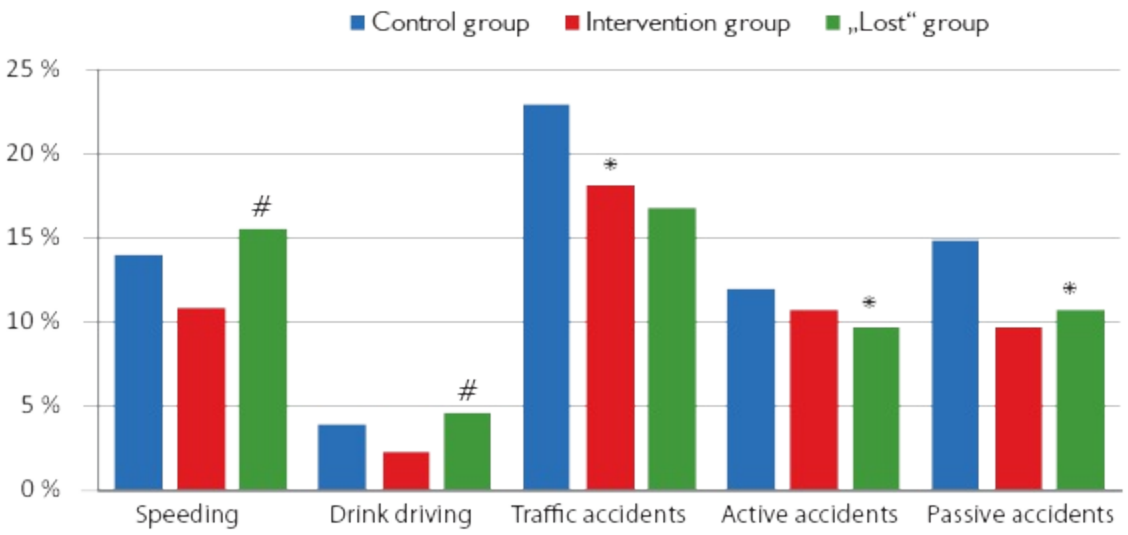

Figure 6. The number and proportion of subjects with speeding offences and accidents (adopted from Eensoo *et al.* 2018)

With the observation period increased from one to four years, the proportion of subjects involved in traffic offences and incidents had grown substantially, but nevertheless the effect of

> intervention on exceeding speed limits and involvement in passive accidents that had been found one year after the intervention remained significant. These results suggest that integrating brief psychological interventions that focus on impulsive behaviour and on personal risk factors in traffic accidents into a driving education program may be helpful by making an impact on early formation of driving habits. While passive accidents are by definition not on the driver's own fault, such events relate to lower capabilities to foresee potentially disastrous situations, including the ability of interpretation of behaviour of other people in traffic, or react properly to emergencies. (i.e. *ibid*.)

Conclusion

Paaver *et al.* (2013) concluded in their study that a brief psychological intervention in driving schools targeting the acknowledgement of impulsivity is an efficient strategy for decreasing the likelihood of traffic violations (especially speed-related) among novice drivers during their first year in traffic. Eensoo *et al.* (2018) demonstrated that the effect of intervention persisted and was still significant for the period of four years post-intervention. These results suggest that integrating brief psychological interventions that focus on impulsive behavior and on personal risk factors in traffic accidents into a driving education program may be helpful by making an impact on early formation of driving habits (Eensoo *et al.* 2018).

The above-mentioned intervention was added into the National Curriculum for the preparation of B-category drivers in Estonia (Mootorsõidukijuhi ettevalmistamise tingimused ja kord ning mootorsõidukijuhi ettevalmistamise õppekavad 2011, Lisa 6) since it has been shown that it helps our driving students become more aware of their own personal risks and that makes them safer, which means that they are more responsible too. We can only be responsible for what we are aware of and we need responsible drivers on our roads.

Let's be responsible drivers! Let's be responsible driver teachers!

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ACTIVE STUDY METHODS IN TEACHING DRIVERS OF MOTOR VEHICLES

Ene Hiiepuu

Teaching that Supports Learning

One of the tools to shape a learning situation and create a learning environment is to choose the right learning methods. The selection of such methods depends, in turn, on how learning is seen, whether the focus lies on *teaching* or *learning*, who the communication partners are and how they communicate, and who has the power to decide, allocate resources, and assess in the case of different methods. (Karm 2013) Based on this, the teacher can pick either teacher-orientated methods (lecture, demonstration, explanation) or learner-orientated methods (brainstorming, seminar groups, debate) and learner-orientated individual methods (e.g., solving tasks, doing tests).

When supporting modern teaching approaches that emphasise the learner's active involvement in solving common problems; learning together, solving and creating; thorough self-analysis and phrasing individual development goals; making conscious choices as independent decision-makers (Feldschmidt, Türk 2013), the teacher should use a learner-orientated teaching method, so that a *learner* is not a passive recipient being "given" knowledge by the teacher, but an active participant, a person learning together with others, being guided, supported, and advised by the teacher.

Steele, Meredith Temple and Walter (1998) place a lot of emphasis on the involvement of learners before, during and after the learning process. They have formulated a model on modern teaching, active learning, and independent thinking, consisting of three phases:

1. evocation,
2. realisation of meaning,
3. reflection.

In the beginning of the learning process, it is important to use teaching methods that help to tune the learners in to learning, set goals, excite interest or remind them of their prior knowledge (conversation, discussion, brainstorming, value line, etc.) The aim of *evocation* is to help the learner create connections between the existing and new material. (Karm 2013)

> When the new material contradicts the pre-existing knowledge of a learner, the learning process may require serious effort (i.e. *ibid.).*
>
> If one wants to use the knowledge flexibly for a long time (not just repeat it in the form memorised), it needs to be understood – linked with prior knowledge, interpreted on the existing background and with the existing connections (Kikas 2004).

That is why the *realisation of meaning* stage is good for methods that support delving into the meaning of the material and linking new information with existing information (e.g., communication-based lecture, independent reading, asking questions, problem-based learning, practical tasks, group work). It is also important to support integrating new knowledge into the system of existing ones (e.g., making a concept map, case study). It is important to focus on seeing a problem when covering the topics. Practical implementation of the learnt material is a complicated process and is much more successful if the learner has struggled, worked hard and solved problems during the learning process. (Karm 2013)

The stage of *reflection* and practising is good for learning methods that support using the fresh knowledge in new connections and situations,

creating personal meaning and shaping one's own attitude (Karm 2013). Here, group and pair work, role plays, case studies, individual work, etc. works well. The more active the work methods, the better the new material is memorised. Pair and group learning is especially necessary for insecure learners.

During the process, a learner needs feedback on whether they are moving in the right direction. A teacher can give that feedback by observing the way learners learn, how they understand, what kind of connections they create. (Karm 2013) For this purpose, various feedback and self-analysis strategies could be used, making a learner return to their learning goals and think of what turned out better, what was understandable, what was difficult, what needs to be practised more.

The professionalism of a teacher does not reveal itself so much in knowing and implementing teaching methods, possibly reflecting only purely mechanical skills, but knowing why the teacher uses a specific method in a specific case (Valgmaa, Nõmm 2008).

Several factors should be taken into consideration when choosing a teaching method – the goals of the learning process, learning outcomes, age of the learners, their distinctive features, experience of the learners in using the methods, conditions of the learning environment, the skills and knowledge of the teacher in implementing the methods, the resources available. The choice of a learning method reflects the teacher's view of learning and the role of themselves and the learners in the process. (Karm 2013)

When viewing a learning process as a whole, it is important that the learning outcomes (goals), ways of assessment, and the learning methods would make up a harmonious whole. When one of the determined learning outcomes is a learner's ability to implement their knowledge, the methods enabling implementation should be used while teaching (e.g. solving tasks, practical exercises, case study). When the learning outcome establishes that a

learner is able to analyse, it would be good to use the methods enabling them to practise that skill, e.g. discussion network, making a concept map, case study, problem-based learning. (i.e. *ibid*.)

Learning methods and strategies are only a means for carrying out a learning process. The room, equipment, learning methods, atmosphere and relationships have a significant impact on the quality of teaching and learning. Teaching is more efficient when it is supported by a physical learning environment (set-up of the room, placement, equipment, etc.), social learning environment (microclimate in the classroom, relationships), mental learning environment (structure of the learning process, methods) created by the
teacher.

First and foremost, a teacher needs to consider that:

> learning takes place in a social environment where participants have all sorts of attitudes (towards their own abilities, the topic studied, companions, the teacher, etc.) that may be both positive and negative (Valgmaa, Nõmm 2008).

The atmosphere in the classroom determines whether a learner will become an active participant or a passive spectator/protester. The success of active learning methods depends largely on the good relationships between the participants. A learner is happy to act in a positive environment. The determining factor is the relationship between the teacher and the learner, and among the learners. It is easier to achieve communication between participants when the desks are placed in a U-shape, round, or in groups. A favourable study environment forms the basis for learning.

Modern teaching offers interesting and effective teaching methods that need space for free movement and relocation of desks to give various tasks to the learners individually, in pairs, and in groups. An active learner is a thinking learner. When the body is free, so is the mind. It helps a learner to express themselves and think. Active learning methods are difficult to carry out in a room where the learners are placed in a row behind each other and

cannot see each other's faces, attitudes, reactions, body language. Classroom environment is created as a mutual concurrence between the teacher and the learners. Teaching is a social process and thus, it is important that the learners get used to each other as quickly as possible and are open for cooperation.

In order to create a cognitive learning environment, it is important to plan sufficient time for setting goals, finding meaning to the activities, exchanging ideas, and providing feedback. There is no point in completing a study programme without setting goals for the process, without knowing why we learn something (Steele *et al.* 1998; Feldschmidt, Türk 2013) or by rushing a class with a large amount of study materials and suffocating learners with a myriad of teaching methods.

Formative Assessment as Support for Learning

Below, different learning methods, strategies and methodical approaches are introduced, keeping in mind their suitability for theoretical classes for drivers of motorised vehicles. The methods used have been tested at trainings for teachers of motorised vehicle drivers at Tallinn University Haapsalu College and received positive feedback from the participants. The learning methods were selected based on making learners active participants in the process, directing, leading and reflecting to find goals for their learning, and the possibility of implementing them in shaping the values/attitudes. Teachers can find formative assessment strategies, and methods to use in communication-based lectures, or to carry out discussions, problem-based learning, and group work.

Understanding of the material is supported by the active involvement of learners in guiding the teaching.

> A self-leading learner is able to acknowledge and analyse experiences, make decisions and choices that bring the expected outcomes. They lead their relationships in cooperation with other

people, they are aware of the impact of their choices on themselves and others. (Feldschmidt, Türk 2013)

Implementation of formative or supporting assessment helps to make learning and teaching more effective. It is important to teach a learner to acknowledge, observe, control and determine their activity.

The most important components of formative assessment are:

- setting joint learning objectives,
- determining prior knowledge,
- using the teaching methods that activate a learner,
- monitoring one's own activity based on the assessment criteria,
- three-way feedback (from teacher to learner, from learner to teacher and from learner to learner),
- setting individual development goals (Feldschmidt, Türk 2013).

Formative assessment is a process used in all three phases of a class. As for the tuning of the class, a teacher will involve learners in defining the learning objectives. It is easier to do this with three questions:

- What do I want to achieve? (goals based on learning outcomes and feedback)
- Where am I now? (determining prior knowledge, skills)
- What do I need to do to achieve my goals? (various learning tasks, experiences, criteria based on which progress can be measured). (Feldschmidt, Türk 2013; Tiisvelt 2011)

Depending on the learning activity, assessment criteria or terms of reference should also be introduced in the beginning of a class, enabling learners to self-assess their progress during class (interim evaluation).

Interim evaluation takes place in the learning phase. If the learning does not proceed in the intended way, the trainer can change the situation (give additional explanations, share additional materials, move slowly, change the teaching methods). On the contrary – if learning has been quick and easy, new challenges can be given to the learner. (Karm 2013)

Interim evaluation is also important for a learner to receive feedback on the work done and be able to improve their work or activity. The outcome of the activity can be assessed both by the learners themselves (self-assessment), their co-learner (peer review), and the teacher. Interim evaluation is more effective if feedback is based on evaluation criteria or the terms of reference.

In the third phase of a class, or feedback (mirroring, reflection), learners return to the goals set at the beginning of the lesson and it is determined what the learners have learnt in the particular learning process and to what extent, and to what extent they managed to meet their goals (follow-up evaluation). In this phase, learners receive feedback based on the learning objectives and terms of reference, or the assessment criteria. Using various forms of feedback, they should be ranked in a way that first, a learner analyses itself (self-assessment and feedback to the teacher), then they receive an assessment from another learner, and finally they get feedback from the teacher. (Jürimäe *et al.* 2014)

Table 1. Formative assessment strategies in a three-phase class model

Evocation	Learning	Feedback
acknowledging the learning goals preliminary assessment	interim evaluation	follow-up evaluation feedback: from learner to learner from learner to teacher from teacher to learner
introduction	assessment criteria	grounds of feedback
self-assessment		

Formative assessment strategies

Various strategies are introduced for acknowledging, pre-assessing and reflecting on the learning goal. A teacher can use it to guide a learner to give

meaning to their activity, observe and assess it.

It should be kept in mind that the strategy is only effective when the same approach is used both at the beginning and the end of the class. For instance, when learners are guided to assess their current situation based on a scale at the beginning of a class, the same scale should be used again at the end of it to see how many new things have been learnt.

INVOLVING LEARNERS IN DEFINING THE OBJECTIVES

Learning begins with the involvement of learners in defining the objectives so that they give meaning to their actions and take responsibility for learning. When teachers discuss at the beginning of each class *what*, *how* and *why* they are learning, it is also possible to analyse the new knowledge at the end of the class. What did you learn in today's class? What needs more practise? What did you not understand? What sort of assistance do I need?

The simplest way of acknowledging learning objectives is as follows: the teacher gives the objective and discusses it with the learners so that they understand what should be focused on during the learning process (Tiisvelt 2011). By acknowledging the learning objective, a teacher gives motivation to learners to participate actively. It would be good to write the objectives on a whiteboard so that they could be observed throughout the training. A summary of reaching the objectives should be made at the end of the training.

INDIVIDUAL SCALE (RULER)

Learning objective can also be displayed as a scale (Figure 1). A teacher will state the topic of the class or a statement on a skill to be learnt. Learners will receive the scale on paper / on a tablet and will make their decision individually. They will mark the place where they think they are with their knowledge on the respective topic. The teacher will guide the learners to find answers to the following questions:

> Where am I now? How do I know this is where I am? What is my goal? How do I know I have reached it? What do I need to do to reach it? (Tiisvelt 2011).

The teacher will guide the learners to define their learning objective based on their individual scale. At the end of the class, a new mark is made on the scale together with a summary on what was achieved and what the goals are for the next class.

Topic ……

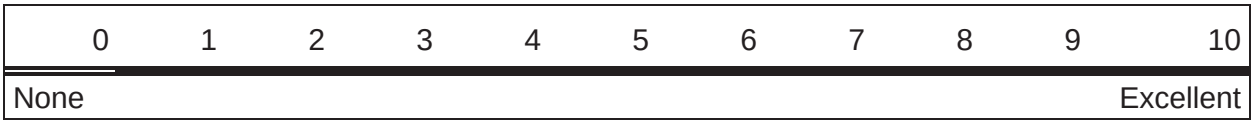

Figure 1. Scale for the assessment of knowledge (Tiisvelt 2011)

COMMON SCALE

To gain an overview of the prior knowledge of the entire study group, a common scale could be drawn on a whiteboard, to which all participants will mark where they think they are regarding their knowledge at the beginning of the class. The entire class will look at the scale and discuss how much they know of the given topic. They see if there is anyone who knows a bit more and could teach the others. The scale will be filled in again at the end of the class, but with a different colour. The teacher will summarise, and goals are set for the next class.

FLOOR SCALE

This strategy requires a possibility of forming a row of learners, so that they may express their opinion or decision with movement.

> A teacher asks the learners to form a row – at one end, there are the learners who have heard nothing of the topic or consider their knowledge or skills to be poor, and the other end is made up of experts in the given field who are feeling competent in this topic. The teacher asks learners to communicate with each other so that everyone is able find a suitable place. It should be emphasised that the line is not evaluative, that is, no one is an expert in everything. Next, the

> teacher could form smaller groups of learners that are close to each other in the line, so that they may compare their knowledge. Each group states their starting position. The same line-up will be done at the end of the training or the topic to see how the positions have changed. (Feldschmidt, Türk 2013)

MAKING WISHES

This strategy is suitable for setting long-term goals. Learners will acquaint themselves with the learning objective, various class activities and the assessment criteria or the terms of reference. Then, wishes are made. Learners will define/describe the learning outcome they wish to achieve, what they will be able to do, know, what kind or outcome they wish to see. They will also determine the plan/activities that must be used to achieve the outcome. At the end of the work/activity, a summary is made, and the learners will reflect their learning experience. (Tiisvelt 2011)

COMPILING A THOUGHT MAP (CONCEPT MAP)

In compiling a concept map, learners will add keywords or thoughts in relation to the topic studied. It indicates *what the learner knows* (marked in one colour). Under the guidance of a teacher, the learner adds (in another colour) *what should be learnt.* All of this together is made visible as a whole, with its separate parts and mutual connections. Based on this map, the activities needed will be determined and the optimal time established. (Tiisvelt 2011)

KNOW – WANT TO KNOW – LEARNT

The Know – Want to Know – Learnt is a method enabling one to determine what a learner knows, what they want to know and what they have learnt (Ogle 1986). This approach could be used as a part of a class to guide reading or listening to a lecture. A table is used for making notes. The first cell is

filled with prior knowledge, the second with what the person wants to know about the given topic, and the third cell is filled in during learning. After learning, the learners will make a summary of the knowledge they have gained. (Steele *et al.* 1998)

Table 2. Know – Want to Know – Learnt (Ogle 1986)

Know	Want to know	Learnt

QUESTIONS TEACHING HOW TO LEARN

Questions that require analysis, synthesis, and deduction in a learning process give both the learner and the teacher information on what the learner has actually understood. Open questions that encourage thought and enable one to make conclusions or predictions, prove one's statements or justify one's opinion are best. (Tiisvelt 2011) The table number 3 shows how to use these questions during a lesson.

Table 3. Questions that support learning (based on Fisher 2004)

Questions	Predicting	Answers after reading a text or fulfilling a task
Questions to remind one of what was learnt. Who? When? How? Where?		
Questions to understand Why did it go like this?		
Questions to implement How is it connected? Do you know how?		
Questions to analyse What are the parts, sequences, reasons, solutions, consequences? What proves that…?		
Questions to synthesise		

What kind of solutions do you offer? What happens when…?		
Questions to provide an evaluation What do you think? What is the most important? How do you assess…?		

QUESTIONABLE STATEMENTS

The teacher compiles questionable statements on the material learnt. Some of them are true, some are false. The statements should cover the entire material of the lesson and have a bit of a twist. Before proceeding to a new topic, each learner individually evaluates whether the statement is true or false, marking each statement with a plus or a minus. The teacher then fills a summary table on a whiteboard with the opinion of the entire class: how many learners believe that the statement is either true or false. It is followed by a lesson in which learners read a text (e.g. the Traffic Act) independently or listen to the teacher's explanations, and mark whether the statement is true or false with a different colour. At the end of the lesson, a summary will be added to the table on how many learners already knew the topic and how much they had learnt. (Steele *et al.* 1998)

Table 4. A summary of the learners' opinions (Steele *et al.* 1998)

Statement No.	**Opinion before learning (number of learners)**	
	True	False
1.		
2.		
3.		
4.		
5.		

ONE SECOND TEST

One-second test can be used as a quick pre-assessment.

> The teacher asks to indicate prior knowledge of the topic with gestures to determine the learner's level of existing knowledge based on their self-assessment (Feldschmidt, Türk 2013).

For this, the teacher may use questions or statements. The method is suitable both as a pre-assessment in the beginning of a lesson, as an interim evaluation during a lesson, or afterwards as a follow-up evaluation.

Figure 2. Hand signs (Feldschmidt, Türk 2013)

Classical versus Communication-Based Lecture

Giving lectures is a traditional teaching method. Classically, it is understood as one-way teaching with teacher / trainer explanations, lecture materials and textbooks, in which a learner is a passive recipient of knowledge.

The weak points of a classical lecture are the overwhelming amount of information and the very long period of concentrating. Studies have shown that adult learners can observe closely for a maximum of 15–20 minutes. (Robinson, Alberts 2009; referred to in Karm 2013)

Nowadays, the main teaching method is a communication-based lecture aimed at encouraging a learner to think, ask questions, explain their point of view, draw conclusions, give examples, act, and monitor their learning when receiving new / important information. The following table illustrates classical and communication-based lectures and highlights their differences.

Methodical techniques for communication-based lectures

The following table provides a brief overview of the methodological techniques that can be used in communication-based lectures in different phases. The brackets contain a reference to the subchapter describing the method more precisely.

Table 5. Comparison of classical and communication-based lectures (based on Karm 2013)

Classical lecture	Communication-based lecture
Objective	
The only person communicating information is the teacher / trainer. Their learning goals are to: • provide a general overview of the topic; • attract interest in the topic among the learners; • introduce the latest research outcomes; • share personal experience; • explain complicated situations. Learners are passive, which does not support learning.	Learning is an active process in which learners are already involved in active study at a lecture by participating in various short tasks. The objectives of inclusive tasks are • revealing prior knowledge; • creating interest; • making mid-term summaries; • finding application for the knowledge learnt; • exchanging ideas, Providing feedback to the teacher on how the learners have understood the material.
Room	
Traditional placement of chairs and tables: learners sit behind each other, looking in the same direction – towards the teacher. There is no eye contact.	Learners sit in a U-shape, in a circle or in groups. They have eye contact. It makes carrying out communication based short tasks easier.
Switching activities	
Switching of the activities is teacher-centred. The teacher • brings examples, tells a story, • shows pictures, videos,	The task given to them requires a change of activity, encourages active thinking and thinking ahead.

• models solving of tasks, • carries out tests etc. to establish contact with the learners and encourage them to think actively and think ahead. The learners listen passively.	A lecture includes 2–3 short tasks with duration of 5–6 minutes. Learners • exchange thoughts; • answer questions; • make schemes; • solve tasks, etc.
The teacher gives meaning to learning: • makes mid-term summaries; • creates connections; • repeats the important information. Learners listen.	Learners are involved in repeating the information, processing it immediately in a lecture to give meaning to what is learnt, make interim summaries, create connections, repeat the important: • summarising the material learnt; • solving the situation; • case study, etc.
Feedback to the teacher (how did the learners understand the material, what was left unclear) and the **learner themselves** (whether I understood the lecture material correctly).	
In most cases, there is no feedback. Teacher / trainer will not find out what the learners acquired or how effective the training was.	Learners give feedback to the teacher / trainer and analyse their learning to acknowledge • what the learners understood and how; • what was left unclear; • what connections they formed; • what questions were left unanswered.

Table 6. Methodical techniques for communication-based lectures

Techniques for evocation phase	Techniques for learning phase	Techniques for feedback phase
• Individual and common scale (2.1.2, 2.1.3)	• Seminar groups • (5.1.10)	• Individual and common scale (2.1.2, 2.1.3)
• Floor scale (2.1.4)	• Discussion network (5.1.6)	• Floor scale (2.1.4)
• Making wishes (2.1.5)	• Listening groups (5.1.9)	• Making wishes (2.1.5)
• One second test (2.1.10)	• Pro-con (5.1.2)	• One second test (2.1.10)
• Standing in mixed groups – pairs (4.3)	• Standing in mixed groups – pairs (4.3)	• Value line (5.1.4)
• Carousel (conversation with switching pairs) (4.2)	• Carousel (conversation with switching pairs) (4.2)	• Moving debate (5.1.5)

• Creating a concept map (2.1.6)	• Switching circles (5.1.3)	• Creating a concept map (2.1.6)
• Questions supporting learning (2.1.8)	• Debate (5.1.7)	• Questions supporting learning (2.1.8)
• Main keyword (4.1)	• Role play (6.3.1)	• Hot seat (6.3.3)
• Creating a common keyword diagram (4.4)	• Stop scene (6.3.2)	• Creating a common keyword diagram (4.4)
• Decision tunnel (6.3.5)	• Empty seat (6.3.4)	• Cube (5.1.8)
• Round table (7.6)	• Mosaic groups (7.8)	• Walk in a gallery (7.7)
• Diamond ranking (6.2.8)	• Round overview (7.5)	• Problem tree (6.2.7)
• Why-why-why chain (6.2.5)	• It's better to think together (7.2)	• Case star (6.2.3)
• Chain of consequences (6.2.6)	• Mixing groups (7.3)	• Mandala (6.2.4)
• Case study (6.1)	• Mapping events (6.2.2)	• Memory bubbles (6.2.1)
• Think in pairs – share (7.1)	• One stays, others go (7.4)	• Decision tree (6.2.9)
• Questionable statements (2.1.9)		
• Know – want to know – learnt (2.1.7)		
• Listening groups (5.1.9)		

Conversation Based Teaching Methods

Conversation is a good learning method that helps to tune in on any topic. Conversation is a way of teaching in which thoughts are exchanged in a free form, initiated, directed and guided by the teacher. The goal of the conversation is not to reach a decision, but to have active participation and a free atmosphere. Therefore, it is the teacher's task to create favourable conditions for a conversation: a relaxed and friendly atmosphere. (Uusen 2002) Mutual polite, tolerant and attentive communication encourages

learners to speak up. It is important for learners to see each other's faces to have a conversation across a classroom. Sitting in a semi-circle or a circle ensures the best way of creating eye contact and gives learners the possibility to observe each other's reactions and body language.

Conversation should be conducted in a way that involves as many learners as possible, not just the most active ones. Conversation should not turn into chatting. The teacher's task is to ensure that the conversation is not diverted from the topic. (Salumaa, Talvik 2003)

Below, various methodological techniques for setting up and conducting conversations are introduced.

MAIN KEYWORD

To tune the learners to the topic at hand and engage them in conversation, a teacher may choose a central keyword for the lecture and write the letters under each other. Learners say the words that relate to the current topic. The task can first be completed by each learner individually or in pairs before they share their thoughts with everyone. The method helps to get an overview of the learners' prior knowledge or their attitude towards the topic. For example, the teacher writes the word "TRAFFIC" on the board and the learners say:

Ant's nest;

Intersections;

Attention;

Speed, system;

Feeling anxious;

Jams, noise;

Car.

CAROUSEL (CONVERSATION WITH SWITCHING PAIRS)

Carousel is a method that activates all learners and helps to bring attention to a topic. Conversation takes place in pairs. The trainer needs to either have questions or conversation topics prepared. For example:

What have you learnt from …

- a complicated traffic situation?
- following traffic laws?
- a professional driver or bus driver?
- traffic jams?

Learners form an inner and outer circle, standing / sitting in chairs opposing each other (Figure 3). People in the inner circle are number ones and people in the outer circle number twos.

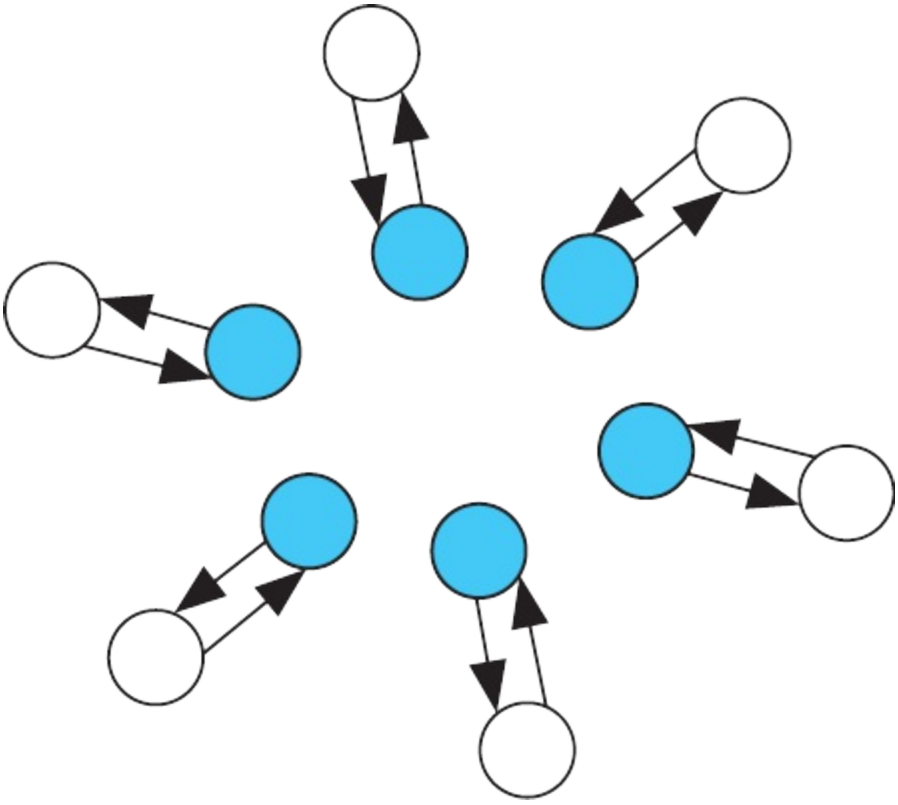

Figure 3. Student placement at the beginning of the method
(Hango, Tani-Jürisoo 2001)

The teacher gives a topic (e.g. what have you learnt from a difficult traffic situation?). Firstly, number ones are speakers and number twos listeners. After some time, the trainer asks to switch roles – number twos talk, and number ones listens. The teacher puts on peaceful instrumental music. One of the partners speaks for as long as the music plays. When the music becomes quieter, it is a notification to stop. The teacher will keep an eye on the clock to ensure that both partners get equal time to talk. When one of the partners finishes earlier, the other one will not start talking immediately but will wait for the trainer to give a respective notification. Before the next topic or question, number ones will move one place to the left (Figure 4). The same activity is repeated with a new partner.

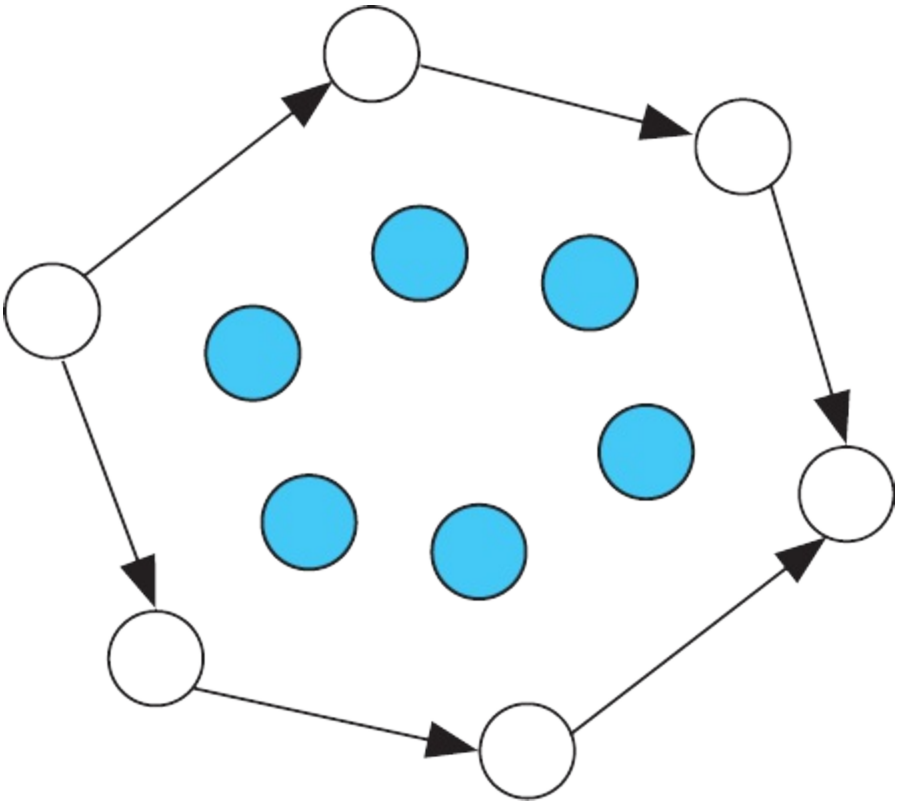

Figure 4. Students movement before second story theme
(Hango, Tani-Jürisoo 2001)

Before the third topic or question, number twos will move one place to the right (Figure 5). The same activity is repeated with a new partner. The switches can be made for as long as the questions last.

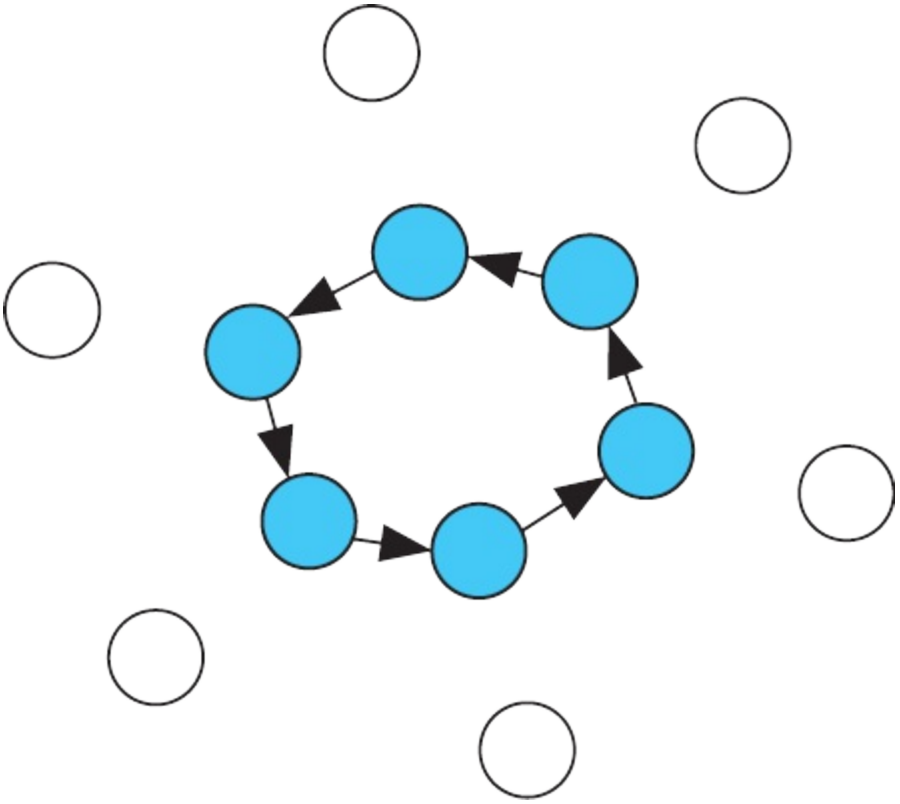

Figure 5. Students movement before third story theme
(Hango, Tani-Jürisoo 2001)

In the end, groups are formed and each of them makes a brief summary of what they heard. Each group selects a member who shares that summary with the others. (Hango, Tani-Jürisoo 2001)

Mixed-stop-in pairs

This method is an excellent opportunity for group members to get to know each other a bit better. For this, the teacher prepares questions or topics. The teacher orders the learners to “mix up!” and will play peaceful instrumental

music. While the music plays, the participants get to walk around the room. When the teacher says “stop!”, the music stops, and the learners stop walking. After that, the teacher says “in pairs!” and everyone finds a conversation partner. They talk on a topic provided by the teacher. The activity is repeated 5–6 times according to the number of questions or topics. (Steele *et al.* 1998)

Creating a common keyword diagram

This is a good way to tune in to a conversation, determine prior knowledge, and provide feedback.

The teacher gives learners paper with an empty key word diagram. Each learner writes the central keyword that relates to the topic being discussed to the centre of the diagram. On the other side of the paper, they write their name. The paper is handed over to the person sitting next to you. The teacher/trainer puts on the music. While the music plays, the learners will add a keyword to the paper, matching the central keyword. The paper is passed on about 6–7 times. Keyword diagrams are handed to the learner whose name is on the back of the page. The page owner reads the keywords, strikes out the words that do not suit the topic in his/her opinion, and makes improvements to the scheme. A conversation follows, using the keywords in the diagrams.

Methods for Carrying out Discussions

Discussion is like conversation, but here, the goal is to solve a problem and reach a decision. Creative and critical thought is important for an effective discussion. (Uusen 2002) Discussion enables teachers and learners to determine attitudes and views towards the topic being discussed.

Using discussion in learning supports several goals:

- understanding and memorising the material;
- developing analytical, synthesis and association skills;
- becoming aware of attitudes;
- understanding the faceted nature of a problem;
- developing skills to evaluate competing views;
- practising verbal self-expression;
- practising cooperation skills (Karm 2013).

In the case of a large group, so-called “seminar groups” may be used, where learners discuss the given topic in a small group first and then a representative of each group will make a summary. If the group is small, everyone can have an opportunity to speak. Although rules are explained before the discussion, there may be those who take the lead. The following techniques can be used
to avoid dominant persons taking over.

- Each learner receives 1-3 talking tickets that enable them to speak up three times.
- Each learner has a pencil. After expressing an opinion, a learner puts a pen on the table.
- Use a symbolic microphone that is handed over in turns. This also ensures that one person speaks at a time.

The use of tools helps to learn the rules of discussion, listen to others, think about your point of view, and make even the modest types or slow thinkers think actively. (Karm 2013)
A teacher should keep in mind that …

> … when we expect meaningful discussions from learners, we should also consistently highlight different positions, point out contradictory views, ask questions, use short pairs of discussions or seminar groups while teaching (Karm 2013).

Methods for carrying out discussions

Discussion-based active learning methods allow you to engage all learners. Much depends on the teacher's ability to manage the discussion (practical arrangements and rules) so that the learners can listen to each other and want or have the courage to speak.

Various graphic solutions (sketches, drawings), pictures, photos, demonstrations, role play, case description, video material that support the expression of your thoughts and feelings can be used to trigger a discussion.

The discussion is led by the teacher, ensuring that as many learners as possible get to speak up. He puts his questions and opinions on himself, without pushing the same opinions, and monitors to ensure that the conversation does not get stuck in arguing or the quest for arguments. (Multer, Valdmaa 1998)

The methods of active learning described below assume that all learners can move around and get together in groups. In the case of a joint debate, it is important to stand or sit in a circle so that the trainer and the learners are on an equal level.

COMPLETING SENTENCES

The discussion requires good oral expression; you want to make yourself understood by others. However, phrasing one's thoughts is not that easy for everyone. The following method may help.

Learners are divided into groups. The teacher gives the learners the beginnings of sentences that relate to the topic that is being discussed in the classroom. First of all, each learner individually thinks about ending the sentences, then he shares his thoughts with the others in the group. It would be great if the number of sentences matched the number of group members. Each member introduces a different ending option to the other groups. The important thing is to give all learners an opportunity to express their opinions and practise making summaries for others (Education for Change 2008).

PRO-CON

In this method, it is important for all learners to move around the room freely and gather together to express their views or decision. The teacher hangs labels in different parts of the room, either on the walls, tables or on the floor: PRO, CON, DON'T KNOW, DON'T CARE. The teacher gives various statements. The learners are together when hearing each statement. First, they listen to the statement, and then think independently about their position. After making a decision, each learner goes to the respective sign without speaking. Once everyone has found their place, the teacher asks the learners of each sign to justify their views, as it may appear that even for people with the same opinion, the reasoning may be quite different. (Multer, Valdmaa 1998)

SWITCHING CIRCLES

The teacher has prepared statements on a topic covered in class. The group or a class forms two circles: inner and outer circle. Then, the circles start moving in opposite directions. The teacher reads the sentence. If a learner agrees with the statement, they will switch the circle and start moving in the opposite direction. If a learner does not agree with it, they will remain in the same circle and continue moving in the same direction. (Education for Change 2008) The method helps you to think through your positions and express your opinions when exchanging places in the circle. The learner will get important information about himself, whether he follows the example of fellow learners, or decides independently which circle to go to.

VALUE LINE

A discussion may also be triggered by a question. It has to be well thought through, intriguingly phrased, and speak to the learners. (Karm 2013) A

teacher asks a question before opening a discussion. The learners think about it individually. To activate the learners, the teacher asks them to rise. He draws an imaginary line in the room, ending in two contradictory opinions. Then the learners move on a line of thought that reflects their position. To do this, they must have discussions with their companions to find out if they are standing in the right place. The formed line can be “split in half", so that the opposing positions can first exchange ideas and then explain the position of the group to the opposite. (Steele *et al.* 1998) This methodical approach helps both the teacher and the learner to find out how everyone is in the situation. Some learners cannot remain passive, but they have to think about moving, to define their own position.

MOVING DEBATE

This method encourages discussion on controversial topics that have different perspectives and opinions. It can be used, for instance, to introduce a topic. A “moving debate” helps learners to express their opinions on a specific topic, to justify it, to defend their views, to listen to the views of other learners. In the course of a debate, one can change their mind when the co-learner’s argument convinces the learner. When moving to the classroom between two sides, two opposing views are represented. (Kasvatades maailma kodanikke 2012)

Attach the “I Accept” label (or image with the upright thumb) and the opposite “Do not Agree” (or an image with a downward thumb) mark on one wall in the classroom. Ask the learners to stand in the centre of the room. The teacher reads one sentence (for example, “Use of studded tyres is harmful") and asks learners to move to one or another part of the space, according to the extent to which they agree with the statement. When everyone has found a place, the teacher asks the teacher to explain his or her views by choosing, in particular, those learners who stand in different places. The learners are asked to justify their ideas. Having heard the arguments of both sides, the teacher

asks if anyone has changed their opinion and would like to switch sides. The learners may move to a new location if they wish. The same procedure is repeated with other statements. (i.e. *ibid.*)

DISCUSSION NETWORK

Class discussions play an important role in encouraging people to think. It is very difficult to involve the entire group. Often, just a few people participate, taking over the entire discussion. At the same time, the rest of the class sits passively, without listening or caring about what is being talked about. Discussion network (Alvermann 1991; referred to in Buehl, 2003) is a strategy for involving all learners in a joint debate. This method provides a framework for discussion in order to evaluate the various facets of the problem. (Buehl 2003)

Discussion network requires the existence of a single binary question (i.e., a question that can be answered both positively and negatively) concerning the nuclear issue. Learners in pairs are asked to draw a grid with a question in the middle. The space on the left-hand side of the grid, listing the reasons for the answer to the questionnaire, is left on the right, all the reasons for the answer to the question are answered on the right-hand side. First, the couple discuss the question, then list the four or five claims that favour a positive answer, and then write four or five statements that tilt the answer in a negative direction. When two lists are drawn up, a couple of learners can join a second pair and compare the lists. All supporting and opposing arguments are considered and an agreement is reached. The network can be attached to the wall so that other learners can explore it later. The activities could be ended with group presentations to the whole class. (Steele *et al.* 1998)

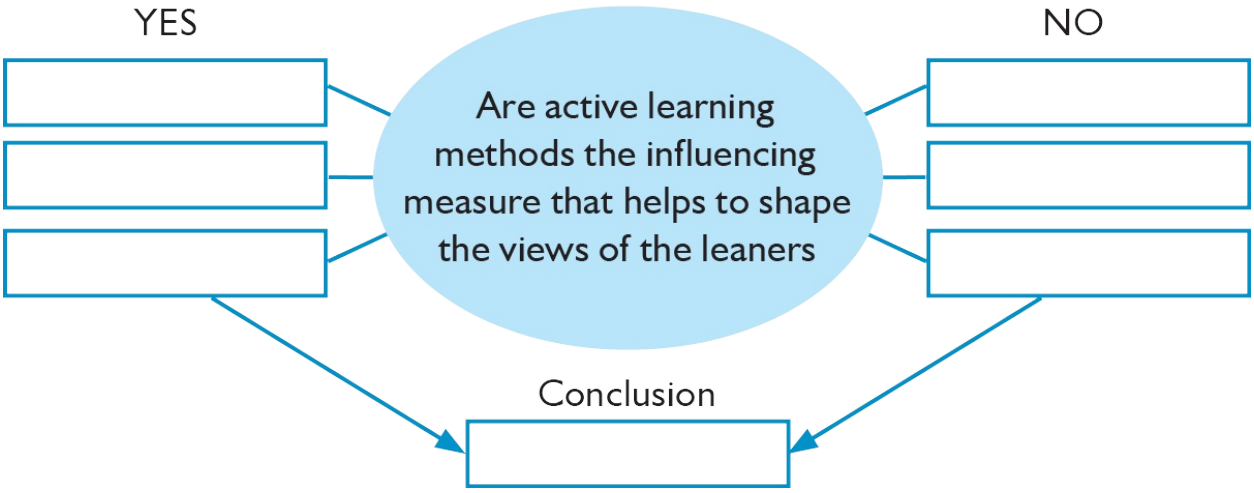

Figure 6. Example of a discussion network (adapted from Steele *et al.* 1998)

DEBATE

As a sequel for the discussion network it is recommended to use debate, through that the students will argue with each other and justify their opinion according to the questions posed.

At first, two groups will be composed: affirmative and negative sides of the question. The groups will present their arguments alternately. The group itself should observe that all the members have the chance to make a statement and that already presented thoughts are not repeated. If some participants feel that based on the presented arguments he or she has changed his or her mind, they are allowed to change sides. At the end of the debate the teacher will make a conclusion based on stated ideas and points out the logic on how the opinions were shaped. (Steele *et al.* 1998)

CUBE

The use of a cube (Cowan, Cowan, 1980; referred to in Steele *et al.* 1998) is a teaching method that facilitates the viewing of a topic from different facets / aspects. Large dice can be used for this method, with the following headings listed on different sides. The method may be used individually, in pairs, or as

group work. You can start by describing and move towards the end by numbers. However, the learners may also find a topic by casting the dice.

1. *Describe.* Describe the situation from various viewpoints.
2. *Compare.* Compare the situation with similar situations. How is it similar? How is it different?
3. *Find connections.* What kinds of thoughts, images or associations did this situation cause in your mind? What kinds of connections can you see?
4. *Analyse.* Analyse the reasons for the situation. What are the consequences? Solutions?
5. *Implement.* What might you learn from this situation? What are the implementation options?
6. *Present your views.* Present your opinion of the situation. (Steele *et al.* 1998)

LISTENING GROUPS

In the case of group hearings (Silberman 1996; referred to in Karm 2013), lecturers have a definite role: askers (must have at least two questions about a lecture on a topic); adherents (give at least two positions they are agreeing to, or that helped them understand, and explain their choice); doubters (bring out at least two positions they disagreed with and justify their doubts); examples of workshops (provide additional examples of lectures based on the lecture material). Once the teacher has completed his lecture, the groups will be able to discuss it for a few minutes. It is followed by joint discussion and answering of questions. (Karm 2013)

SEMINAR GROUPS

In the case of a seminar group, a topical discussion (short 2-3 min, longer 5-10 min) is held in groups of 3-4 people. Learners can exchange thoughts

about the material of the previous lecture part, analyse some specific cases, offer solutions to problems, etc.). All groups may be the subject of the same discussion, but it may also be different. Some groups may be asked to present 1-2 points in the discussion in their own grouping of all learners. Seminar group discussions are good as a preliminary task to an overall discussion. (Karm 2013)

Problem-Based Learning Methods

Problem-based learning guides the process by raising issues. The learners will not get new knowledge in a ready-made form, but by solving a problematic situation. This method can be used when the learners have some pre-existing knowledge both individually and as a group.

Case study

SHORT CASE STUDY

Case analysis (solving problems, tasks, cases) can be a continuous teaching method for a full course of training, but a case study used in a lecture could be a short, fast-track task. The case may be presented on a slide or video. The case analysis is first done individually, then the case is discussed with the couple (a total of three to eight minutes can be given) and then a general discussion (no more than 10 minutes). Some research questions can be given to learners to support the analysis. (Karm 2013)

LONGER CASE STUDY

Stages of a case study:

1. Familiarising oneself with the case (individually, may be done at home).
2. Discussion in a small group to learn from each other and find new viewpoints.
3. Group summary of the discussion.
4. Joint discussion. Here, the analysis and explanation of the ideas, opinions, solutions and issues that have emerged in the groups should continue. Joint discussion should lead to final conclusions on the case.

Decisions taken in case studies also reflect learners' values, attitudes and dominant perceptions that are relevant to the discussion (*ibid.*). Various graphical solutions can be used for the case study.

Graphical solutions for supporting analysis and finding connections, launching a discussion

Stimulating thought is helped by schematic representation of the connections between events or people. It also boosts logical discussion, justification and argumentation. Graphical depiction of problems in texts or in communication situations can help you find different solutions. The following methods are based on the graphical solutions of Doug Buehl's (2003) interaction strategies that are suitable both for working with texts and for working with facts, terms, cases.

MEMORY BUBBLES

This strategy is created based on Doug Buehl's strategy (2003) "History Memory Bubbles". This strategy is a version of a concept map that emphasises the connections between problems and solutions. Memory bubbles can be filled in individually, in pairs, or in a group. Learners find a fact from the learning material and how it is related to the problem. They are

free to suggest solutions and hypothetical changes, but may also find them from the study materials. This diagram is a great start for a discussion.

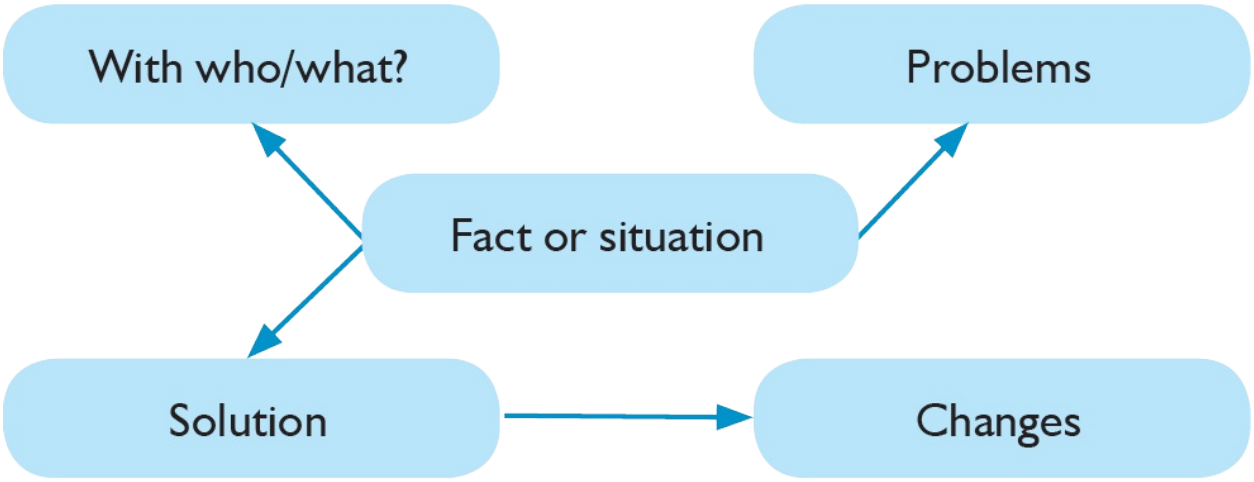

Figure 7. Memory bubble diagram (adapted from Buehl 2003)

MIND MAPPING

This strategy was created based on Doug Buehl's strategy (2003) "Mind mapping". The diagram may be filled on the basis of a dangerous traffic situation seen in a video, read, or heard. The learners will write down the important events of the situation step by step. Filling in the diagram gives learners a visual framework for mapping and understanding the case, helps to create connections and get a uniform picture. The strategy is suitable for voting.

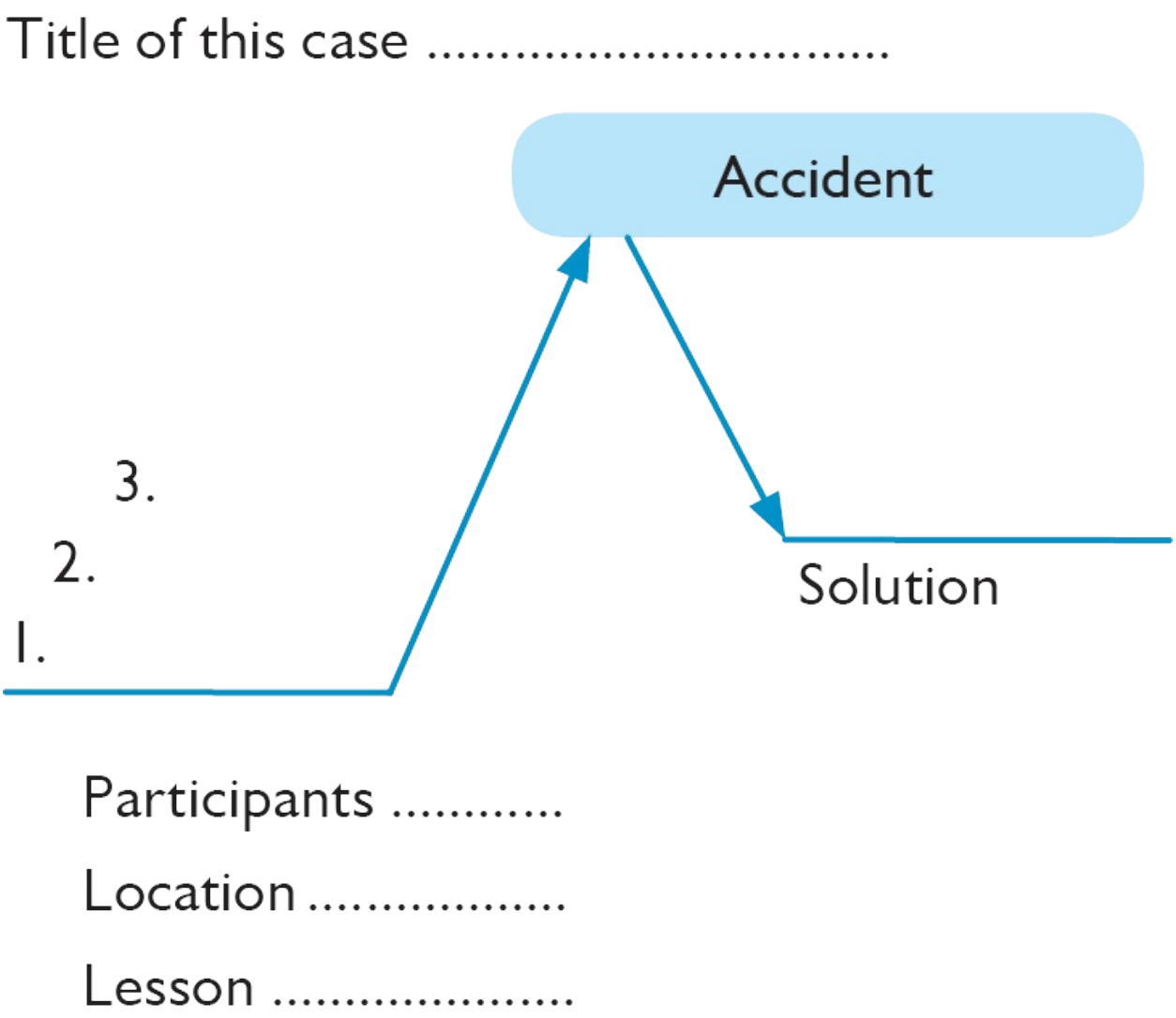

Figure 8. Mind mapping diagram (adapted from Buehl 2003)

CASE STAR

This strategy is created based on Doug Buehl's strategy (2003) "Talking star". A star is used to map the case. The diagram may be filled on the basis of a dangerous traffic situation seen in a video, read, or heard. Individually, in pairs or in groups, the learners find the participants in the case, where and when the given event happened, briefly describe the course of events and the solution.

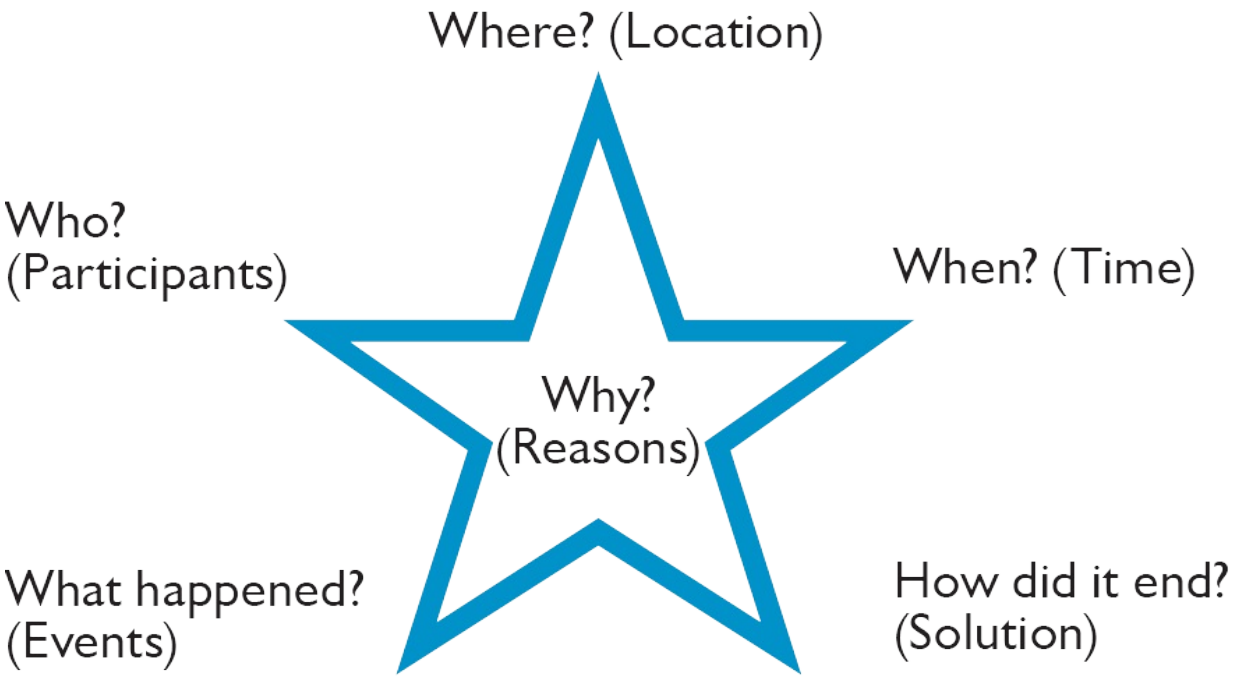

Figure 9. Case star diagram (adapted from Buehl 2003)

MANDALA OR CENTERED MAP

This strategy is created based on the strategy of Linnakylä, Mattinen, Olkinuora (1989) “Centred map or mandala” referred to in Uusen (2002). Mandala is a graphical solution that helps you compare the good and bad sides of an event, person, vehicle, technical solution, etc., as well as bring out supporting and opposing arguments. Learners find a central topic to be studied. It is written in the middle circle. The mandala helps to organise thoughts quickly. The method is suitable for individual, pair or group work to help people tune in.

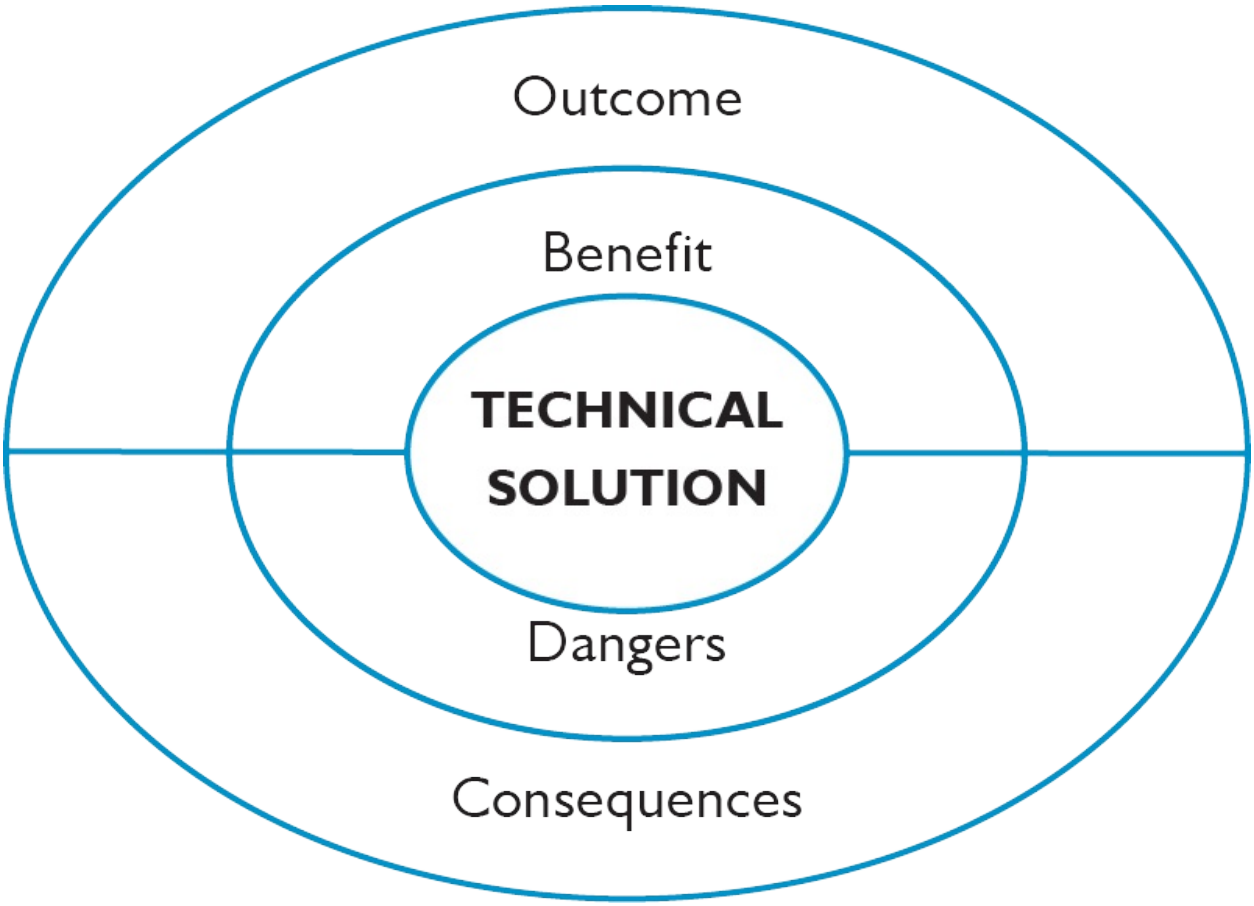

Figure 10. Mandala diagram sample (adapted from Uusen 2002)

WHY-WHY-WHY CHAIN

Why-why-why-chain helps learners to explore the root causes of different issues by encouraging learners to raise questions about why. The teacher provides a chain diagram. The learners think of a problem on the topic that they want to study, and write it in cell 1. Then, the group finds all the possible reasons that cause this problem by asking “why” as many times as it seems necessary. After completing the scheme, the trainer / teacher can ask the learners to propose solutions to these problems. This can be done through talking, brainstorming or discussion. (Witting *et al.* 2012)

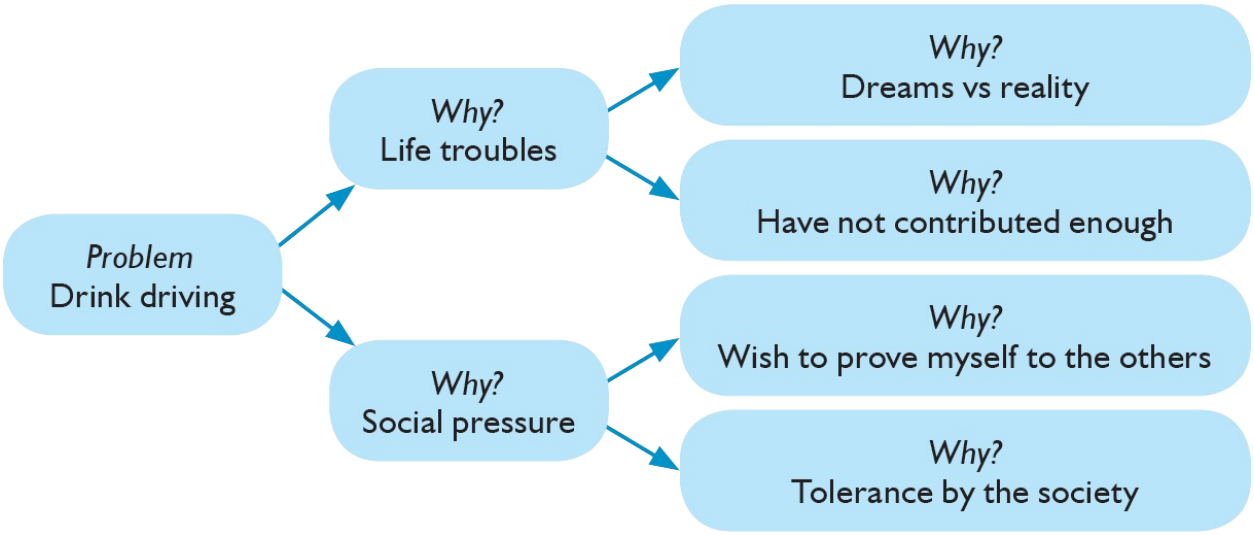

Figure 11. Example of the work of students of traffic safety (adapted from Witting *et al.* 2012)

CHAIN OF CONSEQUENCES

Chain of consequences is a so-called thought map that helps the learner to investigate the consequences of an event, act or phenomenon, and the related activities. The method is very similar to the why-why-why chain. Each group will find a problem or an issue they wish to study. Then, consequences and subsequent circumstances are analysed. After completing the diagram, the problems raised by the learners are discussed and they are asked to submit arguments; possible solutions that could break the chain of negative consequences are viewed. (Witting *et al.* 2012)

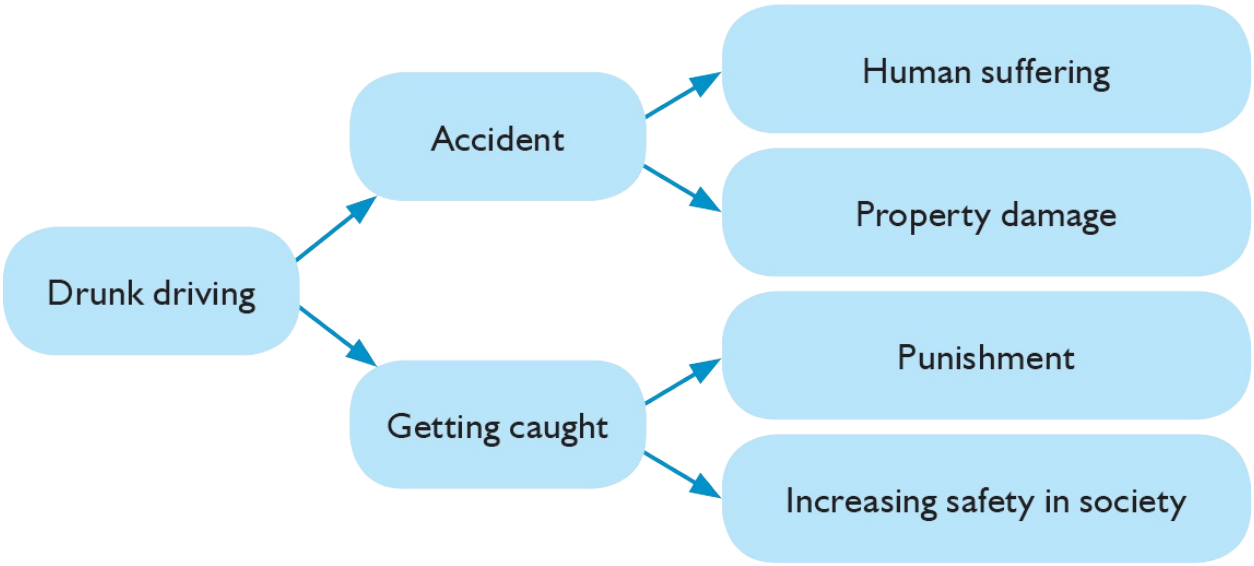

Figure 12. Example of the work of students of traffic safety (adapted from Witting *et al.* 2012)

PROBLEM TREE

Problem tree is a method that allows learners to analyse the problem, identify causes, effects and solutions. It is recommended to be used in a group. Each group draws the basic outlines of a tree together with its roots, trunk, branches and leaves. Then, the selected problem is written on the trunk, the causes on the roots, the impacts on the branches, and the potential solutions on the leaves. When the diagram is completed, a discussion is held. (Witting *et al.* 2012)

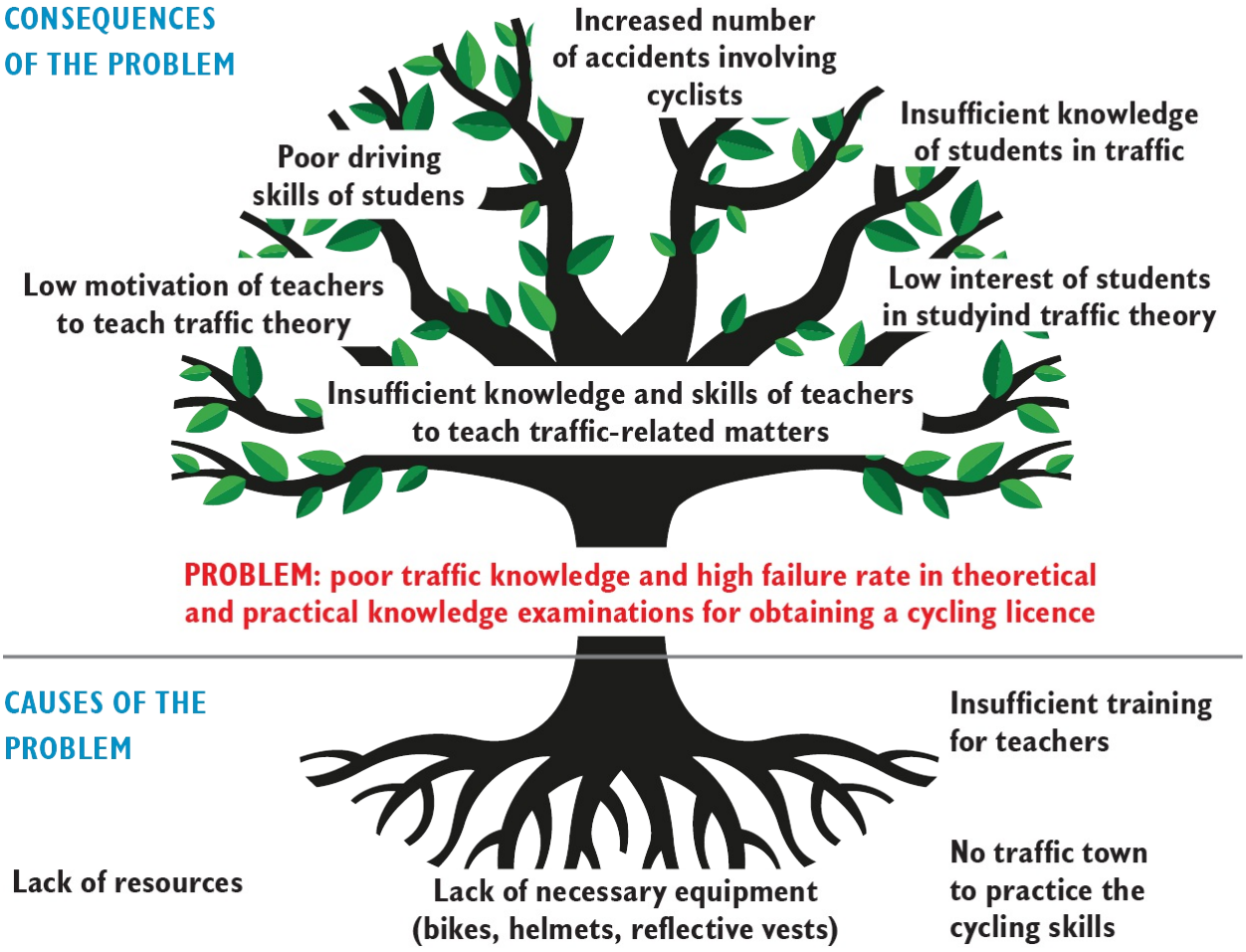

Figure 13. Example of a problem tree (adapted from Witting *et al.* 2012)

DIAMOND RANKING

The aim of the method is to initiate discussions on the relevance of a certain amount of criteria. It helps to identify the most important factor, followed by less important factors, to the least important factor. This is a good method if you need to phrase and determine the priorities or to make decisions on certain activities. For instance, a teacher asks the learners to list the main reasons for a traffic accident. (Witting *et al.* 2012)

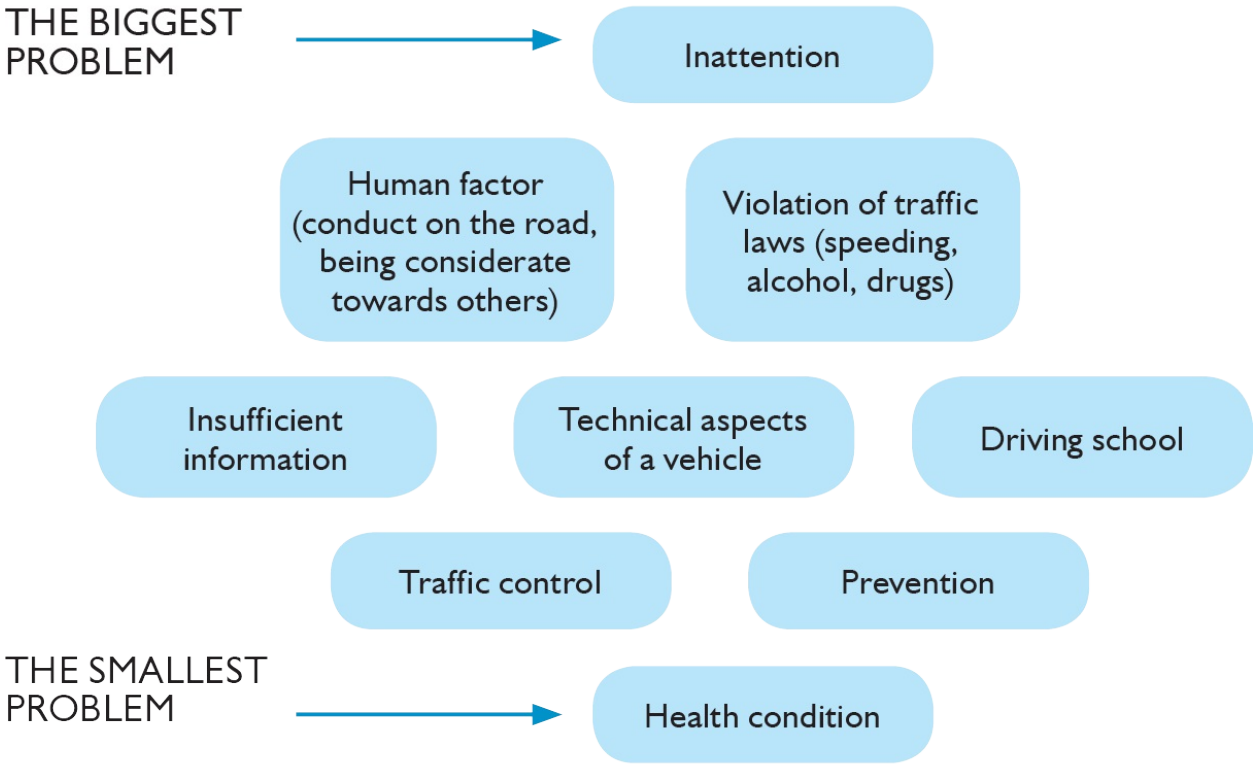

Figure 14. Example of the work of students of traffic safety (adapted from Witting *et al.* 2012)

DECISION TREE

Decision tree facilitates the adoption, or analysis, of the right decisions in complex or unforeseen situations, and helps to better understand the motives of some decisions made earlier. Learners can analyse the decision-making power options and their pros and cons in detail. It helps learners to better understand conflicting personalities and decisions. (Multer, Valdmaa 1998)

The teacher introduces the problem and asks the learners to complete the decision tree scheme. Groups are formed. Learners write down the possible solutions and try to add the strengths and weaknesses of each option. Finally, each group must formulate the optimal solution that is presented to other groups. (i.e. *ibid.*)

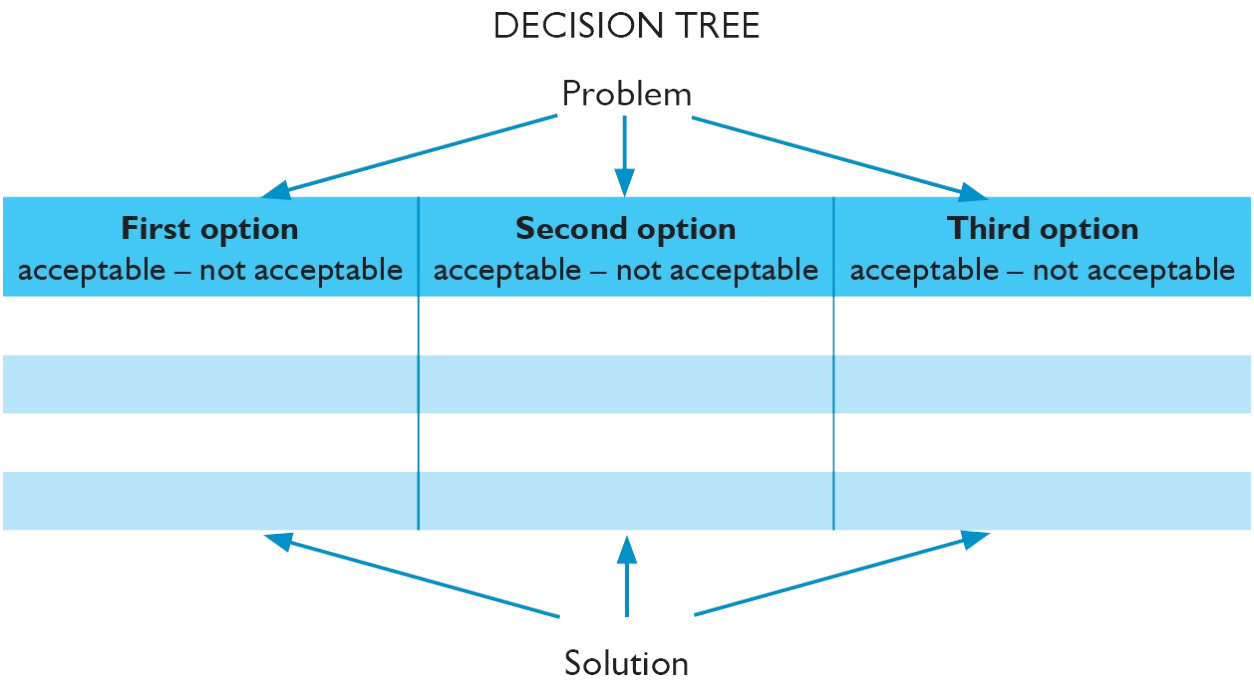

Figure 15. Decision tree diagram (Multer, Valdmaa 1998)

Problem Study Methods with Drama Elements

The formation of attitudes is facilitated by teaching based on life situations, which provides pleasure of action and a subject for joint discussion.

> Learning through drama is at the same time an activity, a play and an art, so the drama can be regarded as an interactive, experiential, playful and active pedagogical discipline. There are no central theatrical-specific knowledge and skills such as voice acting, acting, production and dramatization, except for participants' experiences and the accompanying understanding of the teaching methods described here. The drama can be taken as a social laboratory that looks at people's attitudes, values and relationships in selected situations. (Nielsen *et al.* 2012)

Studying through drama is aimed at analysing behavioural patterns, shaping attitudes.

ROLE PLAY

> Role play is a miniature production in which the learners are actors. Role-play seeks to learn about situations and circumstances, understand different situations and to develop empathy

(Multer, Valdmaa 1998).

Role play can be used when there is a relaxed and friendly atmosphere in the study group so that learners dare to open themselves up to the other learners. Stories are played, and their backgrounds are studied in role play. Role play enables one to see oneself and the others from a distance and to become more aware of oneself through stories. It enables one to study situations, but to also playfully test out the hot spots and risks, and to find solutions to them. Exchanging roles broadens the view, teaches you to see things and phenomena from several viewpoints, and has the potential to break rooted stereotypes and negative attitudes. The roles, location and the situation are decided upon. The teacher gives the members a few minutes to think about and design their own role.

> Role play can be staged as scenes in which character shapes interact with one another, creating dialogues. A court scene could be staged in which the participants are witnesses to an event. (Nilesen *et al.* 2012)

STOP SCENE

Learners will hear a part of a story and play it out. In certain scenes, they stop and discuss what they are doing and how they feel. Next, they are asked to think of what will happen, and guess the expected end of the story. At the end, the teacher reveals the real story and its ending. Such method is good for real stories, both from the past and the modern day. (Kasvatades maailma kodanikke 2012)

HOT SEAT

The group interviews a person on a so-called “hot seat” (e.g., someone who has caused a dangerous traffic situation or is its victim). First, they decide what questions to ask. Then they ask one of the learners or the teacher to be

in the “hot seat” and play the character while being interrogated by the others. (Kasvatades maailma kodanikke 2012) Roles could be assigned to the group as well, to make the compiling of questions easier. For instance, they could have the following roles: traffic inspector, journalist, lawyer, scientist, eyewitness, etc. In the case of a larger group, the method could be used in smaller groups to ensure everyone participates. A discussion is held after the role play. Learners come out of their roles and explain how they felt and why they felt that way.

EMPTY SEAT

In the centre of the circle, an empty tool is placed, on which an agreed character is imagined to be sitting. Group members will ask questions to form that character. If a group member feels that they wish to answer that question, they will sit in a chair, take on the role of respondent, and try to answer the question as truthfully as possible. (Nilesen *et al.* 2012)

DECISION TUNNEL

The group is divided into two sections (for example, one that supports winter tyres and the other the use of flat tyres) that stand face to face to form a tunnel. Each participant passes the tunnel one by one while the others try to convince them with verbal arguments. At the end of the tunnel, the person must make a decision based on the arguments, recommendations and advice received. For learners to be able to share different views, advice and recommendations, learners may be allowed to vote for a different party and counter arguments, read the relevant sections of the traffic law, etc.

Group Work

In addition to co-operation between the learner and the teacher, it is also important to encourage learner interaction, for example, in pairs and groups. Both teaching methods support the formation of self-managing learners and facilitate the development of discussions in the learning process. (Kikas 2005)

A large part of knowledge is based on success achieved in cooperation. We are able to do and achieve more together than alone (Fisher 2004). Working together, we can learn to listen the others with purpose, act on that, evaluate what we heard, have a conversation and express opinions, justify the claims, talk things through, find a compromise, be considerate towards others, observe the rules of conduct, analyse our actions.

The following should be kept in mind when conducting group work:

- Learners of different genders complement each other. If the participants do not get along well, they should not be forced to make mixed groups. Initiation of group work is important.
- The composition and size of the groups should be changed from time to time so that learners can get to know each other better.
- Before commencing, learners need to know how the works are presented, what kind of performance is expected from them, how much preparation time is needed.
- Listeners need to perform a task on what to note regarding the way that groups present themselves. In such a way, the learners are more attentive.

Each member should have their own role. It ensures they are involved and responsible for their section. The roles of the learners may depend on either the task or the needs of the group or both. For example:

- *secretary:* collects and distributes the necessary materials in a group; Finds the information you need from other groups or teachers; reads written materials to the group;

- *checker:* Makes sure everyone understands; reminds the group of tasks and time limits; explains written instructions to the group or retells them if someone does not understand what to do;
- *summariser:* writes down the common thoughts, summarises group work;
- *cheerleader:* praises, helps and inspires each member of the group;
- *reporter:* presents what the group did in class;
- *critic:* argues with the solutions proposed, finds alternatives. (Steele *et al.* 1998)

There are several possibilities for carrying out group work, some of them are described below.

THINK – IN PAIRS – SHARE

The teacher asks a question or poses a problem. Each learner will solve it independently. The learners will share their ideas and discuss the problem in pairs. The pairs share their thoughts with each other in a group of four. (Steele *et al.* 1998)

IT'S BETTER TO THINK TOGETHER

Learners are divided into three- or four-member groups. Each learner gets a number. The teacher asks a question or poses a problem. Each learner deals with the problem on their own. The learners share their ideas in a group. The teacher says a number and the learners with that number will present what went on in their group to the entire class. (Steele *et al.* 1998)

MIXING GROUPS

Learners are divided into three- or four-member groups. The teacher asks a question or poses a problem. Learners discuss it in their home group. After

that, all number ones will move on by one group and say what they had just discussed. Learners return to their home group. The teacher asks a question or poses another problem. Learners discuss it in a group After that, all number twos will move on by two groups and say what they had just discussed. It goes on in a similar way with the third and the fourth learners. (Steele *et al.* 1998)

ONE STAYS, OTHERS GO

First, learners work on a problem that can be presented in several ways. They number themselves within the group (one …, two…, three…, four). Groups are numbered. At the teacher's order, learners switch groups: learner No. 1 moves forward by one group, learner 2 by two groups, learner 3 by three groups, and one of the members remains in place. NB! It is better to do this movement by a single number). The one "staying home" explains to the new members what they did in their group. Newcomers ask questions and take notes to explain everything in their home group. Each newcomer gives a comment on what they just heard and thanks the presenter. Learners return to their home group:

The one who stayed home forwards the comments to the other group members.

Learners 1, 2, 3 explain what they heard in other groups, turning attention to the similarities and differences with what took place in their group.

They continue discussing the problem. (Steele et al. 1998)

ROUND OVERVIEW

6–8 questions or topics are written on large, numbered sheets of paper and placed in different places in the room or distributed to groups of boards. Groups of 3 or 4 handle one question. They discuss it for four to five minutes and write the answer on the same page. On the trainer's mark, the group

moves on to the next page or the page is given to the next group, and they read the answer to the question. They add their comments to the same sheet. At the signal of a trainer, they move forward and repeat the procedure until the group returns to the first question. (Steele *et al.* 1998)

ROUND TABLE

The Roundtable (Kagan 1990; referred to in Steele *et al.* 1998) is a group work method where a single piece of paper and pencil moves from hand to hand in a small group. For example, one member writes a thought on the paper and then gives it to the person sitting to the left of them. The person adds to the thought and passes the paper and the pencil on to the next participant. The method may be varied so that each member of the group has a special colour pen and only the paper does the rounds. In this way, each member's contribution is more visible, and it encourages everyone to strive; the teacher gets a better overview of each employee's work. In the oral format of the round table, one member of the group expresses some thought, complemented by the next person. (Steele *et al.* 1998)

WALK IN A GALLERY

Each group works with one problem and visualises the result on a piece of paper. The results are attached to the walls. After the trainer's notification, the group will move from one presentation to another and discuss them. Notes can be made and left to the works as comments or questions. Finally, the groups review their work, review comments and answer questions. (Steele *et al.* 1998)

MOSAIC GROUPS

1. Forming home groups

Groups are divided into smaller groups of four or five learners. Each learner will receive a number: 1, 2, 3 and 4 (Figure 16).

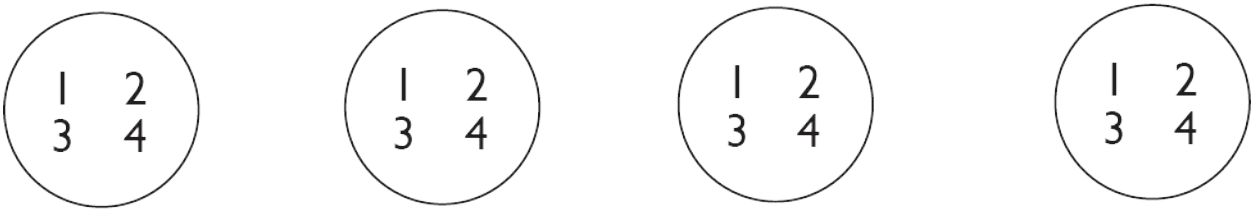

Figure 16. An example of the formation of homegroups (Steele *et al.* 1998)

2. Forming expert groups

For this, all ones, twos, threes and fours are asked to form a group (Figure 17).

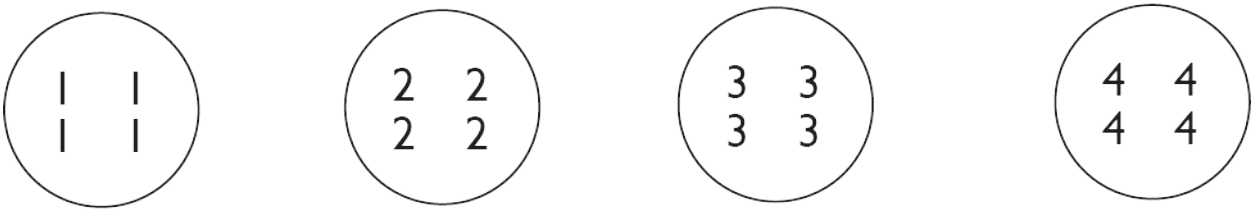

Figure 17. Sample formation of expert groups (Steele *et al.* 1998)

3. Distributing materials

Text is divided into parts. There are two ways of distributing the material. Expert groups can be given the whole text or only the part of the text they will work on.

All number ones are responsible for the first part, number twos for the second, etc. They have to learn the material of the respective part. They need to read this part and discuss it with their peers, to make sure that they have understood everything correctly.

4. Work in expert groups

Learners need to decide how best to transfer this material to others in their home groups. It is important for a member of each expert group to understand that it is their responsibility to teach this part of your home group. The expert group should decide jointly what teaching methods and tools to use.

5. Experts in their home groups

Once the expert groups have completed their work, their members return to their home groups and teach the remainder of the text to other members of the home group. Each member of the home group should get a complete overview of all parts of the text. The members of the home groups ask the expert questions if something is unclear. If it remains unclear after that, the question is written down as a subject of further study.

6. If necessary, expert groups will meet again and seek solutions to the issues raised

The trainer should monitor the teaching of experts, to ensure that the information is provided well and answer the questions that arise. (Steele *et al.* 1998)

Summary

The article is introducing different learning methods, strategies and methodical approaches, keeping in mind their suitability for theoretical classes for drivers of motorized vehicles. When choosing the study methods, teaching principles have been kept in mind. The study methods focus on

students, so that they are encouraged to actively concentrate and their studies are supported in order to develop self-managing learners, who are capable of supervising, valuing, improving and if necessary changing their own studies. The assessment is based on the principles of formative assessment. Assessment strategies are used to guide the learner to self-assessment. Feedback places emphasis on promoting
learning.

Choosing a study method has an enormous role because teachers' actions must contribute to maintain learning motivation. Hopefully the given methods will give an idea of how to organize collaborative learning, because teaching is a social activity by its nature.

None of the methods described here can be considered better than the other. The effectiveness of teaching is determined by whether the used method is suitable at the time given and how skilled the teacher is in using the chosen method. The teacher is confronted with choices. For example: Which methods to choose to teach a certain topic? How to sort the methods so that first one would prepare the next one? Which methods to choose to prevent students from fatigue and to maintain their learning interest? Whether to put learners to work in groups or individually and what kind of methods to choose for this? etc.

A lesson is and always will be a creative activity. Each teacher as a creative person chooses what kind of methods to use to achieve the goals. The important part is to build on strengths and make learning interesting. An inspired teacher also motivates the learner to learn and achieve good results together.

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REFLECTING TEAM METHOD USED BY DRIVING TEACHER STUDENTS

Hilde Kjelsrud

The Narrative

It was early morning and we all met in the classroom. Usually there were six students, but one girl was missing. Lene was not there. She was supposed to have a driving lesson a bit later that day, and I became a bit worried. Ten minutes later, I got a text message saying that she was running late, and she was coming as soon as she was able to. The driving lesson was supposed to start at 10.30 pm, and she wrote that she was coming at about ten o'clock. That would give Marcus and Anne time to plan, read and speak together before the driving lesson, and to do the pre-guidance talk with Lene. I felt relaxed when the other three students went out for their driving lesson: everything was under control.

Marcus and Anne stayed in the classroom and started to read Lene's plan, so that they could be well prepared to be the reflecting team. The reflecting team consisted of two students this time – Marcus and Anne – and their task was to help Lene in her learning process. Lene's written plan was built upon the didactic relation model, which is a didactical tool for planning and reflection (Bjørndal, Lieberg 1978). The model describes goals, content, learning process, learning abilities, framework and assessment (Lyngsnes, Rismark 1999). Marcus and Anne felt well prepared for the driving lesson, and knew more about Lene's awareness of her own teaching skills and her goals for the lesson.

At ten o’clock Lene came, she seemed uncomfortable, unhappy and stressed. I could easily see it, since I have had her as a student for about one year and knew her quite well. Marcus and Anne also knew her well, since they had been in the same group since they started their education, one year ago. The pre-guidance talk started quite formally, and they talked about Lene’s plan and asked her questions about the content, some framework and a little bit about the learning process. They were actually good at asking questions related to the didactic relation model, and Lene did answer these harmless questions quite well. Fifteen minutes had passed, and Marcus and Anne were ready to follow Lene to the car for the diving lesson, prepared to sit in the back seat.

This was the turning point for me as their teacher; I had to make a choice between intervening or not. I could have let them go through with it, but I realized that Lene was uncomfortable, so I chose to intervene and asked Marcus and Anne how they thought Lene felt and about her emotional state today, without turning towards Lene. They were not sure and decided to ask her. I went out of the communication and continued to observe. She answered that she felt really uncomfortable because her son had been sick all night and she had a stressful morning finding someone to take care of him, and that she was worried about this driving lesson since she had not planned it as well as she usually did. The communication between the three students and the atmosphere in the room suddenly felt different, it was more relaxed and natural.

After the driving lesson, we went to the classroom. Marcus and Anne sat towards each other, and Lene was sitting with her back towards them, listening. The reflecting team, Marcus and Anne, were talking about what had happened during the driving lesson and the pre-guidance, in a positive way. They also talked about the fact that Lene had been stressed before the lesson. Lene was only listening, and she was facing the wall, but you could see that she was more relaxed, and that she could use all her attention to

listen to Marcus and Anne. She did not need to worry about them talking about her teaching skills at that point, because they cared about her, and the atmosphere was good. When the reflecting team was done talking, she got five minutes to comment on the experience. Lene was smiling and seemed relaxed. She said that she had experienced a good atmosphere and that she had felt it interesting and a bit scary to be the focus of the talk. At the same time, she enjoyed the feeling of just listening, not explaining her choices.

REFLECTING TEAM – FIVE PHASES

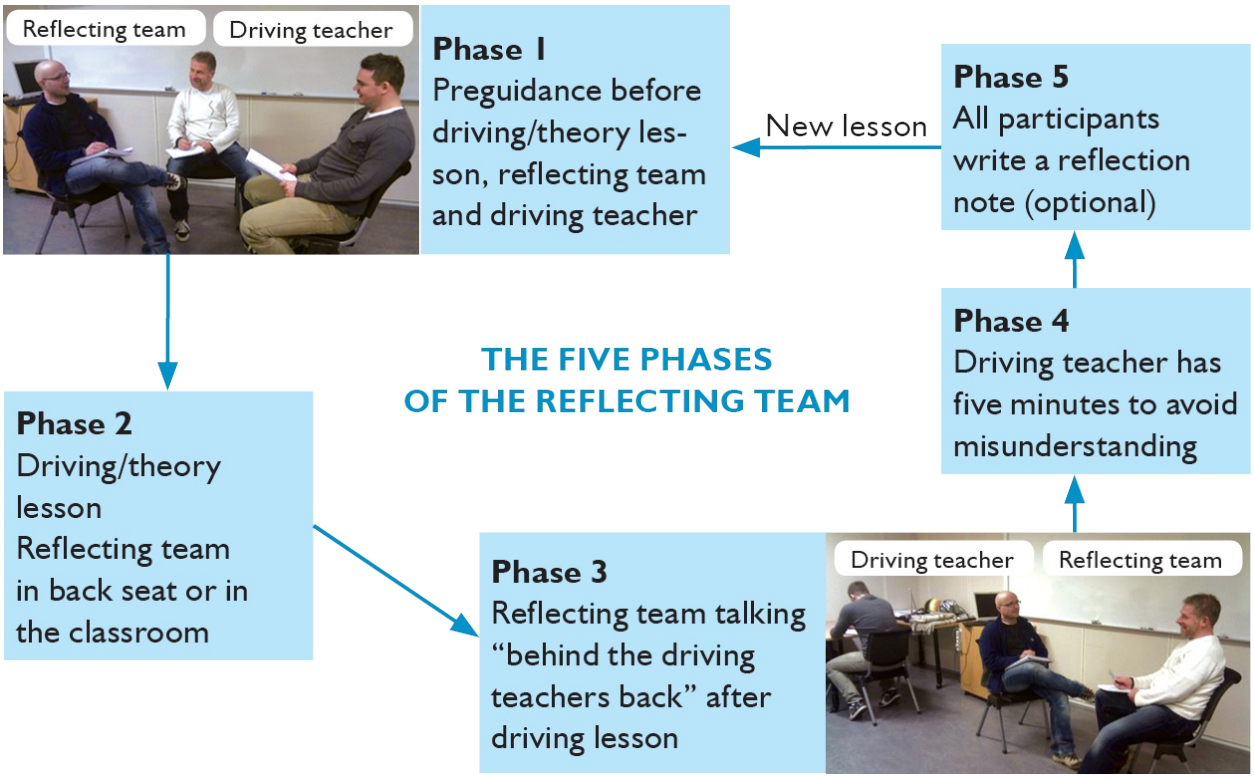

Figure 1. Reflecting team and the five phases

What is a reflecting team, and where does it come from? The idea of using a reflecting team in driving teacher education builds upon a master program in knowledge management (Kjelsrud 2010). A reflecting team is a group of persons, two or more, who speak together about someone they have seen or experienced in action (Rennemo 2006). The person who has executed the

action is still in the room while the reflecting team speaks together. She/he will be listening, but will not be spoken to, and will not be allowed to comment on the conversation ongoing in the reflecting team. This pedagogical tool, reflecting team, may help students to become more self-aware and reflect more over their own teaching skills and become better listeners. In this example (Figure 1), there are two driving teacher students in the reflecting team, helping a third student to become a skilled driving teacher, but it is also possible to have more students in the reflecting team and more students in action. The focus is on the reflections and thoughts of the reflecting team, giving the driving teacher student time to listen and reflect with their back towards the reflecting team, without creating a defence speech. Phase 3 (Figure 1) is the most important and peculiar part of the process, compared to other models with face-to-face guidance.

The reflecting team has been used in social psychiatry (Andersen 1987). Tom Andersen points at a “stuck” system and the dialogue and meta-dialogue in clinical work. This is about families with problems, and the problem in these families may be stuck and hard to solve. In this case, for driving teacher students, the main point is not to save a stuck system, but to look at new ideas to broaden the perspective and its contextual premises (Andersen 1987). In Andersen’s clinical work they used a reflecting team behind a one-way screen with the possibility to look at and listen to the conversation between the interviewer and the family. Our reflecting team is close by all the time and involves more, without a one-way screen, but there are many similarities, and the main idea of using dialogue and meta-dialogue to broaden the perspective is important and listen to other ideas without interfering. We also found out in our master’s research (Kjelsrud 2010; Kjelsrud, Sandvik 2008) that a safe and caring environment between the reflecting team and the one who was reflected over, and possible others in the room, is important. Andersen also facilitates this in his article; the carefulness and genuine

respect these teams showed for the integrity of those persons with whom they talk (Andersen 1987: 1).

The goal in **phase 1** (Figure 1), in the pre-guidance interview, is to find out what the teacher (the student executing the lesson) needs and wants. It is quite interesting to name this like Andersen (1987) does in his article; the teacher's picture of the situation and her explanations of the picture. The teacher has a picture of the driving lesson and what she is going to do and often she has an explanation of why she is planning to do it. Sometimes the teacher knows what to ask for and sometimes she does not. The reflecting team needs to make the teacher tell them and show her picture of the situation and her explanations, so that it can be possible for the reflecting team to understand her thinking and make their own picture and explanations. The reflecting team, two or more participants, have to find out what the teacher needs and wants by asking questions and listening. The idea is to make an agreement, so that the reflecting team knows where to concentrate their attention, and that the teacher gets the help she wants and needs. At the same time the reflecting team should not be entirely focused on what the teacher asks for, they need to help her to add new ideas to her picture and explanations, the reflecting team should discuss alternatives.

Phase 2 (Figure 1); the teacher executes her lesson. The reflecting team is watching and listening from the back seat of the car or in the classroom – depending on whether it is a theory lesson or a driving lesson – but they are not interfering, unless the teacher requests it. It is possible to plan for a timeout during the lesson, or maybe to plan for a possibility for a timeout if needed. It could be that the reflecting team or the teacher wants to clarify or ask for something, but it needs to be sorted out before the lesson starts, otherwise it can be a disturbing element for the teacher during the lesson. The reflecting team focuses mainly on the agreement made in the pre-guidance interview, and does not talk together in this phase, but they do make notes to use for later. It is important that they appear positive, smiling and relaxed in

this phase so that they do not worry the teacher or the learner driver more than necessary. It might be a good idea to tell the teacher that they will be taking notes, so that she knows what is happening.

Phase 3 (Figure 1) is the peculiar part of this method. The conversation in the reflecting team is supposed to concentrate on how the teacher was executing the lesson according to the agreement made in the pre-guidance. The conversation between the participants of the reflecting team shall be positive and constructive for the teacher, and when she is listening to the reflecting team with her back towards them there should be no eye contact or questions between the reflecting team and teacher. This is important. The teacher will experience this in a meta-position as if she were a fly on the wall! In this setting, we will get to know the reflecting team's picture of the lesson and their explanations for why things are happening and their alternative solutions or ideas. In Anderson's (1987: 2) article we find the structure of three levels. The first one is called the picture-level, the second is the explanation-level, and the third one the alternative-level. Both the teacher and the reflecting team have all of these three levels; how they see the situation, how they explain it and which alternatives they can find. It is important that the reflecting team is aware of the teacher's three levels too.

Some teachers can tolerate only a few new ideas or alternatives, and these ideas should not be too far away from what they actually do. If it is too different from her thinking, she might not even consider reflecting on the alternatives. The reflecting team should be careful when mentioning the teachers' nonverbal communication. This does not mean that they should avoid it if it is of importance, they should just be careful. The reflecting team should talk about nonverbal communications or comment on it with a tentative uncertainty if they have interpreted it correctly.

If there are obvious nonverbal issues, which should be addressed, it could also be possible to bring in a second opinion to the reflecting team in this phase. In Andersen's article about clinical work (1987) he brings in a GP

(general practitioner) or a psychologist when necessary in this phase. In our situation, it is natural to bring in a teaching supervisor to the reflecting team if necessary. In the starting narrative of this chapter, this did happen. The reflecting team needed help. I was the second opinion as a teaching supervisor. I saw that speaking about Lene's emotional state was important at that point. I did not approach the teacher, but the reflecting team. The teacher was listening to us talking about whether we should ask her about her emotional state. The initiative could come from the reflecting team to the teaching supervisor or from the teaching supervisor to the reflecting team as it did in our case. The reflecting team decided to bring up an open question to Lene, carefully, but still a question of her emotional state. They had thought about it before I approached them, but they did not dare to ask.

As a rule, everything that is said should be speculative, and the reflecting team could speak of their ideas like: "I am not sure," "It occurred to me," "Maybe," "I had the feeling that," "Maybe this is not appropriate, but," and so forth (Andersen 1987: 5). Reflections must have the quality of tentative offerings and possibilities, not supervisory remarks. This is something the reflecting team needs to practice to get good at not being too pig-headed and self-centred. They do not have the one and only solution, but they can become good at pointing out different alternatives.

The teacher in this setting is the one who generates the "reality", at least her reality, and this picture of or knowledge about the world will be the basis for her attitude towards it. The teacher and the reflecting team are experiencing the same world, but will make different pictures of it. Problems will arise when they debate which picture is right: either the teachers or the reflecting team. Referring to Andersen (1987), there is no such thing as "a right picture", there are many pictures. In the communication between the members of the reflecting team it is useful for the team as a whole to talk in terms of both-and or neither-nor because it is too easy to tend to talk in terms of either/or (Andersen 1987). It does not mean that there is no either/or, it

might just sometimes seem a bit black-white and nothing in between. Using another metaphor, there are different shades of all colours, depending on the light and other circumstances. However, the reflecting team can take different positions discussing or communicating. One participant can choose to tell her picture and explanations of the lesson and the other might choose to tell his picture and explanations of the lesson, and it is a good thing that they differ as there are seldom right/wrong solutions in pedagogics. This can show a nice contrast and open reflections for the teacher while she is listening, but it is important that the teacher in this phase does not make notes, she is just supposed to listen with her back towards the reflecting team. All her concentration and capacity should be on listening to the reflecting team, no computer or cell phone on her lap or in front of her.

Phase 4 has one main purpose, and that is to clarify uncertainty and confusion, if there is any. This means that the teacher has a maximum of five minutes to clarify if there are misunderstandings or to ask the reflecting team questions to clarify if needed, but no more than five minutes and without a speech in defence of something she has done. This phase is not actually a part of the process that needs a lot of attention, but it is still important to keep it, and to keep it short.

Phase 5 is optional; it depends on the purpose and setting of the process. Writing a short reflection note helps the reflecting team and the teacher to reflect themselves and helps them in their awareness of the context. It might also be easier to discuss it later and share opinions about the next driving lesson. The reflection note is an individual task to write, and it should be short.

The process of using a reflecting team is a facilitated setting of which feedback and conversation is supposed to be constructive. The relationship between the parts has to be “safe” enough, nonintrusive enough and interesting enough to bring out new ideas. The relationship between the reflecting team and the teacher is essential. A living system composed of two

or more persons allows the possibility for exchanging pictures, explanations and alternatives. When these participants in the reflecting team share pictures and explanations of these pictures, alternatives and new perspectives and change might occur. The reflecting team has to bear in mind that its task is to help to create ideas and alternatives, and awareness even though the teacher may not find some of those ideas interesting at all. The teacher will select those ideas that fit her, but at the same time, the hope is that the reflecting team will trigger reflection and awareness in the teacher about her picture of the lesson, her explanations and the alternatives.

Sometimes there is a stuck system too if a group has fallen into a certain way of doing things, and the way they work and talk together has led to suboptimal practice (Wackerhausen 2015). Experiences from long periods of cooperation in the same group of people can mislead and make people "blind", making the same mistake repeatedly. If Lene, from the narrative above, always has the same reflecting team, it could happen. It is important that the reflecting team is also aware of this. The field of practice may be closed and not getting any new input. Wackerhausen discusses three different rooms of misleading experiences, these are: self-affirmative, self-protective and selective rooms of experience (2015: 81).

In the self-affirmative room of experience, the same pattern of reflections has been done for a long period, maybe these reflections build upon old knowledge or misinformation. This misleading experience points at the self-fulfilling expectations in an established practice, confirming experiences multiple times even though they may be built upon false knowledge. In the protective room of experience, there may be a gap between what we do in our group, and what happens in "the real world". Protecting our inner circle of colleagues in a field. In the selective room of experience, the reflecting team selects what to talk about without considering what the teacher needs or wants, just like in the pre-guidance talk in the start of this article, when Marcus and Anne were too occupied asking questions linked to Lene's

didactical planning document without considering Lene's needs on that particular day.

Communication

Communication is important to make a reflecting team work as a tool. In this part, the focus is on communication and communicational skills. We shall look at metacommunication and listening skills. Metacommunication can be defined as communication about communication (Baltzersen 2008). Meta is Greek and means "after". The concept of metacommunication indicates what frames the communication. Metacommunication is a secondary communication about how information is meant to be interpreted. It is based on the idea that the same message accompanied by different metacommunication, or framework, can mean something entirely different, including its opposite, as in irony. Metacommunication may or may not be congruent, supportive or contradictory of the verbal communication.

The subject of the metacommunication could be either the content, relationships or time spent (Baltzersen 2008), and it could appear as a dialogue or a monologue, within the conversation like a "time out" or in a wider time lap.

Samples of metacommunication:

- To repeat parts of the content in the dialogue (paraphrase)
  "…if I understand you correctly …"
- Telling your own thoughts and intentions.
- Ask for feedback concerning your own role in the conversation
- Talk about the level of privacy in the dialogue.
- Talk about time spent
- Reflection of feelings
  "I feel a bit worried, how about you, how do you feel?"

- Talk about the need of minimum level of response (nodding, smiling, yes, mmm)

If the need of metacommunication arises, it is necessary to keep it short, and get back on track. If you need to communicate about the communication, it could be a bit awkward, but it is possible to look at it like a “time out”, where we put our real issue on hold for a short while. While communicating is about talking together, metacommunication is talking about how we want to talk together. Here are some possible basic rules of metacommunication in a reflecting team:

- We do not interrupt when someone is talking, listen empathically
- We ask questions to make sure that we understand
- We need to be open and honest, also in difficult situations
- We should not exceed time planned for us or others
- We speak of, and speak to others, in a positive manner

To define some basic rules can be useful to keep and create good relations, and it leads us to the subject of listening.

Listening is quite often about giving someone else attention and trying to let others be more important than yourself for a while. This time it is about the reflecting team giving the attention to the teacher, and vice versa. Irgens (2007: 106) illustrates this listening and attention by using stairs. He names it empathic listening. We will look at these steps through the eyes of the reflecting team and the teacher, and my interpretation of each step.

Figure 2. Empathic listening (Irgens 2007: 106)

At the first and bottom step, you find ignoring. Ignoring would be strange if we saw it in the reflecting team, but it could happen. If the reflecting team was forced to do this work or if the teacher and the reflecting team had an earlier conflict. Maybe they would ignore each other's opinions. This would absolutely call for metacommunication about how they communicate. Another reason for ignoring is distractions, if the reflecting team or the teacher is cognitively occupied with something other than listening.

Pretending is the second step of the listening stairs. Many of us can relate to pretending to listen at home, and sometimes we are not discovered. In this setting, as a reflecting team, pretending will be difficult, since you are supposed to ask questions, listen, and follow up on what the other person says. Pretending to listen in a reflecting team or as a teacher will eventually

be revealed, since there are only three persons in the room and response is required. Pretending to listen and ignoring can both be caused by participants having their thoughts elsewhere. It is easier to pretend to listen if you are in a classroom full of fellow students, as long as you are not expected to respond.

The third step of the listening stairs is selective listening. Selective listening could be interpreted in different ways. One way to understand it is that the reflecting team selects what to listen to, depending on their own picture, preferences and their own experiences. This happens quite often when participants of the reflecting team have strong preferences about certain things or if they just have had a driving lesson themselves on the same subject. It is easy to listen to what the teacher says and make it fit in to his or her own reality. Another way to look at selective listening is the selective "fault seeker". The person that always looks for "faults" of others and wants to dig into them to appear better themselves. Selective listening does not always have to be unfruitful; it depends on the expectations and the agreement between reflecting team and the teacher.

At the fourth step, we find verbally oriented listening. Verbally oriented listening is listening to the words, and the meaning of the words, not as much attention on facial expressions and body language. This could actually be a problem if the reflecting team is doing pre-guidance in the backseat with the teacher sitting partly with her back towards the reflecting team. It could be difficult to read the teacher's body language and her emotional state. Another problem is if the reflecting team are novices using this tool. They could be so eager to follow instructions that they forget or just do not have the capacity to be aware of other things than what the teacher verbally says. This is the exact problem in the starting narrative of this chapter, when the participants of the reflecting team are too occupied listening to what the teacher says, and do not pay enough attention to Lene's emotional state and that she looks pale.

The fifth step, the observant listening, combines verbal listening with nonverbal listening, so that we can both listen and observe the person we are

communicating with. The focus is not only on what is being said verbally, but also how it is said and the behaviour of the person speaking, but the reflecting team is passive when it comes to search for information. Observant listening is not easy; the two participants of the reflecting team may interpret the same teacher in the same setting differently. There are some universal body languages like smiling, laughing and crying which we might interpret equally, but the tone of voice and pitch might be more difficult to interpret from different cultures and dialects. Eye contact, speed of speaking and engagement are also things to consider in observant listening.

If the reflecting team or the teacher mixes observant listening with an active search for information, they could end up at the highest level of listening: step six, empathic listening. This builds upon the thought that you try to understand others before you try to be understood (Irgens 2007). In the conversation between the participants in the reflecting team, this is crucial: they have to practice encouraging each other, use follow-up questions and give each other minimum responses to reach a deeper level in their conversation. The point is to try to understand each other and the teacher's situation and views, like stepping into the other person's shoes!

These steps of listening might make the teacher and the reflecting team more aware of their listening skills, even though there are other and deeper explanations when it comes to listening. It is all about awareness and raising consciousness of how the reflecting team listens to each other, how they listen to the teacher and how the teacher listens to the reflecting team.

Reflections from students, theory and discussions

As a part the of the Erasmus+ cooperation, 13 students from Estonia, Finland and Norway met in Finland in January 2017: I will end this chapter by sharing some of their reflections about using the reflecting team method. The students got a presentation of the background and the purpose of the

reflecting team. After two theory lessons that I taught, they tried out the reflecting team as a method themselves and they had to write a reflection note afterwards. We divided the group of students in two, one group of seven and one group of six students. There has to be two or more persons in the reflecting team, and we chose to use two persons in the reflecting team, one person presenting something and 3-4 students as an audience for the person who was presenting. The group organized themselves, and they had to change roles and execute the exercise twice. I walked around observing and answering questions when necessary.

One student wrote that he really liked the reflecting team task, even though it seemed complicated in the beginning, it could help to develop listening skills. It is easy to interrupt and defend one's own opinions when someone is guiding you, and this is not possible when you sit with your back towards the reflecting team. This student wrote that the reflecting team was positive and caring, and that this tool could help develop our empathy towards others. Care, empathy and trust are words frequently used by our Estonian, Finnish and Norwegian students when they talk about using the reflecting team as a tool.

In the book *Enabling Knowledge Creation* (Krogh *et al.* 2000) the authors claim that a knowledge-helping context is important, and they stress that development of knowledge in an organization requires particular relationships among the participants. What we find here is recognizable when it comes to using reflecting team with students. To be able to help each other and to share and exchange personal knowledge, participants need to trust each other and be open minded to other ideas. Relationships need to be constructive and supportive (Krogh *et al.* 2000). A culture of mutual trust, creative environment and good relationships seems to reduce tendencies of distrust, fear and dissatisfaction and even make people try new methods like the reflecting team. Knowledge is a powerful tool; sharing knowledge depends on each individual, and the type of business. Usually sharing

knowledge among students at a University or colleagues sharing knowledge at a workplace is quite normal, but in modern private businesses, it could be opposite: sharing is seen as giving away your advantages.

Krogh, Ichijo and Nonaka (2000) present five dimensions when it comes to developing knowledge in organizations. These five dimensions are mutual trust, active empathy, access to help, go-ahead spirit and no condemnation (Krogh *et al.* 2000). These dimensions seem transferable to discussions about reflecting team, but the one dimension that appear in almost every written note from our students is trust. Trust has to be mutual. When a person is engaging in a reflecting team, the trust has to go both ways. About trust:

> … two issues seem central: first, that trust is about dealing with risk and uncertainty; and second, that trust is about accepting vulnerability (Newell 2002: 56).

The trust between the teacher and the reflecting team is, according to our students, extremely important. One of the students wrote that the trust between the teacher and the reflecting team is very important for the method to be realistic and honest, because then the teacher can probably get the most out of the feedback when he/she can trust it to be sincere.

Another discussion about the importance of trust came from another student, and that was about the reflecting team and the teacher being peers. He reflected that it would be "psychologically depressing" to "evaluate" somebody with higher authority or power, and that the self-defence mechanism would automatically switch on so that something important could remain unsaid. It is also quite interesting that one of our students reflected on whether trust actually was needed in this situation, since they tried it out on peers they met just two days ago in this Erasmus project. Do you have to know each other well to use the reflecting team method or not? I do not think so, but it depends a lot on the relationship and trust in the group. This student wrote that it could be interesting to test the reflecting team with complete strangers too. Since trust was one of those things mentioned quite a few times

in reflection notes from the Estonian, Finnish and Norwegian students, I will dwell on it some more, and look at different kinds of trust.

Referring to Newell, Robertson, Scarbrough and Swan (2002) we can find a threefold typology of trust. The first is the companion trust that refers to belief in goodwill from others or personal friendship. The second one is competence trust, based on the perception of others' competence. Third and last is commitment trust. This trust is based on some sort of agreement between the parties. It seems that all these three types of trust should be discussed when it comes to using the reflecting team as a tool. We can see both competence trust and companion trust in the narrative in the beginning of this chapter. The reflecting team, Marcus and Anne, and the teacher, Lene, have been working together for one and a half years, so they do know each other quite well and may believe in the goodwill of each other. At the same time, they may have competence trust. This competence trust depends on, among other things, how the three of them have done on exams, show up at the university for lectures and engage in teamwork and in different subject discussions. The commitment trust could also be interesting to try out with total strangers and see how it works.

One of our students wrote that it was very helpful for him personally to turn his back towards the reflecting team, because he then lost the urge to "fight back" as he called it, on everything he did. He was able to give all his attention to the feedback and the processing of it. This comment repeats in many of the reflection notes. Another student writes that the reflecting team is a good concept because it gives you a chance to hear what the reflecting team really means without the "fear" or disturbance of your facial expressions, but it can be hard to listen without defending your actions. He also wrote that he easily tends to turn to humour and jokes when feeling uncomfortable, and that he felt free from that pressure too. The third student thinks it is important that the teacher does not write while the reflecting team is talking behind her back, because then she will not listen carefully enough.

It will be important to work on the listening skills when you use this tool, both when you take part in the reflecting team and when you are the teacher. When you are participating in the reflecting team, you are a more active listener than when you participate in the teacher role. The teacher does not have to be active in phase 3 (Figure 1), she needs to listen without interfering, which is a skill that is difficult, and maybe a bit awkward, since we are used to having opinions all the time and expressing them whenever we feel the need to do so. One student wrote that giving feedback is in general considered difficult for people, so this method could help the observers, the reflecting team, to give feedback in a constructive way. The pre-guidance, where the teacher first tells her desires, is also very good and it keeps the feedback interesting and relevant. This student thinks that having this kind of structure for giving feedback will make it more natural.

One student also said that just reading about reflecting team is difficult; you need to try it out, because otherwise it seems “dumb”. He said that when they split into small groups for exercise, it was helpful for him and that he got something out of the process. He got the first-hand experience since he participated in different roles. He said that it seemed complicated at first, then the whole group felt that this method actually could help them deal with and solve different problems in many situations and in various fields. They also mentioned that this method could be used in institutions and families with problems. It is interesting that our students saw this connection, since the reflecting team has its origin in family therapy, as mentioned earlier.

Conclusions

The reflecting team has to bear in mind that their task is to help the driving teacher student to become more self-aware and create ideas that she can reflect on. The reflecting team is an easy tool to use, but our students said that it was difficult to understand it only by reading about it, without trying it out.

It is important to remember that the driving teacher student will select those ideas from the feedback that fit her teaching style. Some of the things the reflecting team talks about will be found relevant and interesting, while some of the ideas will be rejected or found irrelevant. Some of what the reflecting team speaks about will hopefully trigger the driving teacher student, and make her reflect about her teaching skills, and look at new ideas in order to broaden her perspective.

Our students discussed a lot about trust in their reflection notes, it seemed like they all meant that trust was important. They also highlighted the strange but good feeling of being the teacher when they were sitting with their backs towards the reflecting team while they were talking about them, and how it developed their listening skills and prevented the "urge" to fight back when they did not agree. All thirteen students were positive in their reflection notes about using the reflecting team as a pedagogical tool.

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