DRIVING AS A CREATIVE ACTIVITY FOR DISABLED PEOPLE

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Absztrakt

A VEZETÉS MINT EGY KREATÍV TEVÉKENYSÉG A FOGYATÉKOS EMBEREK SZÁMÁRA

A vezetést ritkán tekintik kreatív tevékenységnek, mégis számos olyan elemet tartalmaz, amelyek kreatív gondolkodásra és problémamegoldó készségekre ösztönözhetnek. Vezetés közben a vezető folyamatosan reagál a változó környezeti tényezőkre, mint például a forgalom, az időjárás vagy az útviszonyok. Ez a dinamikus figyelem gyors döntéshozatalra és rugalmas gondolkodásra ösztönöz, hiszen sokszor spontán alkalmazkodásra van szükség a helyzethez. Az adaptív vezetési technológiák és a járműmódosítások lehetővé teszik a fizikai vagy érzékszervi fogyatékossággal élő vezetők számára, hogy egyedi igényeiknek megfelelő módon személyre szabják vezetési élményüket, utakat nyitva ezzel az önkifejezés és a problémamegoldás előtt. Ezenkívül az útvonaltervezés és az optimális útvonal kiválasztása kreatív gondolkodást igényel, különösen ismeretlen helyszíneken vagy szokatlan helyzetekben. Ilyen esetekben a vezetőnek figyelembe kell vennie a navigációs lehetőségeket, a közlekedési szabályokat, sőt az időzítést is – mindazokat a készségeket, amelyek más kreatív folyamatokban is értékesek. Azáltal, hogy megtanulják magabiztosan és hatékonyan manőverezni ezekkel a járművekkel, a fogyatékkal élő vezetők nemcsak a mobilitási akadályokat győzik le, hanem újradefiniálják a hagyományos vezetési megközelítéseket is, kreatív készséggé alakítva azt, amely tükrözi rugalmasságukat és alkalmazkodóképességüket.

Kulcsszavak: vezetés, mozgássérültek, kreativitás, problémamegoldás, alkalmazkodóképesség, adaptív vezetési technológiák

Diszciplína: Special Needs Education

Abstract

Driving is rarely considered a creative activity, yet it contains many elements that can inspire creative thinking and problem-solving skills. While driving, the driver constantly responds to changing environmental factors, such as traffic, weather, or road conditions. This dynamic attention encourages quick decision-making and flexible thinking, as there is often a need to adapt spontaneously to the situation. Adaptive driving technologies and vehicle modifications enable drivers with physical or sensory disabilities to personalize their driving experience in ways that suit their unique needs, opening up avenues for self-expression and problem-solving. Additionally, planning routes and choosing the optimal path require creative thinking, especially in unfamiliar locations or unusual situations. In such cases, the driver must consider navigation options, traffic rules, and even timing—all skills that are valuable in other creative processes as well. By learning to maneuver these vehicles confidently and efficiently, drivers with disabilities not only overcome mobility barriers but also redefine traditional approaches to driving, transforming it into a creative skill that mirrors their resilience and adaptability.

Keywords: driving, disabled people, creativity, problem-solving, adaptability, adaptive driving technologies

Discipline: Special Needs Education

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The aim of the study is twofold: first, it seeks to present driving as a creative activity from the perspective of individuals with physical disabilities. Adapting to a different way of driving due to a disability requires a great deal of creativity, as everything must be carefully planned in advance, from operating the vehicle to refuelling. Second, the author intends to inform members of the research community about this less-researched area in Hungary and to motivate fellow individuals with mobility disabilities who are considering obtaining a Category B driver's license. It is indeed possible to drive safely with a disability, thanks to various specialized devices. The author of the study begins the detailed discussion of the topic by quoting Amelia Earhart, the first American female pilot to fly solo across the Atlantic Ocean. Adventure is worthwhile in itself so let's the driving adventure begin!

The first challenge

The first "challenge" the drivers with a physical disability face is that, unlike able-bodied drivers, they will only be able to use

one hand to steer the car. Moreover, this hand will not be their dominant right hand but their less dexterous left hand. For most people, the right hand is the dominant one, making this the first challenge that drivers with disabilities need to overcome. The less frequently used and less skilled left hand must be trained to become proficient enough to handle the fine movements of the steering wheel in all traffic situations. Due to the unconventional steering technique, the functions of the brain's hemispheres also undergo slight changes. They became „left hand dominant people" during driving. Of course, there is a scientific explanation for why drivers with physical disabilities need to use their left hand for steering. The movement of the left hand is controlled by the right hemisphere of the brain. Right-hemisphere dominance provides excellent navigational and manipulation skills. The role of the right hemisphere in driving has so far been studied scientifically among stroke patients. Shimonaga, K. et al 2020 in their study highlighted and demonstrated some important functions of the right hemisphere including directed attention and sustained attention, which play key roles for car driving, are important for improving QOL. Devos, H. et al 2021 also examines the topic and wishes to give evidence to guide the readers behind clinical decision-making in returning to drive after stroke.

Steering modifications

Nowadays, especially abroad, a wide range of special gear is available for the adaptation of vehicles to individual needs. Unfortunately, at the national level in Hungary, there are currently few specialists and service specializing in such unique devices. Based on the 2016 information from the National Federation of Associations of the Disabled, 4 individual contractors and one specialist workshop carry out such distinct adaptations for the disabled. The best-known specified car service is located in Győr. We can distinguish modern remote-control device which contains all the secondary important functions of the car: lights, indicators, horn, wipers see the 1. Figure

1. Figure: Modern steering remote control device
Source: The author

The most common is the traditional steering ball, which only makes the steering itself easier, see some variations on 2. Figure and 3. Figure. The steering wheel modification shown in the 3. Figure is recommended for disabled people who have weak wrists and need the wrist to be well supported to turn the steering wheel safely.

2. Figure: Traditional steering ball, variation 1. Source: sulyokmuhely.hu

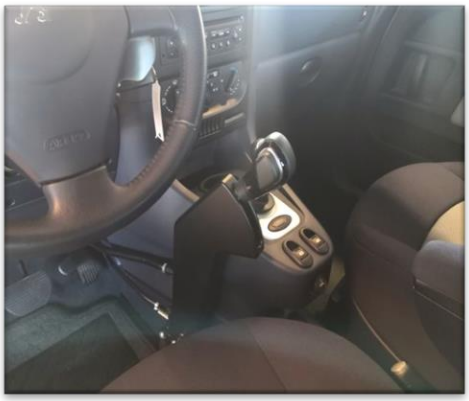
The functions of the right hand

Although when driving with only two hands, the left hand is responsible for directing the steering wheel. Nevertheless, the right hand also has an important task. The right hand is responsible for moving the special gas and break device see the 4.

3. Figure: Traditional steering ball, variation 2. Source: sulyokmuhely.hu

Figure. The indicators must also be solved with the right hand when driving with a traditional steering ball see 5. Figure.

4. Figure: The special gas- break device Source: The author



5. Figure: The indicators placed on the right side for the right hand as well. Source: sulyokmuhely.hu

For healthy drivers who drive with all four limbs, the author can explain in the most picturesque way that driving with two hands is like playing on the piano. On one hand, it requires the ability to coordinate the functions of both hands seamlessly; on the other hand, it also demands the capability to move each hand independently when the traffic situation calls for it. The driver must find that "delicate harmony" that allows them to manoeuvre the vehicle safely in traffic. They need to attune themselves to the rhythm of the traffic flow.

Some useful ideas from the author on how to get your hands ready for driving

As a driver with a mobility impairment, you can only rely only on hands and your life is literally in your own hands, therefore the development of coordination and fine manipulation of the two hands is the utmost importance. The author of this present study is very fond of creative activities that require very precise and delicate movements of the hands. The first such creative manual dexterity activity that she highly recommends to all with mobility impairments is Genga and puzzle. The Genga and puzzle have similar developmental effects. Building a tower as high as possible out of building blocks is very entertaining until it falls over. Fitting the various cubes together, especially if the tower is already quite unstable, develops concentration and cognitive (knowledge-based) thinking. The puzzle is fine for developing creative thinking and part-whole thinking. It also greatly stimulates global thinking, since you have to see the whole picture in order to be able to move at a good pace in the case of a 1000-piece puzzle by stacking the different parts of the picture. Both Genga and the puzzle are excellent for developing spatial awareness, which is very necessary for driving. An additional positive effect of Genga and puzzle is that it strengthens the fingers and arms, while also developing hand-eye coordination. Both of the above-mentioned games require cooperation and also develop the ability to solve problems. The most important principle of the rules of the road in Hungarian abbreviated as KRESZ is that "you must drive in such a way that you do not endanger the safety of people and property, and do not unreasonably obstruct or disturb others in

their traffic. Another very important element of road transport is the so-called trust principle. According to the principle of trust, all traffic participants can legitimately expect that traffic rules will be followed by others" (Pető, A. 2021.11.o). The development of cooperative skills through puzzle and Genga is therefore very crucial, because in traffic, if the person sitting behind the wheel is not sufficiently cooperative, she can endanger not only her own health, but also others.

Last but not least, the author would like to recommend a very feminine manual activity to her fellow disabled women. Nail art and decoration with pearls and various stickers also help a lot in coordinating the meticulous movements of the two hands. Sticking the nail stickers with tweezers mainly develops the aiming movements very well. The increasingly popular dotting technique in nail decoration, which is done with different sized dotting tools, also offers opportunity to practice precise aiming movements. Based on the author's own experience, creative activities with nails also have a calming effect, so if you were stressed about something while driving, it helps to smooth your nerves.

The second challenge

Driving a car with both hands not only demands highly refined and coordinated movements from the driver. But also requires precise planning and time management and this will be the second challenge. Time must be allocated for steering and signalling, especially if the indicator lever is positioned on the right side. Additionally, time is needed for accelerating and decelerating the vehicle using the specialized gas and brake lever. Everything must be planned mentally in advance – what will happen and how it will happen – so that, for example, the driver can safely merge into a busy roundabout. Even refuelling the car requires precise planning; it has its own choreography. Enough space must be left next to the fuel pump to make it easier to exit from behind the wheel. Adequate room must also be ensured for a cane or other assistive device so that the driver can properly access the fuel cap.

Start With Shorter Trips: Practice makes perfect. It is important to practice in familiar environments with speed limits of 30–40 km/h until sufficient routine in two-handed driving is achieved. Time is needed to learn how to divide attention between constantly monitoring the interior rearview mirror and the external mirrors, while also mastering the safe use of the highly sensitive specialized gas and brake lever at low speeds.

Map the route to minimize stressors: Several studies have already investigated among able- bodied drivers what factors cause stress and rapid heartbeat while driving. Recent studies found that certain road objects such as bigger vehicles (e.g., trucks), road users (e.g., cyclists), and

infrastructural elements (e.g., intersections), as well as in-cabin situations (e.g., working with the centre stack), are highly associated with higher subjective stress levels (Zepf, S. et al. 2019; Dittrich, M. 2021; Bustos, C. et al. 2021; Tavakoli, A. et al. 2023).

For drivers with disabilities, reducing stress is even more vital, as heightened nervousness can further increase muscle stiffness. It is crucial that if they feel fatigued or unable to fully focus on the constantly changing environment, they must stop, take a short break, and stretch their stiffened limbs.

Bringing a travel companion or someone who is more experienced in driving: Travel companions can assist in navigation, and be a great source of moral support and company for those who find driving stressful. They can also help drivers to avoid the dangers of distracted driving by assisting with anything done on a phone, like locating restaurants, re-routing, or changing music. Driving and multitasking (Gershon, P. et al. 2009; Atchley and Chan, 2010; Nijboer, M. et al. 2016). and driving and route familiarity (Harms, I. M., 2021; Harms, I. M. 2023).is scientifically well-researched among able-bodied drivers, but not with disabled drivers.

Conclusion

The study wanted to give a deeper insight into why driving is a creative activity for people with mobility impairments. The author also wanted to help her peers with disabilities in what other activities can be used to improve the dexterity of the hands. Last but not least, she wanted to draw attention to some areas of research where there are gaps, which should also be investigated in the future persons with disabilities. Hungary should pay more attention to disabled drivers and begin to scientifically investigate how stress affects the driving experience in their case. For example, how various stressors occurring during driving affect driving performance. It would also be interesting to study multitasking with them, they basically have to solve several things at the same time with the help of both hands while driving.

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