

Training And Road Safety Among Adolescent Terrain Vehicles Users In Norway

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Abstract

Nord University has a separate department to train traffic instructors in all driving license classes in Norway. The students for the tractor class have an assembly-based education (Nord_Univeristy, 2024). The education covers both theoretical and practical subjects. After completing their education, they will work with training throughout the country. The tractor class encompasses a wide range of common agricultural tractors, the Unimog, as well as ATVs (All-terrain vehicles) and UTVs (Utility-terrain vehicles). In the learning outcome description, a description of knowledge, skills and general competence in class T appears, but not different training in the various vehicles (Nord_Univeristy, 2024). According to informants in this study, somewhat depending on geographical affiliation, up to 70% of all tractor-learner drivers will only use their driving license on ATV and UTV vehicles. ATV and UTV are not categorized as a separate vehicle class in the European regulations, and hence, there is no separate driving test and license. As a result, the driving instructions for ATVs and UTVs are done with different types of vehicles, and especially tractors. The topic for this paper is young people who complete training for tractors to drive ATVs and UTVs in Norway. ATV/UTVs have a high accident rate, and the largest category is single accidents, where the rider is thrown off the vehicle or becomes stuck under the rolled-over vehicle (Adil, Konstantinou, Porter, & Dolan, 2017; Fawcett, Tsang, Taheri, Belton, & Widder, 2016; Lin & Blessing, 2018). Most of the deceased or seriously injured are adolescents and young men (Denning & Jennissen, 2016; Fawcett et al., 2016; Khorsandi et al., 2021). In this study, 8 interviews were conducted. All the informants worked as driving instructors for tractors. The informants were chosen based on experience and place of residence. The interviews were based on a semi-structured interview guide. The topic dealt with training structure, training content, the practical driving test, and the learner driver's motivation for learning. Our research question was: "Training on tractors - risks and challenges for use on ATVs and UTVs?". The study looks at the context of the training from a road safety perspective and whether it is relevant for use of ATV and UTV vehicles. The Norwegian Traffic Training Regulations (Lovdata, 2004) and the curriculum for tractor (NPRA, 2019) focus mainly on large tractors. This study looks at the extent to which this training is useful for learning how to drive ATVs and UTVs, and how (or if) the driving instructors adjust the tractor training when the learner driver is going to drive an ATV or UTV and not a tractor.

Keywords: terrain vehicles, road safety, traffic training, tractors

1. Introduction

In an increasingly interconnected and vulnerable world, the protection of critical infrastructures (CRITIS) has emerged as a paramount concern (Hurst et al., 2014). Ensuring their uninterrupted operation and resilience against deliberate threats has become a cross-industry and cross-national imperative (Farrell et al., 2004). As the security risk landscape continues to

An All-Terrain Vehicle (ATV) is not a distinct vehicle category in the legal sense but is described as a four-wheel moped, four-wheel motorcycle, motor implement, or tractor in the Motor Vehicle Regulations (Lovdata, 1994). An ATV can be described as a four- or six-wheel vehicle primarily designed for efficient off-road travel. These vehicles have a short wheelbase, high center of gravity, soft springs, and coarse tires. As of now, there are approximately 94,000 road-registered four- and six-wheelers in Norway (Iversen & Njå, 2022). These are distributed among various categories, with Class T3 constituting the majority. These are registered as tractors, with speed limitations of 40 km/h. The remaining vehicles are registered as motorcycles or mopeds. ATVs have been used by young people for many years, while Utility Task Vehicles (UTVs) and moped cars have become more

widespread in recent years. The proportion of mopeds and light motorcycles is decreasing. One is somewhat uncertain as to why the development is like this. ATVs and UTVs are expensive vehicles to acquire. The price can be over 20,000 EUR and this can be a high price as most young people use the vehicle and the driving license for 1.5 to 2 years before they take the driving license for class B, passenger car (Lovdata, 2023). The decline in light motorcycles and mopeds is explained by our informants by the fact that a two-wheel open vehicle has its limitations in relation to Norwegian winter conditions. Finnmark and Troms County is the region in Norway where the use of ATVs, UTVs, snowmobiles, and moped cars is the highest. The concentration is greatest in Finnmark. On average, over 5,000 new four- and six-wheelers are sold each year in the Norwegian market. Sales have increased, with 7,660 units sold in 2021 and 75,505 units sold in 2022 (AIF, 2023). The most popular are ATVs in the 400-599 cubic centimeters class. This class largely consists of work machines for various businesses and accounts for approximately 50 percent of total sales.

2.Theoretical framework

2.1 ATV and UTV

By Norwegian Driver's License Regulations (Lovdata, 2004), ATVs and UTVs can be registered as mopeds, heavy motorcycles, or tractors. Tractor registration is the most common choice. When registered as tractors, there is no power limit, but these vehicles must be technically restricted to a maximum speed of 40 km/h. Importantly, they are legally permitted to operate on any road. Tractor operation is open to individuals aged 16 and older who hold a valid tractor license (Lovdata, 2004). Tractor training programs exclusively focus on tractors, with no specific inclusion of ATV/UTV training. The curriculum covers fundamental traffic rules and practical driving lessons on tractors, including trailer connection, backing up, and cargo securing (NPRA, 2019). The practical driving test assesses essential skills such as pre-driving checks, trailer handling, safety procedures, traffic navigation, and reversing (Lovdata, 2004).

ATVs and UTVs exhibit a concerning accident rate. The majority of incidents fall into the category of single accidents, where riders are either thrown off the vehicle or trapped beneath a rolled-over ATV/UTV (Adil et al., 2017; Fawcett et al., 2016; Lin & Blessing, 2018). Tragically, adolescents and young men constitute the highest proportion of fatalities and serious injuries resulting from these accidents (Denning & Jennissen, 2016; Fawcett et al., 2016; Lin & Blessing, 2018). Interestingly, accident rates are higher on public, tarmacked roads compared to off-road terrain (Denning & Jennissen, 2016; Khorsandi et al., 2021). ATVs and UTVs possess characteristics that make them well-suited for off-road driving but less suitable for tarmac use (Denning & Jennissen, 2016; Khorsandi et al., 2021). Nevertheless, the predominant utilization of ATVs and UTVs remains on paved roads, particularly among young riders (Denning & Jennissen, 2016; Lin & Blessing, 2018).

2.2. GDE-Matrix

The Norwegian driver education system is founded on the principles outlined in "Goals for Driver Education" (Peräaho, Keskinen, & Hatakka, 2003). This framework, in turn, draws inspiration from the work of McKnight and Adams (1970), who categorized the diverse tasks that drivers encounter. These 1,700 distinct tasks were further organized by Michon (1985) into a three-tiered hierarchical structure.

In the European research project GADGET (Guarding Automobile Drivers through Guidance, Education, and Technology) (Christ et al., 1999; E. Keskinen, 1996), these hierarchical levels were instrumental in developing the Goals for Driver Education (GDE) matrix. The GDE matrix (E. Keskinen, 1996; Peräaho et al., 2003) comprises four distinct stages and has been universally applied in driver education across all license classes in Norway. Notably, a fifth level was incorporated in 2010 to address the influence of the social environment on the development of young individuals and their societal choices (E. Keskinen, Peräaho, & Laapotti, 2010). This comprehensive approach to driver education emphasizes not only technical driving skills but also the broader context in which driving occurs. By integrating social and environmental factors, the GDE matrix aims to produce responsible and informed drivers who contribute positively to road safety and community well-being. In summary, the Norwegian driver education system, guided by the GDE matrix, recognizes the multifaceted nature of driving tasks, and underscores the importance of holistic training that extends beyond vehicle operation alone.

2.3. Motivation for learning

Bandura (1978) summarizes the following key points about motivation in learning. He emphasizes the importance of self-efficacy expectations for effort and perseverance in learning processes and an individual's belief

that actions will lead to desired results, known as outcome expectations, is central to motivation. Urhahne Urhahne and Wijnia (2023) identify six stages of motivation and action in learning contexts: the situation, the self, the goal, the action, the outcome, and the consequences. They present an integrative framework for understanding and predicting learning behavior based on existing theories of motivation. These theories provide insight into how expectations and self-perception can influence motivation and learning.

3. Methods

3.1. Interview guide

Prior to conducting the interviews, a semi-structured interview guide was developed. This guide was organized around key themes such as the interviewee's background and their experiences with both theoretical and practical instruction for Class T (tractor) licenses. For instance, one question posed was, "How does tractor training correlate with ATV and UTV vehicle operation?" Another question sought to understand the desired learning outcomes for students planning to use a Class T license to operate ATV and UTV vehicles.

3.2. The article authors

Three of the authors contributing to this article have extensive experience in the field of traffic education, having spent numerous years instructing traffic teachers. In addition, they have provided instruction in light classes targeted at young individuals. The third author, who holds a doctoral degree in psychology, has recently focused their research on the behavior and attitudes of young people. All authors are currently affiliated with the Road Traffic Division at Nord University.

3.3. The Interviews

We conducted semi-structured interviews (Kvale, 1996) in November 2023. The interviews were carried out both in person and over the phone, each lasting between 30 to 45 minutes. All interviews were conducted in the presence of two or three researchers. The interviews were subsequently transcribed prior to analysis. Data collection was facilitated through the online form solution, nettskjema.no, which is developed and operated by the University of Oslo (2023). The interview guide employed both a deductive and an inductive approach. Specifically, a deductive approach was utilized to explore the economic aspects of traffic school operations in relation to the academic and methodological content.

3.4. Analysis

The data were analyzed using thematic analysis, following the six steps outlined by Braun and Clarke (2006). These steps include: 1: Familiarization: A thorough review of the data. 2: Coding: Identification of meaningful units and categories. 3: Identifying themes: Exploration of recurring patterns and themes. 4: Comparing themes across data: Analyzing how themes relate to each other. 5: Creating a systematic table of themes: Structuring themes for a coherent presentation. 6: Writing the report: Communicating findings in a cohesive narrative (Braun & Clarke, 2006).

Thematic analysis was chosen due to its flexibility and ability to synthesize large amounts of data into overarching themes (Attride-Stirling, 2001; Braun & Clarke, 2006; Howitt & Cramer, 2010). Additionally, a combination of inductive and deductive approaches was employed: Inductive approach: Used to gain an overview of explicit statements in the data. This allowed themes to emerge naturally from the data, especially when we had few preconceptions (Attride-Stirling, 2001; Braun & Clarke, 2006; Howitt & Cramer, 2010). Deductive approach: Applied when we had clear assumptions based on prior research (Attride-Stirling, 2001; Braun & Clarke, 2006; Howitt & Cramer, 2010). This helped explore specific aspects related to the use of ATVs/UTVs and their significance for participants.

3.5. Ethics

All participants in the study were thoroughly informed about the project's purpose and risks. A written consent form was presented to each informant before their participation in the study. The project was approved by Sikt: Norwegian Agency for Shared Services in Education and Research (SIKT, 2023) (formerly known as the Norwegian Centre for Research Data or NSD) in accordance with GDPR principles. Microsoft Copilot is used for academic language editing.

4. Results

Based on the interviews, three main factors appeared related to training and road safety among Adolescent ATV Users in Norway. 1. Road behavior; The informants tell of a road behavior with speeding offences and rough behavior. 2 Adapted training and improved outcomes; The learning outcomes is not always in accordance with the intentions of the curriculum and can be a challenge to traffic safety. 3. Training in a business economics perspective; Regulatory and curriculum changes can alter the economic basis for operations and traffic safety.

4.1. Road behavior

ATVs and UTVs are largely used for utility driving, but our informants also observed another type of use that was not appropriate during training. A significant number of these vehicles are modified to exceed speeds of 40km/h. It is known that young people modify software, use different keys, or make mechanical modifications to make their vehicles go faster. According to users, the motivation for this is to have a vehicle that goes faster to drive at the same speed as the rest of the traffic and to be able to feel that the vehicle has more engine power. Young people often get permission from parents and guardians. Parents and guardians use the same argumentation as their children. They feel it is safer for them to drive at higher speeds to avoid dangerous overtaking. Higher speeds also lead to more playful behavior. Driving instructors observe their former learner drivers performing skidding, high acceleration, and high-speed manoeuvres in various situations. Informants report a driving culture characterized by tuning, numerous speed violations, two-wheel driving, and reckless driving. They express concern about the apparent lack of parental involvement. One informant stated, “We receive very few inquiries from parents. And that worries me in many ways. We try to talk to parents, especially when they are going to drive ATVs, regarding speed and the culture in the region. It worries me. The ATVs are driving out in the roundabouts, around in the ditches. It’s not good how it is.” Driver instructors feel they have invested a lot of professional weight into the training but feel that the skills and knowledge they have laid the foundation for in the training are not adequately maintained. An informant says: “I get so disappointed when I meet them. I think that a tractor is one of the most exciting things in my job, even though I don’t have tractor or farm background. I feel I am engaged and dedicated and get very disappointed then and speculate a lot when I meet them on two wheels, without a helmet, and so on.”

4.2. Adapted training and improved learning outcomes

The informants are concerned that the training provides a good safety effect. The learner drivers’ prerequisites are very different. Some come from farm or construction operations. They have a good prior knowledge of the vehicle’s capabilities and limitations. These learner drivers understand to a greater extent the vehicle’s challenges in terms of size, weight, and braking distances. An informant says: “If we rewind the time, 20 years back then, those who took the tractor license, they came from a farm and needed a driver’s license. And they were interested in the vehicle, and already before they came to the driving lesson some experience with driving a tractor”. Some driving schools experience that up to 70% of the learner drivers who are to take a tractor driver’s license never intend to use a tractor as a vehicle. These learner drivers are only to have a tractor driving right to use this for ATV or UTV. The prior knowledge of these learner drivers is very different from the other group. An informant says: It is a bit like that with these students who have no relation to a tractor before ... we are careful that everything should be good enough. It should not just be “okay”. Even the things they think are unnecessary ... “do I have to bring the trailer when I’m going to drive the tractor to be allowed to drive ATV and UTV ... It is quickly done that if we do not bring the trailer when we drive the driving lessons, they are not good enough to disconnect and on ... they do not have routines that are good enough. Then they also do not have good enough judgment when it comes to the trailer.” The driving instructor tries to include training that can be useful to use for ATV and UTV. The driving instructor does not find such training mentioned in regulation or curriculum and often works on an informal plan to ensure that the learner driver receive necessary safety training. An informant says: I try to get a reflection on that there with among other things braking distances, with gaps you can utilize when you are going out on the road. Not least that you sit on 4 wheels without protection ... if it crashes then you are finished. If you drive a tractor then you are protected”.

4.3. Training in a business economics perspective

The informants stated that the regulation and curriculum are not in line with ATV and UTV vehicles. Such inadequate training can affect traffic safety for this group of younger drivers. They feel that the training does not provide a proper foundation for having sufficient knowledge and skills to operate a smaller 4-wheeler in a safe enough manner. One of the informants says: “It’s incredibly little. I’m sitting here now and looking now, but

there's a lot one can say about the curriculum, but when it comes to ATV and UTV it basically becomes what we make it ourselves." Another says: "None of the subjects in the training for class T address the physical/technical aspects of ATV/UTV, and it's up to the individual driving teacher to interpret based on the learner driver's needs. The large weight difference between a tractor and ATV/UTV is not something all learner drivers think about, but which we try to mention if we know that the learner driver is going to drive an ATV/UTV." The informants have a somewhat negative impression of the regulation and curriculum as a good tool for training on vehicles other than tractors, but they also see a threat to their own business operations if the training were to be more divided. The informants talked about what consequences it could have if ATV/UTV becomes its own vehicle category with its own training, and about different ways it can be done, with curricula and regulations, and possible integration with tractor training, or additional courses with a letter in driver's license class T. One of the informants says: "Many places I think it will almost disappear. (...) It depends on which geographical area you are in. (...) the area I am in, will not affect so much, but there may be areas where the usage size and agricultural environment is smaller, so it will have an impact." Another informant mentions the cost picture as decisive: "That's what drives the driving school. (...) If they make separate UTV and ATV classes like moped car then we shut down [the tractor training]. I can't have a vehicle for 2 million (Nkr) that's going to be used a few hours a year. It's self-explanatory. It costs me 45,000 (Nkr) a month."

5. Results

5.1 Road behavior

ATV and UTV drivers largely use the vehicle for utility driving on the road. An ATV and UTV are well suited for off-road driving, but due to a high center of gravity and narrow wheel width, they are not as suitable for road driving (Denning & Jennissen, 2016; Fawcett et al., 2016). A 16-year-old youth does not have many alternatives in Norway to be independently motorized mobile. The alternatives to ATV and UTV would be a small motorcycle, moped car, or a two-wheel moped (Lovdata, 2004). The accident development in Norway is negative for this class (Iversen & Njå, 2022). Traffic teachers are aware of this trend and try through their teaching to add risk assessments, self-insight, and reflections. This applies especially in step 4 of the GDE matrix in the training (Peråho et al., 2003). Despite this, they observe driving after obtaining a driver's license that is not in line with the regulations. They believe speeding offenses and rough driving are common among young people on ATV and UTV. They are aware that the vehicles are modified to go faster than 40km/h, which is the highest permitted speed limit for a tractor registered ATV and UTV (Lovdata, 1994). They explain this with the youth's desire to drive faster. They especially emphasize this with avoiding dangerous overtaking and that they want a vehicle that has greater engine power. Because of this, they observe unwanted behavior that in the worst case leads to skidding and overturning. There are most single accidents with ATV and UTV (Adil et al., 2017; Fawcett et al., 2016; Lin & Blessing, 2018). The accidents can have a large damage potential in that the driver gets the vehicle over him or her. The informants call for clearer regulations for safety equipment. They want a helmet requirement on open vehicles like ATV. Today, the regulations are adapted to the tractor and in that way a helmet requirement will not be present when using ATV if the vehicle is registered as a tractor (Lovdata, 1994). Through the training, they try to emphasize safety aspects of the vehicles, but they also feel that this is not an emphasized part of the curriculum (NPRA, 2019). They further try to communicate with the parents, but the parents have often been active in helping with the modification so that the vehicle goes faster. Unwanted behavior on the road when they have been through a relatively thorough training disappoints the traffic teacher. He or she tries to put his professional weight, but also knows that one does not get through to all drivers. The proportion of ATV and UTV users has increased by 40% since 2015 (Iversen & Njå 2022). At the same time, accidents have increased dramatically. Since 2015, accident figures have increased by 75%, with boys accounting for between 70-90% of these accidents (Iversen & Njå 2022). Unwanted behavior on the roads increases the risk of accidents. The driver instructor knows that these numbers are increasing and tries through his training to prepare the ground for safer behavior on the road. They state the age group can be demanding to work with. As the vehicle is also used in a social context, group influence becomes a factor when it comes to individual behavior according to the informants.

5.2. Adapted training and improved learning outcomes

All Norwegian driver education is divided into four distinct stages. This step-by-step education is based on the Goals for Driver Education (Peråho et al., 2003). The stages are designed to ensure the competence required for as safe traffic conduct as possible. The learner driver is expected to acquire a set of knowledge and skills, as well as maintain good attitudes, which in turn constitute safe traffic behavior. Several of the driver instructors believe that the foundation that is to be laid is not sufficient as many of the learner drivers will use the driving license for

a completely different vehicle. The formal education from The Traffic Training Regulations (Lovdata, 2004) and the curriculum for tractor (NPRA, 2019) is implemented. The training is carried out with a tractor and trailer, which is a heavy vehicle combination. Both the theoretical and practical driving test, which is mentioned in the Traffic Training Regulations (Lovdata, 2004), ultimately constitute the basis on which the learner driver is tested through the theoretical and practical driving test. The informants believe that the learning outcome is not always in accordance with the intentions of the curriculum and can be a challenge to traffic safety. The informants see it as necessary to change the content of the curriculum so that it also emphasizes other vehicles that the class T driving license can be applied to, according to the Driver's License Regulations (Lovdata, 2004). The learner driver exhibits a significant degree of diligence in their pursuit of proficiency, particularly in relation to the technical exercises. Their motivation for training is largely driven by a focus on the attainment of specific goals. They are cognizant of the expectations of mastery that are associated with the driving test, and this awareness serves as a unique source of motivation for their learning (Bandura, 1978). However, the driver teacher in class T demonstrated an inability to discern the interconnections between the training, the testing scenario, and the practical application of the skills being taught. There appears to be a conspicuous absence of a coherent trajectory linking the various stages of the learning process (Urhahne & Wijnia, 2023). Self-insight and reflection are a consistent theme throughout the training course. It becomes particularly important towards the end of the training as the learner driver must put all previous training in a context with the necessary competence to obtain a driving license through the practical driving test (lovdata 2023). The driver instructor works a lot with self-insight and reflections. The student may find it difficult to make the necessary reflections on competence when the vehicle being used is different from what they are motivated to drive. The driver instructor feels that the students only be motivated and try to be reflective because of a desired driving test (Lovdata data 2023).

5.3. Training in a business economics perspective

The training does not contain mandatory and compulsory teaching hours. The mandatory hours are denoted in the Traffic Training Regulations (Lovdata, 2004). To reach the threshold for mandatory hours, the learner driver must achieve various goals that are stated in the curriculum for class T (NPRA, 2019). These non-mandatory hours can vary from one to another. Some come with prerequisites that allow them to reach the goals faster, while others have no prerequisites and must complete more non-mandatory hours (NPRA, 2019). The hourly rates are high compared to other light driving license classes. The driver instructor explains this with a higher investment cost and higher operating costs. The learner driver drives with both a tractor and a trailer in parts of the training, which means that the expenses have a different calculation than with a regular small vehicle. When the customer feels that the total sum of necessary non-mandatory hours and the mandatory subjects is high, they try to gain the necessary competence with as few hours as possible. The driver instructor tries to provide training that is closer to ATV and UTV than what ordinary tractor training can provide, but this is also a cost issue. The learner driver wants training that results in a passed driving test, while the driver instructor wants a broader and more comprehensive training for some. On the one hand, the driver instructor wants a more divided training between the industrial tractor and the driving right for class T (Lovdata, 2004) to ensure the quality of the training to a greater extent. Several informants describe a training that has a main part for everyone. This main part starts with a basic course for all vehicles covered by the tractor driving license (Lovdata, 2004). They further argue for a training that is split between tractor and trailer and tractor without trailer. They believe that those who will use the driving right for ATV and UTV can have training without a trailer and that the training can be more targeted towards these vehicles' characteristics and challenges. On the other hand, they are afraid that the changes can have major consequences for the business economic part of the driving school. With large investment and operating costs, ATV and UTV students constitute an important market. Some envision restructuring operations and in the worst case shutting down operations if the changes become too extensive. The informants are here squeezed between the professional who wants more quality in the training and the business owner and employees. They want a training that can strengthen the professional basis for ATV and UTV and in this way help reduce the number of accidents. They are also concerned with having a basis for continued business operations.

6. Implications

There has been very little research found on behavior and risk among ATV and UTV users in the Nordic countries. We conducted a literature study that could provide a picture of use and accidents in North America and Oceania. This literature study was used to prepare a thorough interview guide. We wanted to gain a better knowledge base for Nordic conditions and this study will be an important part of such work.

Research in the area can give our own educational institution better knowledge that can be used for our own students. We need knowledge-based literature that provides the best didactic basis for the students. So far, the study has dealt with tractors, but there will also be a need for a better knowledge base when it comes to ATV and

UTV. The study can also give traffic schools knowledge that can be used to improve their own teaching and to give the authorities a knowledge base that can be used to revise regulations and curriculum so that it constitutes a better basis for learning and safe behavior among young people. The Norwegian Public Road administration has stated that they want a revision of the existing regulations and curriculum works. Studies such as this can provide important information regarding how existing planning documents are perceived and operationalized. The traffic teacher will be an important source of information for the planned revisions.

7. Conclusion

The article examines the use of ATVs and UTVs by young people from a traffic safety perspective. The research question was “Training on tractors – risks and challenges for use on ATVs and UTVs?”. Eight traffic instructors were interviewed to provide an overview of the training and how the learner drivers perceive the training given on one vehicle, which is primarily intended to be used on another vehicle with different driving characteristics. The study points to an undesirable behavior after obtaining a driving license, which often includes road behavior with speeding offenses and rough driving. This may be due to the vehicles being largely modified to drive faster than the legal 40km/h. The learning outcome is often not perceived in line with the intentions of the regulations and curriculum. This can in turn be a challenge for traffic safety among the group that will drive ATVs and UTVs. The traffic teacher wants changes in the curriculum and regulations but is simultaneously afraid that this may affect the operational basis for the traffic school operation. The driver instructor is concerned with how the training is perceived and used after obtaining a driving licence. They have a clear professional direction, but at the same time they feel that this direction is opposed by the framework set by the authorities.

References

- Adil, M. T., Konstantinou, C., Porter, D. J., & Dolan, S. (2017). All-Terrain Vehicle(ATV) Injuries - An Institutional Review Over 6 Years. *The Ulster medical journal*, 86(2), 103-107. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/29535481>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5845989/>.
- AIF. (2023). ATV Importer's Union. Retrieved from <https://www.4hjuling.no/>
- Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative research*, 1(3), 385-405. doi:10.1177/146879410100100307.
- Bandura, A. (1978). Self-efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy*, 1(4), 139-161. doi:[https://doi.org/10.1016/0146-6402\(78\)90002-4](https://doi.org/10.1016/0146-6402(78)90002-4).
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi:10.1191/1478088706qp0630a.
- Christ, R., Delhomme, P., Kaba, A., Makinen, T., Sagberg, F., Schulze, H., & Siegrist, S. (1999). *GADGET. Guarding Automobile Drivers through Guidance Education and Technology. Final report*. Retrieved from Vienna.
- Denning, G. M., & Jennissen, C. A. (2016). All-terrain vehicle fatalities on paved roads, unpaved roads, and off-road: Evidence for informed roadway safety warnings and legislation. *Traffic Inj Prev*, 17(4), 406-412. doi:10.1080/15389588.2015.1057280.
- Fawcett, V. J., Tsang, B., Taheri, A., Belton, K., & Widder, S. L. (2016). A Review on All Terrain Vehicle Safety. *Safety*, 2(2), 15. Retrieved from <https://www.mdpi.com/2313-576X/2/2/15>.
- Howitt, D., & Cramer, D. (2010). Introduction to qualitative methods in psychology.
- Iversen, T., & Njå, O. (2022). *Temaanalyse av alvorlige ulykker på ATV, moped og motorsykel 2015-2020 [Analysis of serious accidents with ATV, moped and motorcycle 2015-2020]* (107). Retrieved from Stavanger, Norway: <https://ebooks.uis.no/index.php/USPS/catalog/book/170>.
- Keskinen, E. (1996). *Why do young drivers have more accidents?* Paper presented at the Junge Fahrer und Fahrerinnen. Referate der Ersten Interdisziplinären Fachkonferenz.
- Keskinen, E., Peräaho, M., & Laapotti, S. (2010). *GDE-5PRO and GDE-5SOC: Goals for driver education in a wider context—professional and private drivers in their environment*. Retrieved from Turku.
- Khorsandi, F., Ayers, P., Denning, G., Jennissen, C., Jepsen, D., Myers, M., White, D. J. (2021). Agricultural All-Terrain Vehicle Safety: Hazard Control Methods Using the Haddon Matrix. *J. Agromedicine*, 26(4), 420-435. doi:10.1080/1059924x.2020.1837705
- Kvale, S. (1996). *Interviews*. Thousand Oaks, California: SAGE.
- Lin, P. T., & Blessing, M. M. (2018). The characteristics of all-terrain vehicle (ATV)-related deaths: A forensic autopsy data-based study. *Forensic Sci Med Pathol*, 14(4), 509-514. doi:10.1007/s12024-018-0014-7.
- Motor Vehicle Regulations: Regulations relating to the technical requirements and approval of vehicles. , (1994). Trafikkopplæringsforskriften [The Traffic Training Regulations] (2004).
- Lovdata 2023: Forskrift om trafikkopplæring og førerprøve [Regulations on traffic education and driving tests], (2023).
- McKnight, A. J., & Adams, B. B. (1970). *Driver Education Task Analysis. Volume II: Task Analysis Methods. Final Report*. Retrieved from Alexandria, VA.
- Michon, J. (1985). A Critical View of Driver Behavior Models. In S. Evans (Ed.), *Human Behaviour and Traffic Safety*. New York.
- Nord_Univeristy. (2024). Spesialutdanning for klasse T (Traktor). Retrieved from <https://www.nord.no/studier/spesialutdanning-for-klasse-t-traktor>.
- Curriculum license class T, (2019).
- NPRA, N. P. R. A. (2019). *Læreplan førerkortklasse T [Curriculum for driving instruction class Tractor]* (Vol. V835).
- Peräaho, M., Keskinen, E., & Hatakka, M. (2003). *DRIVER COMPETENCE IN A HIERARCHICAL PERSPECTIVE; IMPLICATIONS FOR DRIVER EDUCATION*.
- SIKT. (2023). Norwegian Agency for Shared Services in Education and Research. Retrieved from <https://sikt.no/en/home>

Urhahne, D., & Wijnia, L. (2023). Theories of Motivation in Education: an Integrative Framework. *Educational Psychology Review*, 35(2), 45. doi:10.1007/s10648-023-09767-9.