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Research Note

"The Little Squealer" or "The Virtual Guardian Angel"? Young Drivers' and Their Parents' Perspective on Using a Driver Monitoring Technology and its Implications for Parent-Young Driver Communication

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ABSTRACT

Introduction: In-vehicle driving monitoring technologies have the potential to enable young drivers to learn from self-assessment. However, their use is largely dependent on parental involvement. *Method:* A total of 79 interviews were conducted with young drivers and parents regarding this technology and its use. Most had the experience of having an in-vehicle data recorder installed in the vehicle driven by the young drivers. Parents and the young drivers expressed both appreciation as well as reservations about its potential as a means to enhance the driving safety of young drivers. *Results:* A surprising finding was that some parents did not check the feedback and said they relied on the young driver to do so. Main concerns related to privacy, parent-young driver relationship, self-esteem and confidence, constructive use of the feedback data, and the limitations of the documentation that can be done by the technology. *Conclusions:* Providing parents and young drivers with a support system and tools to discuss and utilize the feedback are underscored. Challenges include addressing the invasion of young drivers' privacy and gender differences, and using the monitoring-capacity of the technology to enhance safe driving practices. Implications for programs to enhance communication and a dialogical approach between parents and young drivers are discussed.

1. Introduction

1.1. The challenge of improving driving safety practices of young novice drivers

Improving driving safety practices of young novice drivers is particularly important because of their overrepresentation in vehicle crashes. The injury rate of young drivers is about 5 to 10 times higher than for the safest age group and it is assessed that these rates might even be increasing (Elvik, 2010). Young drivers clearly are at a relatively high risk for road crash injury and death, particularly during their first year of unsupervised driving. The high rates of crashes decline as they gain driving experience (Brovold et al., 2007; McGehee, Raby, Carney, & Lee, 2007; Preusser & Leaf, 2003; Williams, 2003).

Young drivers' relatively high involvement in crashes is explained mainly by factors associated with cognitive development such as a lower ability to assess driving hazards compared to older drivers, a higher tendency to perceive their crash risk as low, lack of driving experience, a propensity to speed, and being influenced by peers who encourage risk taking while driving (Brovold et al., 2007; McKnight & McKnight, 2003; Simons-Morton, Lerner, & Singer, 2005; Vick, 2005). Young male drivers tend to take more driving risks than females (Prato, Toledo, Lotan, & Taubma, 2010). Overall, there is a general agreement among policy makers, researchers, and the general public that an important goal in road safety is to find ways to decrease the risks of young novice drivers (Shope, 2006).

Efforts to enhance the driving safety of young drivers present a dilemma known as the "young drivers' paradox:" On the one hand, in order to enhance their driving skills, young drivers should drive as much as possible. On the other hand, when they drive they increase the risk of being involved in a crash (Winston & Durbin, 2007). An important challenge, therefore, is to enable young novice drivers to gain driving experience while finding ways to decease their risk of being involved in a crash. Among the various approaches to address this challenge, three approaches have been receiving attention in the road safety literature. According to one approach, often referred to as the graduated license program, an effective way to reduce young novice drivers' risk is to apply restrictions on certain driving conditions (e.g., night-time driving or driving with adolescent passengers) that limit the exposure of young novice drivers to relatively risky driving conditions. This is intended to enable them to gain driving experience

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in a more protected environment. This approach has shown to be effective when fully implemented (Scott-Parker, Watson, & King, 2009; Williams, 2007; Vanlaar et al., 2009). However, researchers note that its effectiveness largely depends on the parent-young driver relationship, because parents typically play an important role in enforcing the restrictions (Hartos, Shattuck, Simons-Morton, & Beck, 2004; Simons-Morton & Ouimet, 2006; Williams, Leaf, Simons-Morton, & Hartos, 2006). Yet, some parents refrain from being involved because they feel they are unable to enforce the restrictions or want to avoid encounters that may cause additional tensions in their relationship with their son or daughter. Parents might also underestimate the level of risk in the young driver's driving (Cottrell et al., 2003; Simons-Morton & Hartos, 2003).

A second approach related to graduated license programs is to incorporate driver education and training programs into the different phases of the graduated license. The argument is that pre-license driver education focuses mainly on basic driving skills and therefore, novice young drivers need driver education or training to teach them higher-level skills once basic car control skills are mastered. An additional rationale for this type of training/education is that young novice drivers tend to be convinced that they have mastered driving skills (Ferguson, 2003). Researchers therefore call for the development of means that will help parents to manage the driving experience of their novice son or daughter and by doing so to enhance their driving safety (Sherman, Lapidus, Gelven, & Banco, 2004; Simons-Morton & Ouimet, 2006). This challenge is related to a third approach: the installment of in-vehicle monitoring technologies that can record and report on the driving practices of the young novice drivers. This approach is further elaborated in the next section.

1.2. The promise of new monitoring technologies

In the past decade numerous technologies have been developed to enhance safe driving. These technologies include electronic stability control, collision avoidance systems, intelligent speed adaptation, and in-vehicle driving tracking systems. It is believed that such technologies can be employed to mitigate young driver risks (Lee, 2007; Donmez, Boyle, & Lee, 2007; Toledo, Musicant, & Lotan, 2008). These technologies include safety-monitoring devices that offer a systematic documentation system that has the potential to enable parents to monitor their son's or daughter's driving. Such systems employ various types of event data recorders that capture vehicle data, such as speed, engine information, number of trips by time and day, and provide a systematic record of the actual driving incidences as well as a daily or weekly report on the driving patterns of individual drivers (Toledo et al., 2008). These systems are marketed directly to parents or are included in special promotional offers of insurance companies. Findings from recent studies indicate that such feedback combined with parental involvement can reduce the number of unsafe driving events of newly licensed young drivers (Farmer, Kirley, & McCartt, 2010; Prato et al., 2010). The assumption underlying programs that promote the use of in-vehicle monitoring technologies is that the feedback they provide can help young drivers to become aware of certain unsafe driving practices and help them modify them (e.g., by learning to slow down for turns, curves, and intersections). Thus, this approach can help improve their driving safety skills. Researchers propose that this type of an intervention could improve their driving skills and safety in the long-term as well (McGehee et al., 2007).

The promise of monitoring technology to enhance road safety of young driving—similarly to graduated license programs—is likely to depend greatly on voluntary acceptance of their use by young drivers and on their parents' involvement (Ferguson, 2003; Simons-Morton & Ouimet, 2006; Young, Regan, & Mitsopoulos, 2004). As noted by advocates of "intelligent car" safety technologies, simply installing a monitoring device in a young driver's vehicle may not be sufficient to improve his or her driving safety (McGehee et al., 2007). Recent findings from focus group discussions with young drivers suggest that perhaps the potentially most effective safety-enhancing technologies that can be installed in the vehicles used by young drivers may also be the least acceptable to them, because they are perceived as invading their privacy. It is suggested that young drivers may be more likely to accept a particular technology if they see it as a mentor rather than as a monitor (Lee, 2007; Guttman & Gesser-Edelsburg, 2009). Therefore, it is important to learn about the experiences and views of young drivers and their parents in whose car the monitoring technology had been installed and used. Learning about the views of the young drivers is important because they can point to the types of benefits the technology can have for young drivers and how it could be made more attractive to them. Learning about the views of the parents of young drivers is important as well because parents of young drivers are likely to be both supportive and apprehensive of installing and using the technology. On the one hand, the technology offers a way to alleviate parents' concerns about their son or daughter's driving by providing a mechanism that monitors their driving. On the other hand they may fear it would infringe on the privacy of their son or daughter or may serve to erode the parent-young driver relationship (Brovold et al., 2007). In sum, there are very few studies that examined the attitudes and experiences of young drivers and their parents on the use of monitoring technologies. Clearly it is important to study the experiences and views of both young drivers and parents who have used the monitoring technology to learn about their conceptions of its advantages and limitations, and what types of training or support systems may be needed for families of young drivers who use them. This could help maximize the potential benefits of the monitoring technologies to the driving safety of young novice drivers. Therefore, the purpose of this study was to explore, using a qualitative methods approach, views regarding the technology from the perspective of young drivers and parents who used the technology, as well as those who had originally decided to use it, and then did not.

2. Purpose and Methods

This study was a major part of a larger research project conducted in Israel on the topic of promoting novice driving safety by using in-vehicle data recorders. It aimed to elicit conceptions regarding advantages and disadvantages of the technology from the perspective of parents and young drivers from families that agreed to install an in-vehicle data recorder in the vehicle driven by the young driver.

The study employed personal interviews with parents and young drivers who were part of a research project of an Israeli not-for-profit road safety organization 'Or Yarok' that recruited them for the purpose of testing the use of the technology and its impact on driving safety. The organization offered to install the technology free-of-charge in exchange for making the data it recorded available to the organization for research purposes for a period of eight months. Eighty families were recruited through home visits conducted by the organization's staff in a nation-wide new-driver project. Staff members visited families of youths who had registered to apply for a drivers license and provided them with contact information. In this study, a total of 79 respondents participated, which represented 39 families. Thus about half of the families (at least one member of the family) from the technology project participated in this study. The first phase consisted of 36 interviews conducted in the homes of families who installed the technology. Interviews with parents and young driver were conducted separately. These included 22 parents (12 males and 10 females) and 14 young driver interviews. In the second phase additional phone interviews were conducted to further explore the issues raised in the interviews with 21 parents (10 fathers and 11 mothers) and 12 young drivers (9 males and 3 females). These utilized an interview guide that focused more specifically on the advantages and limitations of the use of the technology. The families were chosen to include families who had young drivers that were