ACCEPTABILITY OF THE PROCESS OF OBTAINING A DRIVER'S LICENSE BY YOUNG PEOPLE WITH AND WITHOUT DISABILITIES

[1]Camille Breault, [2]Liliane Giroux, [3]Audrey Gauvreau, [4]Samuel Belanger, [5]Marie-Eve Lamontagne, [6]Ernesto Morales

[1,2,3,4]Département de réadaptation, Faculté de médecine, Université Laval, Québec, Canada

[5,6]Centre interdisciplinaire de recherche en réadaptation et intégration sociale (CIRRIS), Université Laval, Québec, Canada

[1]camille.breault.1@ulaval.ca, [2]liliane.giroux.1@ulaval.ca, [3]audrey.gauvreau.1@ulaval.ca, [4]samuel.belanger.3@ulaval.ca, [5]marie-eve.lamontagne@fmed.ulaval.ca, [6]ernesto.morales@fmed.ulaval.ca

Received: 2018-10-14 | Accepted: 2019-05-12 | Published: 2019-05-31

Abstract: Context and objective. Although there are more than 600 driving schools in Quebec (Canada), only one offers fully adapted services to young people with disabilities. To ensure that these services correspond to best practices in the field, they must be aligned with scientific knowledge and the opinions of experts and users regarding driver's education. This literature review fills a gap concerning the opinions and expectations of young people with and without disabilities and their parents.

Methodology. A search of publications in CINAHL, PubMED, ERIC, Social Sciences Full Text, Ergonomics Abstracts, Academic Search Premier, Web of Science, PsychInfo and Current Contents Connect was done on November 2, 2017, with 118 keywords, and another search was conducted on November 8, 2017, in Sociological Abstracts with 68 keywords. After selection, 25 articles were analyzed.

Results. Most youths report that the process of obtaining a driver's license is stressful, anxiety-provoking and sometimes too expensive to initiate at the minimum legal age (16 years in Quebec). Youths with disabilities say that they do not have adequate information on how the process works. They appear to feel less self-efficacy than their peers without disabilities and to have more difficulties with theoretical and practical learning. Nevertheless, obtaining a license conforms with most young people's values, whether or not they have a disability.

Conclusions. Adapted driving schools, and particularly their instructors, need more knowledge of users' expectations. The results justify the importance of improving and developing more adapted driver's education for young people with disabilities, ultimately promoting equitable access to the process of obtaining a license.

Keyword: Opinions, expectations, young adults, parents, typically developing, disability, driver's education

Introduction

Statement of the problem

The concept of mobility refers to an individual's ability to move from one place to another, including by using methods of transportation (Office québécois de la langue française, 2011). The automobile is widely used in industrialized societies to travel quickly and effortlessly. It is known to improve occupational engagement in the areas of productivity, recreation and social and community participation (Bell, Young, Salzberg, & West, 1991; Ekelman, Stav, Baker, O'Dell-Rossi, & Mitchell, 2009; Masclet, 2002).

According to a survey by the Institut de la statistique du Québec (2014), 70% of Quebecers aged 15 to 24 years held a driver's license. Thus, many young

people in that age bracket undertake the necessary steps to obtain a first driver's license. Driving a car is a complex task that requires psychomotor, perceptual and cognitive abilities (Mazer, Gélinas, & Benoit, 2004). Thus, learning to drive can be more difficult for some people, particularly youths with disabilities (Durkin, Toseeb, Pickles, Botting, & Conti-Ramsden, 2016; Falkmer & Gregersen, 2000; Gagnon-Roy, Jasmin, & Camden, 2016). These young people may have certain characteristics that do not meet the health-related requirements (e.g., vision problems or a degenerative condition) or difficulties specific to learning to drive. For example, young people with cerebral palsy may have problems that affect information processing, visual memory and attention, all of which are important prerequisites for safe driving (Lafrance, Benoit, Dahan-Oliel, & Gélinas, 2016).

According to the Institut de la statistique du Québec (2014), the proportion of individuals aged 15 and older who had a driver's license in Quebec in 2010 was 86%, whereas it was just 76% in individuals with disabilities. In Quebec, article 15 of the Charter of Human Rights and Freedoms has stipulated since 1975 that mobility and access to public spaces are vested rights (Légis Québec, 2017). Given that driving promotes autonomy and mobility in the community, services are needed to support youths who have disabilities and who want to obtain a driver's license.

In Quebec (Canada), one adapted driving school exists within the automobile driver training and evaluation program (known by its French acronym of PEECA) given by the Centre intégré universitaire de santé et de services sociaux de la Capitale Nationale at the Institut de réadaptation en déficience physique de Québec. This school, which opened in 2013, makes it easier for individuals with a variety of disabilities to acquire a first driver's license thanks to a course that is adapted to users' specific needs and to the integration of rehabilitation professionals in the various phases of driver's education. Although there are more than 600 licensed driving schools in

Quebec (AQTr, 2015), the PEECA school seems to be the only one in the province that offers fully adapted services to youths with disabilities.

From the perspective of setting up adapted driver's education programs elsewhere and thus supporting more young people with disabilities in their attempts to obtain a first driver's license, it is essential to ensure that the quality of the services offered corresponds to best practices in the field. Service quality is reflected in all the attributes contributing to the process of learning to drive and must correspond to the knowledge generated by the scientific literature, experts, and users themselves (Conseil de la santé et du bien-être, 2005). At the PEECA driving school in Quebec City, scientific evidence and expert opinion regarding driving skills and prerequisites are now known, thanks to the work of Lafrance et al. (2016). However, little is known regarding the opinions and expectations that users with disabilities bring to driver's education, as no synthesis exist of the current literature about this subject. This knowledge is essential to improve the quality of adapted driver's education services, and the current work aims to address this gap by consolidating published evidence of opinions and expectations of users with disabilities about drivers' education.

The purpose of this literature review is to identify the opinions and expectations of young people with disabilities and their parents regarding the acquisition of a first driver's license by comparing typically developing youths with youths with disabilities.
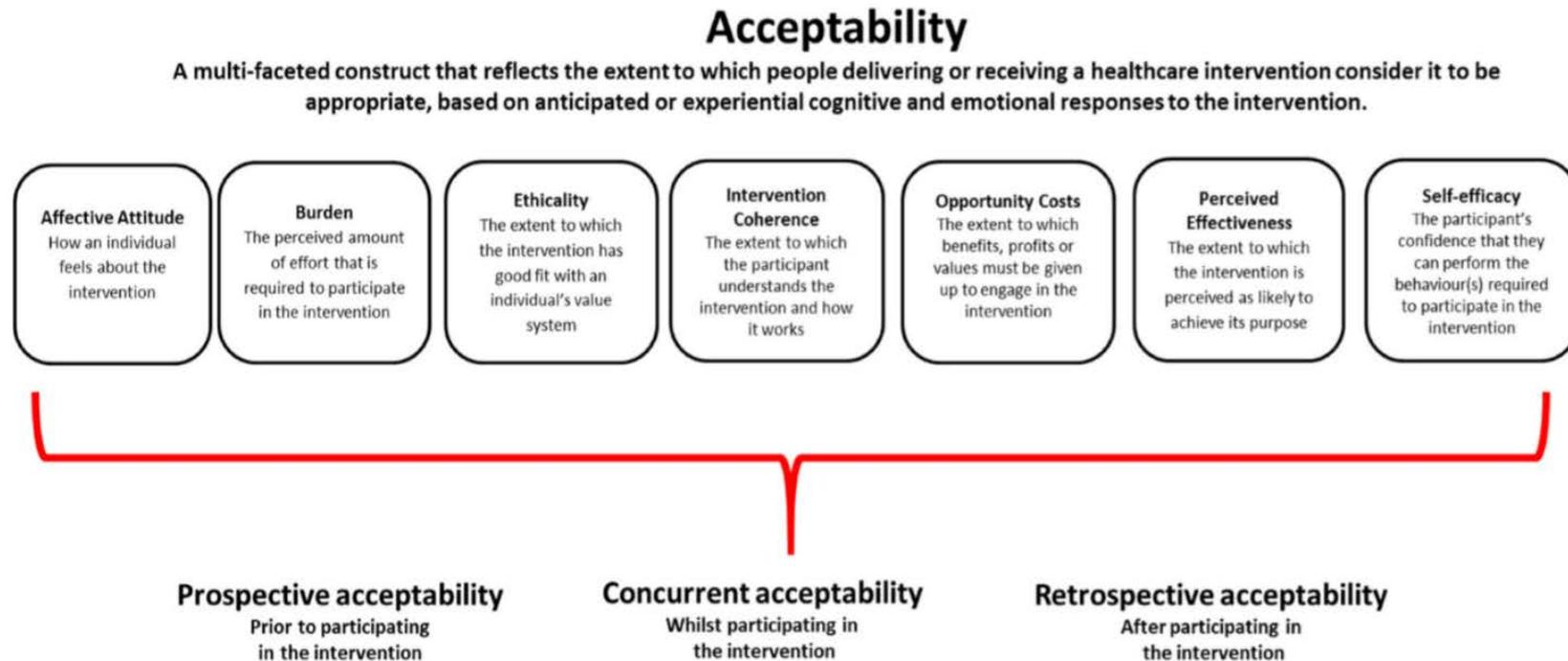
Methodology

Theoretical foundations

The Theoretical Framework of Acceptability (TFA) was used to structure this review (Figure 1) (Sekhon, Cartwright, & Francis, 2017). The TFA is the first and, up to now, the only model to provide a definition of acceptability.

Ilustración 1. Theoretical Framework of Acceptability (TFA) with its. seven component concepts.

According to Sekhon et al. (2017), acceptability is composed of seven concepts: affective attitude, burden, ethicality, intervention coherence, opportunity costs, perceived effectiveness and self-efficacy. These concepts are defined more precisely in Appendix A.

Method

The study population included young people with and without disabilities who wanted to obtain, were in the process of obtaining, or had obtained a driver's license. The parents of these young people were also included in the population. The variables of interest in the systematic review were the target population's opinions and expectations. An opinion refers to "a judgment, view, or feeling that an individual or a group expresses about a topic or facts, what they think about it" (Larousse, n.d., our translation), whereas an expectation is defined as "what one hopes for, expects, or wishes or hopes to obtain" (Office québécois de la langue française, 2006, our translation).

A search of publications in the CINAHL, PubMED, ERIC, Social Sciences Full Text, Ergonomics Abstracts, Academic Search Premier, Web of Science, PsychInfo, Current Contents Connect and Sociological Abstracts databases was done in November 2017. The keywords used to search these databases are presented in Appendix B. The process of selecting the publications is illustrated in Figure 2. The articles were selected based on reading their titles and abstracts and on the inclusion and exclusion criteria presented in Appendix C. Rayyan software (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016), which allows for blind selection, was used in this step. Then all of the articles were read in their entirety by two evaluators. This made it possible to eliminate other articles, by consensus, based on the exclusion criteria shown in Figure 2 and to obtain the final number of articles included in this literature review.

A quadruple evaluation of two articles was done as an interrater agreement exercise (Almberg et al., 2017; McGill & Vogtle, 2001) in order to standardize the rating method.

Assessment of scientific quality

Three scoring systems were used to assess the articles' scientific quality based on their research design. The qualitative articles' quality was assessed with the system devised by Cesario, Morin, and Santa-Donato (2002). Mixed-design articles were assessed with the Mixed Methods Appraisal Tool (MMAT) (Pluye et al., 2011). And the scientific quality of quantitative articles was assessed using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies of the National Institutes of Health (NIH, n.d.).

A quadruple-blind assessment was done for the first two articles analyzed (see Table D1, Appendix D). Double-blind assessments were then done by pairs of evaluators for the other articles (see Table D1, Appendix D). Assessments of the scientific quality of all articles are presented in Table D1 (see Appendix D).

Results

Figure 2 illustrates the article selection process.
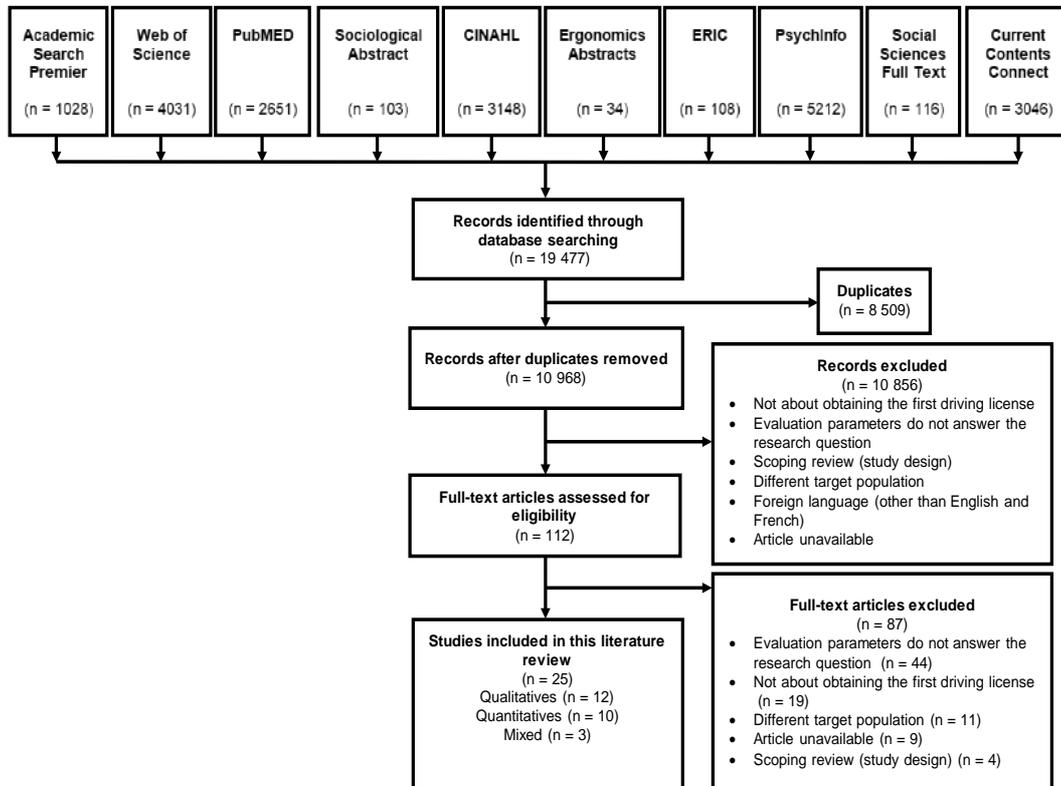
Overall, 19,477 articles were screened in 10 databases. After removing duplicates, 10,968 articles were assessed for eligibility, according to their title and abstract. The result was that 112 scientific papers were read and assessed in light of the inclusion and exclusion criteria (Appendix C). After a rigorous examination, 25 articles were selected. Table B2 (see Appendix D) describes the study population, the research design, the results (classified according to the TFA model), the scientific quality and the strength of the design of the 25 selected articles.

Main characteristics and scientific quality of articles

This literature review analyzed qualitative (n = 12), quantitative (n = 10) and mixed-design (n = 3) articles. The characteristics of the articles are

presented in Table B2 (see Appendix D). Almost half of the studies retained concerned typically developing youths (n = 13) and their parents (n = 5), while the rest investigated young people with disabilities (n = 10) and their parents (n = 2). The 25 studies were conducted in different countries, mainly the United States (n = 11) and Australia (n = 5). Different methods were used to obtain results, but most involved interviews in person or by phone (n = 11), and/or surveys or questionnaires (n = 13). The results of the various articles in the sample highlighted the seven categories in the TFA: ethicality (n = 20), self-efficacy (n = 13), affective attitude (n =13), opportunity costs (n = 12), perceived effectiveness (n = 9), burden (n = 8) and intervention coherence (n = 5). Regarding the quality of the qualitative and quantitative articles examined, the majority (n = 14) were of good quality. As for the three mixed-design articles, two of them were of moderate quality and the other was of very low quality. More information on the quality of the articles is presented in Table B1 (see Appendix D).

Summary of results

The results are structured according to the seven categories in the TFA model and divided according to opinions and expectations before the person had a driver's license, during the process of obtaining a driver's license, and after the person had obtained a license. Results not tied to a specific point in the process are described generally.

Ethicality

Regardless of the point in the process of obtaining a driver's license, most young people with and without disabilities considered that driving is an important activity that fosters independence and facilitates engagement in productive occupations and social participation (Audrey & Langford, 2014; Begg et al., 2009; Carrabine & Longhurst, 2002; Chee et al., 2014; Delbosc & Currie, 2014; McGill & Vogtle, 2001; Mullholand Behm, 2014; Sacks &

Rosenblum, 2006; Scott-Parker, King, & Watson, 2015; Simms, 1991). Most of the typically developing youths reported that they preferred driving over using public transit (Chee et al., 2014; Falkmer et al., 2015). However, this opinion was not shared by all the youths with disabilities. Although some of them also said they preferred to drive (Falkmer et al., 2015), others said they preferred to drive only when it was necessary, to walk or to take public transit (Chee et al., 2014; Mullholand Behm, 2014). Among the young people with disabilities, no preference emerged regarding the type of instructor. In fact, whether their instructor was a person with a disability, a professional (e.g., occupational therapist), a parent or a teacher (McGill & Vogtle, 2001), they only wanted someone who would understand their individual issues. Regarding the legal age for obtaining a learner's permit, most typically developing youths preferred age 16 (Williams, 2011). For their parents, age was not considered as the sole sufficient factor to guarantee obtaining a driver's license, since in their view this is a privilege rather than a right (Mirman & Kay, 2012). Nevertheless, the main reason for obtaining a driver's license mentioned by parents of typically developing youths was quite simply that their child wanted one (McCartt, Hellinga, & Haire, 2007). As for restrictions on driving, most parents of typically developing young people agreed that the rules in effect in their region should be made stricter (McCartt et al., 2007; Williams & Chaudhary, 2008). Mothers were generally more likely to hold this view than fathers (McCartt et al., 2007; McKay, Coben, Larkin, & Shaffer, 2008; Williams & Chaudhary, 2008). A ban on distractions, such as cell phone use at the wheel, was one of the restrictions parents of typically developing youths felt was most critical (McCartt et al., 2007; Mirman & Kay, 2012).

Before the process of obtaining a driver's license, young people with or without disabilities who did not want to start lessons did not do so because they were not interested or because they felt no need (Cox, Reeve, Cox, & Cox, 2012; Delbosc & Currie, 2014; Kirby, Sugden, & Edwards, 2011).

Typically developing youths who wanted to start the process often chose to do so to facilitate the organization of family life and promote their independence (Audrey & Langford, 2014; Carrabine & Longhurst, 2002).

During the process of learning to drive, one of the most important reasons for obtaining a license for typically developing young men and women alike was the feeling of freedom it provided (Begg et al., 2009; Scott-Parker et al., 2015). Almost all of these young people wanted to practice driving with their parents (Sherman, Lapidus, Gelven, & Banco, 2004), which corresponded to the wishes of their parents, who likewise wanted to be involved in their children's driving lessons and practice (Guttman, 2013; Hartos & Huff, 2008; Sherman et al., 2004).

After obtaining a license, some young people with disabilities considered that it had helped them to find a job and/or go to school (Begg et al., 2009; Simms, 1991).

Self-efficacy.

Overall, the young people did not have the same level of confidence in their driving skills. About half of the young people with disabilities who felt confidence in their ability to drive did not find it complicated (Chee et al., 2014; Sacks & Rosenblum, 2006). Among typically developing young people who did consider driving complicated, most still did not avoid driving (Chee et al., 2014). As for parents, some of them had doubts about their children's ability to drive, whether or not they had a disability (Cox et al., 2012). Some of the parents of typically developing youths believed that adolescents were not sufficiently aware of the dangers related to driving (Guttman, 2013; Mirman & Kay, 2012; Sherman et al., 2004). Thus, believing that their children needed more guidance, some of these parents helped to teach their children to drive (Guttman, 2013). Parents who got involved in that way felt competent, committed and available in supervising their children's driving (Sherman et al., 2004). However, half of these parents said they believed

that most parents did not feel able to influence their children to drive safely (Guttman, 2013).

Before obtaining their driver's license, all the young people with and without disabilities reported that they lacked self-confidence (Audrey & Langford, 2014; Cox et al. 2012; Kirby et al., 2011). However, the young people with disabilities also had some fears about their ability to drive (Cox et al. 2012; Kirby et al., 2011).

After passing the driving test, all the youths with and without disabilities reported an increase in their self-confidence and in their satisfaction and pride (Kirby et al., 2011; Mullholand Behm, 2014; Törnqvist, Thulin, Segnestam, & Horowitz, 2009). In addition, typically developing youths who had felt a feeling of security and an atmosphere of trust during their lessons self-assessed their driving skills more positively (Tronsmoen, 2011). Young people with and without disabilities and their parents all reported a rise in self-confidence with increased experience following the first year of possessing a driver's license (Guttman, 2013; Simms, 1991).

Affective attitude.

In general, youths with disabilities considered the experience of driving to be negative, anxiety-provoking and associated with various kinds of frustration (failure of other drivers to respect the Highway Safety Code or inability to get a license) (Almberg et al., 2017; Chee et al., 2014; McGill & Vogtle, 2001; Mullholand Behm, 2014; Sacks & Rosenblum, 2006). However, passing the driving test and obtaining a driver's license made the young people with disabilities feel triumphant, proud, accomplished and independent (Kirby et al., 2011; Törnqvist et al., 2009). Several reactions were reported on the part of parents of youths with disabilities. Some of the ones who had worried about their children's skills felt nervous while others had tried to be encouraging and supportive (Cox et al., 2012; McGill & Vogtle, 2001). According to the same authors, parents felt frustrated about the waiting

periods for driver's education classes and the lack of adapted driving equipment. The parents of typically developing youths, on the other hand, tended to worry about their child's safety, lack of maturity, and ability to anticipate dangers and distractions, as well as the way other people drive (Audrey & Langford, 2014, Guttman, 2013; Mirman & Kay, 2012).

Before the process of obtaining a license, some youths with disabilities felt afraid of driving and anxious about the classes and their disabilities, which was not the case in typically developing youths (Chee et al., 2014; Cox et al., 2012; Kirby et al., 2011). The latter were more frustrated by the social exclusion caused by not yet having a car (Carrabine & Longhurst, 2002).

During the driver's education, typically developing young people reported feeling anxious during on-road practice, frustrated while driving under their parents' supervision and triumphant after they passed their driving test (Kirby et al., 2011; Scott-Parker, 2015). For the parents of these youths, being involved in supervising their driving made them feel enthusiastic, nervous and impatient (Sherman et al., 2004).

Opportunity costs

Overall, one of the most frequently mentioned advantages of not having a driver's license, in the view of youths with disabilities, was not having to pay for gasoline, insurance and a car (Chee et al., 2014; Sacks & Rosenblum, 2006). Most of the typically developing youths reported that they had found it difficult to pay for their driver's education classes, which may have delayed their acquisition of a license (Carrabine & Longhurst, 2002; Simms, 1991).

Before beginning the process of obtaining a license, young people with and without disabilities were restricted by a lack of money (Audrey & Langford, 2014; Delbosc & Currie, 2014; Kirby et al., 2011; Scott-Parker, 2015; Williams, 2011). In addition, the greater importance of the role of student

versus the role of driver was mentioned by youths with disabilities and their parents as limiting their ability to get a license (Kirby et al., 2011; McGill & Vogtle, 2001). For typically developing young people, the effort to fit driving lessons into their schedule was the main cause of problems (Audrey & Langford, 2014; Williams, 2011). Other typically developing youths mentioned that the possibility of using other satisfactory, accessible modes of transportation reduced their need to get a driver's license (Delbosc & Currie, 2014; Scott-Parker, 2015).

Perceived effectiveness.

In general, according to the parents of youths with disabilities, being emotional and providing too much information or too many instructions at once were ineffective strategies for teaching driving (Cox et al., 2012). Again according to these authors, remaining calm and patient during the class, talking about the route before heading onto the road, teaching in steps, practising, repeating, providing varied driving experiences, and starting the lessons in safer contexts were effective strategies for driver's education. For the parents of typically developing youths, the strategies favouring learning to drive included experience, practice, and driving in varied conditions; listening to their children's needs; providing a model of safe, calm driving; and the possibility of getting information from a variety of sources (Mirman & Kay, 2012).

During the process of obtaining a driver's license, driving instructors were perceived as insufficiently well trained, skilful and understanding, according to youths with disabilities (Kirby et al., 2011; McGill & Vogtle, 2001). Typically developing youths found that the feedback given by instructors was not always clear (Scott-Parker, 2015).

After getting their license, both youths with disabilities and typically developing youths mentioned that their driving instructors had been helpful during the process of learning to drive (Simms, 1991).

Burden. Regardless of the point in the process of obtaining a license, the young people with disabilities had difficulties with the theoretical and practical driving lessons, meaning that it took them longer than average to master driving (Almberg et al., 2017; Kirby et al., 2011; Mullholand Behm, 2014; Simms, 1991). Most of the typically developing youths did not report any difficulty learning to drive (Simms, 1991) except during the very first practical classes, when the cognitive burden was higher and harder to manage (Scott-Parker, 2015). The parents of typically developing youths felt a heavy burden related to their role as mentor and their responsibility for imposing restrictions on their children's driving (Guttman, 2013; Mirman & Kay, 2012).

After learning to drive, some young people with disabilities were still not driving even though they had obtained their license, according to Mullholand Behm (2014).

Intervention coherence

In general, the young people with disabilities did not get enough information regarding the process of obtaining a driver's license and the options for driving with their disability (McGill & Vogtle, 2001; Sacks & Rosenblum, 2006). On the other hand, the parents of typically developing youths mostly felt they were well informed about the minimum age to obtain a license, the duration of the process, and the restrictions on night driving (McCartt et al., 2007; Williams & Chaudhary, 2008).

Discussion

This review of the literature highlights the similarities and differences between the opinions and expectations of young people (with or without disabilities) and their parents regarding the acquisition of a first driver's license. These comparisons now make it possible to better understand the

acceptability of the process for the two populations, based on the seven components of the TFA.

On the subject of **ethicality**, most young people with and without disabilities considered that driving fostered independence, engagement in productive occupations and social participation, which is supported by a substantial body of literature on the subject (Bell et al., 1991; Ekelman et al., 2009; Masclet, 2002). The fact that young people agree so strongly on this view of driving regardless of their disability status seems to indicate that the belief is well anchored in popular culture. However, following the acquisition of a license, a tendency was noted among young people with disabilities to continue to use transportation methods other than cars (e.g., walking, public transit), which was not the case among typically developing youths. The significant opportunity costs associated with driving may explain why youths with disabilities who have obtained a driver's license do not always use cars to travel about. People with disabilities represent 41% of people with low income in Canada, which suggests that their income level constitutes a major obstacle to purchasing a vehicle and paying the associated costs; this applies less often to typically developing young people (Wall, 2017). More specifically, people with disabilities may be more likely to have a low income if their disability prevents them from continuing their education or entering the job market (Wall, 2017). These problems can be aggravated when the young person does not have a driver's license, since his/her low income makes it more difficult to embark on the costly process of getting a driver's license, which in turn can limit access to services and resources. The possibility of providing government financial support programs for people with disabilities, such as Quebec's vehicle adaptation program for people with disabilities (Office des personnes handicapées du Québec, 2011), represents an interesting possibility for solving this dilemma.

By definition, **opportunity costs** are always a limitation on the acceptability of the process of obtaining a driver's license. Indeed, before starting the

process, young people with and without disabilities were restricted by a lack of money. Because adapted driver's education courses are more expensive than regular courses, government measures could be put in place to promote access to adapted courses and offer them for the same cost as a regular one, or approximately $1,000 for the classes and obtaining the license (Radio Canada, 2018; SAAQ, 2018b). In addition, integrating the driver's education classes into the schedules of youths in both populations proved to be another factor limiting access to a driver's license (Audrey & Langford, 2014; Delbosc & Currie, 2014; Kirby et al., 2011; McGill & Vogtle, 2001; Scott-Parker, 2015; Williams, 2011). To enhance the acceptability of this process, driving schools might find it advantageous to take this variable into consideration, regardless of the customer base they serve. This could be done with more of a focus on young people, namely by taking their schedules, preferences, and busiest seasons (e.g., school exam periods) into account. In addition, to make classes more accessible, it would be a good idea to teach them at strategic times and places, for example, in classrooms after school. This would be a familiar environment that teens would appreciate as a place for learning (McGill & Vogtle, 2001).

Regarding the concept of **self-efficacy**, it first appears that driver's education classes had a positive impact on the confidence in their own abilities felt by youths with and without disabilities. Although the young respondents said that they had lacked self-confidence at the outset of the process, this feeling generally changed for the better, including in the year following the acquisition of a license. Reassuring youths and their parents about their abilities is essential to promoting their success since, among typically developing youths, the ones who had experienced a feeling of security and confidence during their classes rated their driving skills as better. To make a concrete suggestion, a mentorship program involving peers with disabilities who have obtained their driver's license would be an interesting possibility. The literature shows that mentorship programs in

schools, using similar-aged peers, give young people who are experiencing problems psychological and emotional support in a more natural context, and also facilitate the creation of a close, supportive social network (Heaney & Israel, 2008). This kind of mentoring provides psychological security for the young person and thereby favours learning, self-efficacy and the desired change in behaviour (Smith, 2011).

Affective **attitude** seems to be closely related to self-efficacy. For example, the young people reported negative emotions at the beginning of the process when their level of confidence in their driving skills was low. The more experience they had, the more positive emotions they expressed, until the point when they got their driver's license and felt very proud. The same was true of the parents: those who expressed doubts about their ability to influence their child's driving behaviour often reported negative emotions. In response to these tendencies, it would be interesting to set up strategies designed to improve self-efficacy and thus promote a more positive affective attitude, in youths and parents in both groups. More specifically with regard to adapted driving schools, professionals such as occupational therapists could capitalize on their role as experts in occupational enablement to help driving instructors by creating strategies customized for individual users (CAOT, 2012) Affective attitude was also affected by other aspects that could be addressed in driver's education, particularly organizational ones. To remedy this, governments could promote the establishment of additional adapted driving schools that are more accessible and better equipped.

As for **perceived effectiveness**, it is clear that driving instructors play a crucial role in driver education. For young people with disabilities, the most important issue was for the instructor to understand their individual difficulties. On the other hand, once they had obtained a license, most of the young respondents, with or without disabilities, reported that their driving instructors had been helpful. Despite that, they all considered that the instructors (whether they were professionals or parents) provided

imprecise feedback and were not sufficiently understanding during the process of obtaining a driver's license. In light of this generalized dissatisfaction, it would be valuable for occupational therapists, who have expertise in the analysis of the components (physical, cognitive, affective, social) of activities (Ordre des ergothérapeutes du Québec, 2008), to become involved in training instructors and parents about the impact of young people's disabilities on the activity of driving a car, and thereby improve the quality of services provided in all driving schools. Such involvement would also improve the experience of practical learning between parents and children, whether or not the latter had a disability. Getting an occupational therapist involved to help parents and instructors better understand students' individual difficulties could promote positive ethicality among youths and their parents, most of whom want to practice driving together (Guttman, 2013; Hartos & Huff, 2008; Sherman et al., 2004).

On the topic of **burden**, typically developing youths reported few learning problems, unlike young people with disabilities, who said they had had difficulties during both the theoretical and practical driving lessons. This is consistent with the existing literature on this subject (Durkin et al., 2016; Falkmer & Gregersen, 2000; Gagnon-Roy et al., 2016) and may be explained by the fact that young people with disabilities have physical and/or cognitive issues that interfere with the skills needed to drive a car. Our work clearly shows the importance of offering driving courses for people with disabilities that are adapted at various levels. Indeed, contrary to what one might believe, on-road practice is not the only aspect that has to be adapted, even though it often accounts for the majority of time spent in driver's education classes. The theoretical classes provided for this population also need to take account of the strengths and weaknesses related to each individual's disabilities, and this is where occupational therapists could contribute, as discussed above. In addition, it might be a good idea for a specialized educator to be present at all times during the theoretical classes to support

the youths' learning process; this is currently being done at the PEECA driving school.

Finally, **intervention coherence** differs significantly between the populations with and without disabilities. Unlike typically developing youths, youths with disabilities appear to know very little about the options available to them for adapted driver's education classes, even assuming any exist in their region. To mitigate this disparity, information on the process and on adapted schools could be provided by health care professionals working with youths with disabilities, particularly occupational therapists, as they approach the typical age for learning to drive.

Limitations of this literature review

All of the results presented here are rich in opinions and expectations but their interpretation is limited by the weak designs of most of the articles selected. Most of them involved cohort studies or case-control studies and thus reflect a local problem set with a group of individuals who were chosen non-randomly. Such designs do not allow one to make connections between the samples and the target population, which impairs the external validity of their results. Moreover, most studies used small samples to represent individuals with disabilities, whereas the samples of typically developing individuals were much significant. This means that the opinions and expectations of typically developing youths were better represented and more generalizable than those of youths with disabilities, even though the former corresponded to a smaller proportion of the general population they represented.

In addition, the articles selected cover a 17-year period (2001 to 2017). The process of obtaining a driver's license may have changed during this time, which would mean that the expressed opinions and expectations were not all based on the same process. Furthermore, the articles were produced in

different countries where the legal systems and processes for obtaining a driver's license may vary in relation to Quebec. There is also a cultural bias because the TFA documents the subjective experience of an intervention, whether past or anticipated.

The articles selected for this review covered the opinions and expectations of young people with a wide variety of disabilities of different kinds. These different types of disabilities may be confounding variables that could have an impact on results. For example, a person with autism spectrum disorder might be more likely to feel anxious than someone who has had an amputation. It would therefore be relevant to classify the studies based on the type of disability for more precise and accurate results. Along the same lines, this literature review includes several variables, all of which could affect outcomes, such as whether young people, with or without disabilities, or their parents were considered, the point when the data were collected, and the category in the TFA model. All of these factors mean that it is impossible to cover the issue exhaustively, even though the most relevant connections were explored.

Conclusions

This literature review studies expectations and opinions regarding driver's education classes in populations with and without disabilities. It shows that, although obtaining a driver's license can appear stressful, anxiety-provoking and sometimes too expensive to begin at the minimum legal age (16 years in Quebec), getting a license is undeniably crucial to most young people, whether or not they have disabilities. Nonetheless, youths with disabilities seem to have a lower sense of self-efficacy than their peers without disabilities, and also more difficulties with theoretical and practical learning. These results open up some avenues for solutions to improve the services provided by schools like the PEECA driving school and expand the

role of occupational therapists in such schools. It would now be interesting to measure the gap between current knowledge of the accessibility of adapted driver's education and the PEECA school's acceptability to users. That would make it possible to identify the limitations of the current program and establish strategies to align the services with real-world evidence. Ultimately, this will make it easier to implement adapted driver's education programs elsewhere, reducing the chasm separating youths with disabilities from access to quality services that foster their occupational engagement and social participation.

References

[1]   Association Québécoise des transports (AQTr). (2015). Écoles de conduite – Notre mandat. Accessed at https://aqtr.com/ecoles-conduite/notre-mandat

[2]   Almberg, M., Selander, H., Falkmer, M., Vaz, S., Ciccarelli, M., & Falkmer, T. (2017). Experiences of facilitators or barriers in driving education from learner and novice drivers with ADHD or ASD and their driving instructors. Developmental Neurorehabilitation, 20, 59-67. doi:10.3109/17518423.2015.1058299

[3]   Audrey, S., & Langford, R. (2014). Dying to get out: Young drivers, safety and social inequity. Injury Prevention, 20, 1–6. doi:10.1136/injuryprev-2013-040756

[4]   Begg, D., Langley, J., Brookland, R., McDowell, A., Ameratunga, S., & Broughton, J. (2009). The opinions of newly licensed drivers in New Zealand on the minimum car driver licensing age and reasons for getting a license. Journal of the New Zealand Medical Association, 122(1306), 63–77.

[5]   Bell, K. E., Young, K. R., Salzberg, C. L., & West, R. P. (1991). High school driver education using peer tutors, direct instruction, and precision teaching. Journal of Applied Behavior Analysis, 24, 45-51. doi:10.1901/jaba.1991.24-45

[6]   Canadian Association of Occupational Therapists (CAOT). (2012). Profile of practice of occupational therapists in Canada. Accessed at https://www.caot.ca/document/3653/2012otprofile.pdf

[7]   Carrabine, E., & Longhurst, B. (2002). Consuming the car: anticipation, use and meaning in contemporary youth culture. The Sociological Review, 50, 181–196. doi:10.1111/1467-954X.00362

[8]   Cesario, S., Morin, K., & Santa-Donato, A. (2002). Evaluating the level of evidence of qualitative research. JOGNN: Journal of Obstetric, Gynecologic and Neonatal Nursing, 31, 708-714. doi:08842170212900535310.1177/0884217502239216

[9]   Chee, D. Y. T., Lee, H. C. Y., Falkmer, M., Barnett, T., Falkmer, O., Siljehav, J., & Falkmer, T. (2014). Viewpoints on driving of individuals with and without autism spectrum disorder. Developmental Neurorehabilitation, 18, 26–36. doi:10.3109/17518423.2014.964377

[10]   Conseil de la santé et du bien-être. (2005). Un cadre d'évaluation globale de la performance des systèmes de services de santé: Le modèle EGIPSS. Accessed   at http://www.csbe.gouv.qc.ca/fileadmin/www/Archives/ConseilSanteBienEtre/Rapports/200509_EGIPSS_resume.pdf

[11]   Cox, N. B., Reeve, R. E., Cox, S. M., & Cox, D. J. (2012). Brief report: Driving and young adults with ASD: Parents' experiences. Journal of Autism and Developmental Disorders, 42, 2257–2262. doi:10.1007/s10803-012-1470-7

[12]   Daly, J., Willis, K., Small, R., Green, J., Welch, N., Kealy, M., & Hughes, E. (2007). A hierarchy of evidence for assessing qualitative health research. Journal of Clinical Epidemiology, 60, 43–49. doi:10.1016/j.jclinepi.2006.03.014

[13]   Delbosc, A., & Currie, G. (2014). Impact of attitudes and life stage on decline in rates of driver's license acquisition by young people in Melbourne, Australia. Transportation Research Record (2452), 62-70. doi:10.3141/2452-08

[14]   Durkin, K., Toseeb, U., Pickles, A., Botting, N., & Conti-Ramsden, G. (2016). Learning to drive in young adults with language impairment.

Transportation Research Part F: Traffic Psychology and Behaviour, 42, 195–204. doi:10.1016/j.trf.2016.07.015

[15]   Ekelman, B.A., Stav, W., Baker, P., O'Dell-Rossi, P., & Mitchell, S. (2009). Chapter 14 – Community mobility. In B. R. Bonder & V. D. Bello-Haas (Eds.), Functional performance in older adults (pp. 332–385). Philadelphia, PA: FA Davis Co.

[16]   Falkmer, M., Barnett, T., Horlin, C., Falkmer, O., Siljehav, J., Fristedt, S., . . . Falkmer, T. (2015). Viewpoints of adults with and without autism spectrum disorders on public transport. Transportation Research Part A – Policy and Practice, 80, 163–183. doi:10.1016/j.tra.2015.07.019

[17]   Falkmer, T., & Gregersen, N. P. (2000). The prevalence of learner drivers with cerebral palsy who are in need of highly specialized driver education. Journal of Traffic Medicine, 28, 23–31.

[18]   Gagnon-Roy, M., Jasmin, E., & Camden, C. (2016). Social participation of teenagers and young adults with developmental co-ordination disorder and strategies that could help them: Results from a scoping review. Child: Care, Health and Development, 42, 840–51. doi:10.1111/cch.12389

[19]   Guttman, N. (2013). "My son is reliable": Young drivers' parents' optimism and views on the norms of parental involvement in youth driving. Journal of Adolescent Research, 28, 241–268. doi:10.1177/0743558411435853

[20]   Hartos, J., & Huff, D. C. (2008). Parent attitudes toward integrating parent involvement into teenage driver education courses. Traffic Injury Prevention, 9, 224–230. doi:10.1080/15389580801996521

[21]   Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), Health behavior and health education: Theory, research, and practice (pp. 189–207). San Francisco, CA: Jossey-Bass.

[22]   Institut de la statistique du Québec. (2014). Tableau statistique: proportion de la population québécoise détenant un permis de conduire selon certaines caractéristiques sociodémographiques. Accessed at http://www.stat.gouv.qc.ca/statistiques/conditions-vie-societe/logement-equipement-transport/transport/permis.htm

[23]   Kirby, A., Sugden, D., & Edwards, L. (2011). Driving behaviour in young adults with developmental co-ordination disorder. Journal of Adult Development, 18, 122-129. doi:10.1007/s10804-011-9120-4

[24]   Lafrance, M.-E., Benoit, D., Dahan-Oliel, N., & Gélinas, I. (2016). Development of a driving readiness program for adolescents and young adults with cerebral palsy and spina bifida. British Journal of Occupational Therapy, 80, 173-182. doi:10.1177/0308022616672480

[25]   Larousse. (n.d.). Opinion. Accessed at http://www.larousse.fr/dictionnaires/francais/opinion/56197

[26]   Légis Québec. (2017). Chapter C-12: Charter of human rights and freedoms. Accessed at http://legisquebec.gouv.qc.ca/en/showdoc/cs/C-12

[27]   Masclet, O. (2002). Passer le permis de conduite: La fin de l'adolescence. Agora Débats/Jeunesses, 28, 46-56.

[28]   Mazer, B., Gélinas, I., & Benoit, D. (2004). Evaluating and retraining driving performance in clients with disabilities. Critical Reviews in Physical and Rehabilitation Medicine, 16, 291-326.

[29]   McCartt, A. T., Hellinga, L. A., & Haire, E. R. (2007). Age of licensure and monitoring teenagers' driving: Survey of parents of novice teenage drivers. Journal of Safety Research, 38, 697-706. doi:10.1016/j.jsr.2007.10.002

[30]   McGill, T., & Vogtle, L. K. (2001). Driver's education for students with physical disabilities. Exceptional Children, 67, 455-466. doi:10.1177/001440290106700402

[31]   McKay, M. P., Coben, J. H., Larkin, G. L., & Shaffer, A. (2008). Attitudes of teenagers and their parents to Pennsylvania's graduated driver licensing system. Traffic Injury Prevention, 9, 217-223. doi:10.1080/15389580802005660

[32]   Mirman, J. H., & Kay, J. (2012). From passengers to drivers: Parent perceptions about how adolescents learn to drive. Journal of Adolescent Research, 27, 401-424. doi:10.1177/0743558411409934

[33]   Mullholand Behm, K. (2014). Transitional experiences of 16 to 26 year olds with Turner Syndrome. Doctoral dissertation, Rush University. Accessed at

http://proxy.library.mcgill.ca/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=109751885&site=ehost-live

[34] National Institutes of Health (n.d.). Study quality assessment tools. Accessed at https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools

[35] OCEBM Levels of Evidence Working Group. (2011). Oxford Centre for Evidence-Based Medicine 2011 levels of evidence. Accessed at https://www.cebm.net/wp-content/uploads/2014/06/CEBM-Levels-of-Evidence-2.1.pdf

[36] Office des personnes handicapées du Québec. (2011). Guide des programmes d'aide pour les personnes handicapées et leur famille: Aide financière, équipements et fournitures. Accessed at https://www.ophq.gouv.qc.ca/fileadmin/documents/Guides/Guide_des_Programmes_Acc.pdf

[37] Office québécois de la langue française. (2006). Fiche terminologique: Attentes. Accessed at http://gdt.oqlf.gouv.qc.ca/ficheOqlf.aspx?Id_Fiche=502353

[38] Office québécois de la langue française. (2011). Fiche terminologique: Mobilité. Accessed at http://gdt.oqlf.gouv.qc.ca/ficheOqlf.aspx?Id_Fiche=26507041

[39] Ordre des ergothérapeutes du Québec. (2008b). L'activité: L'outil privilégié de l'ergothérapeute. Accessed at https://www.oeq.org/DATA/CHRONIQUE/2~v~activite_outil_privilegie.pdf

[40] Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan - A web and mobile app for systematic reviews. Systematic Reviews, 5(210), 1–10. doi:10.1186/s13643-016-0384-4

[41] Pluye, P., Robert, E., Cargo, M., Bartlett, G., O'Cathain, A., Griffiths, . . . Rousseau, M. C. (2011). Proposal: A mixed methods appraisal tool for systematic mixed studies reviews. Montreal, QC: Department of Family Medicine, McGill University.

[42] Radio Canada. (2018). Hausse anticipée du prix des cours de conduite au Québec. Accessed at https://ici.radio-

canada.ca/nouvelle/1097115/hausse-prix-cours-conduite-quebec-gel-indexation-ministre-transport-andre-fortin

[43]   Sacks, S. Z., & Rosenblum, L. P. (2006). Adolescents with low vision: Perceptions of driving and nondriving. Journal of Visual Impairment and Blindness, 100, 212–222.

[44]   Scott-Parker, B. (2015). Experiences of teen drivers and their advice for the learner license phase. Traffic Injury Prevention, 16, 109–115. doi:10.1080/15389588.2014.909594

[45]   Scott-Parker, B., King, M. J., & Watson, B. (2015). The psychosocial purpose of driving and its relationship with the risky driving behaviour of young novice drivers. Transportation Research Part F: Psychology and Behaviour, 33, 16–26. doi:10.1016/j.trf.2015.06.004

[46]   Sekhon, M., Cartwright, M., & Francis, J. J. (2017). Acceptability of healthcare interventions: An overview of reviews and development of a theoretical framework. BMC Health Services Research, 17, 88. doi:10.1186/s12913-017-2031-8

[47]   Sherman, K., Lapidus, G., Gelven, E., & Banco, L. (2004). New teen drivers and their parents: What they know and what they expect. American Journal of Health Behavior, 28, 387–396.

[48]   Simms, B. (1991). The car use of young drivers with spina bifida and hydrocephalus. European Journal of Pediatric Surgery, 1(Suppl. 1), 31–34.

[49]   Smith, L. H. (2011). Cross-age peer mentoring approach to impact the health outcomes of children and families. Journal for Specialists in Pediatric Nursing, 16, 220–225. doi:10.1111/j.1744-6155.2011.00286.x

[50]   Société de l'assurance automobile du Québec (SAAQ). (2018b). Accompanying rider's guide: Passenger vehicle. Quebec, QC: Gouvernement du Québec.

[51]   Törnqvist, M. C., Thulin, S., Segnestam, Y., & Horowitz, L. (2009). Adult people with language impairment and their life situation. Communication Disorders Quarterly, 30, 237–254. doi:10.1177/1525740108326034

[52]   Tronsmoen, T. (2011). Differences between formal and informal practical driver training as experienced by the learners themselves. Transportation Research Part F: Psychology and Behaviour, 14, 176–188. doi:10.1016/j.trf.2010.11.009

[53]   Wall, K. (2017). Low income among persons with a disability in Canada. Accessed at https://www150.statcan.gc.ca/n1/pub/75-006-x/2017001/article/54854-eng.htm

[54]   Williams, A. F. (2011). Teenagers' licensing decisions and their views of licensing policies: A national survey. Traffic Injury Prevention, 12, 312–319. doi:10.1080/15389588.2011.572100

[55]   Williams, A. F., & Chaudhary, N. K. (2008). Views of Connecticut parents of teens and other adults about graduated licensing upgrades. Traffic Injury Prevention, 9, 503–507. doi:10.1080/1538958080233084

Breault, C., Giroux, L., Gauvreau, A., Belanger, S., Lamontagne, M., & Morales, E. (2019). Acceptability of the process of obtaining a driver's license by young people with and without disabilities. Journal of Accessibility and Design for All, 9(1), 90-117. doi:http://dx.doi.org/10.17411/jacces.v9i1.198