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Planning Educational Activities for Learning "Road Safety"

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Abstract

In this paper, a project of the local sustainability network of schools in the area of Western Attica (Greece) is described. The subject of this project is "Road Safety", and it was addressed to third grade pupils of junior high-schools. It has been planned as the result of collaboration between the local Secondary Education Directorate, a few voluntary organizations, some private Vehicle Technical Inspection Centers and the local traffic-police department. This educational activity had been mainly implemented through the teaching and learning method of "experiential learning". The pupils were divided into groups and attended six workshops that were designed accordingly. The entire process aims at establishing educational activities that in long-term will deal effectively with the acute problem of road safety.

Keywords: road safety, traffic education, experiential learning, sustainability network

1. Introduction

Road safety is an issue of ongoing concern internationally, due to the social and economic repercussions of traffic accidents, especially the fatal ones among youths (Adanu et al., 2018). The potential causes of traffic accidents are extremely diverse, including:

1) driving on the unfamiliar side of the road (Malhotra et al., 2018), which is globally the most common type of traffic accidents involving tourists (MoT, 2017; Yannis et al., 2007; Walker & Page, 2004; Watson et al., 2004; Sharples & Fletcher, 2001; Wilks, 1999; Petridou et al., 1997; Page & Meyer, 1996);

2) consumption of alcohol (Charlton & Starkey, 2015);

3) not using seat belt (Weiss et al., 2014);

4) risky or aggressive driving behaviours (Hanna et al., 2012; Blockey & Hartley, 1995), especially among young drivers (Simons-Morton et al. 2011; Hatfield & Fernandes, 2009; Simons-Morton et al., 2005; Stevenson et al. 2001; Harré et al., 2000; Deery, 1999; Tränkle et al., 1990);

5) overestimation or underestimation of driving skills (Teese & Bradley, 2008; Waylen & McKenna, 2008; Horswill et al., 2004; Taubman Ben-Ari et al., 2004);

6) loss of focus and attention (Curry et al., 2011; Shi et al., 2010; Groeger, 2006; Clarke et al., 2005);

7) even the locally lower socioeconomic conditions (Hasselberg et al., 2005), especially the educational ones (Hasselberg & Laflamme, 2008).

Thus, the improvement of road safety and the prevention of dangerous driving are equally demanding goals. The procedural tool for achieving these goals is the proper training of novice drivers that includes several aspects (Simons-Morton & Ehsani, 2016), such as:

- How to acquire driving and vehicle management skills (Elvik, 2006; Ericsson et al., 1993);

- Cognitive issues on how novice trainees learn (Groeger, 2000);
- The adequacy of formal training for acquiring a driving license, also regarding issues like the knowledge of traffic legislation;
- The ability to pay attention when driving that can be distracted by listening to music (Brodsky, 2001), eating, using phones and other activities parallel to driving (Klauer et al., 2014);
- Self-control in various traffic conditions and other individual personality considerations (Ericsson et al., 2006);
- The limitations of training practices (Beanland et al., 2013).

Especially for the latter, several considerations for improvement include: the extension of the training period, co-driving supervised by the parents of novice/adolescent drivers (Goodwin et al., 2014; Ehsani et al., 2015) and introducing various training innovations (Isler et al., 2011; Washington et al., 2011; Mynttinen et al., 2010; Tronsmoen, 2010), as for example to make use of a driving simulator (Pollatsek et al., 2011).

In this international context, the present work is aligned with training innovations that extend the training period towards early adolescence, being focused on developing personal attitude and behaviour skills, according to the relevant priorities of the European Union's policy (Note 1), rather than driving ones, due to the minor age of the target group (14-15 years old). It has been implemented considering major topics of the national context (Greece), regarding road safety.

1.1 The National Context

What do the numbers say about the Greek roads? According to recent data from the World Health Organization (Note 2) and Eurostat's "Road fatalities in the EU since 2001" (Note 3):

- Every year in Greece there are more than 1,800 accidents in and out of schools, with victims being children and teenagers.
- More than 75 children/teenagers (0-14 years old) are killed every year on the streets.
- Greece holds the third highest position in the European Union (EU) member states (14 per 100,000 persons) in terms of road fatality rates among children, adolescents and young adults up to 25 years old.
- During the years 1996-2003, 50% of the children aged 0-14 years, who suffered a traffic accident, were injured as pedestrians.
- 20% of the injured (or killed) pre-school children were seated in the front seat and 70% of them did not make use of the special child seat.
- 10% of the victims (children and teenagers from 5-14 years old) were cyclists, while almost none used a helmet, so verifying that even for driving a bicycle, there are extremely hazardous situations, depending on the traffic conditions (Wall et al., 2016).
- The 10% of injured teenagers and young adults (aged 15-24 years) were injured as motorcycle riders.

In this national context, it was decided to implement locally (Western Attica, Greece) a road safety and traffic education project (Note 4) for secondary education pupils, because in this age-group their thinking starts changing and is transformed from driving a bicycle to a motorized vehicle (Note 5; Mayhew & Simpson, 2002).

1.2 The Local Context

The highest percentage of teenagers involved in car accidents is from 12 to 15 years old. This is the age-range that the teenagers think they "know everything", as they gradually claim their independence. They may even leave home, for several reasons (Bitsaki, 2011). Therefore, considering also the afore-mentioned contribution of the low socioeconomic/educational conditions to road safety (7), the area of Western Attica is particularly vulnerable. There are long-term changes in climate aridity, along with urbanization, industrial development and land use in a mixed urban-rural landscape, while the resident population and established activities increased rapidly in the urban areas (Thriasio Plain) the last decades (Mavrakis et al., 2015). Because of this domestic migration, there is a downgrading of natural resources, a loss of social cohesion and an uncertainty regarding economic growth. There is a rubbish dump for receiving the waste of Athens metropolitan area (more than 1,570,000 tons of urban waste annually), while the local processing unit can manage about 1,200 tons daily (Salvati & Mavrakis, 2014). In addition, intent social and economic problems and challenges exist, due to the presence of motley social groups of diverse origins and values-background, like foreign immigrants and ethnic groups (Karakiozis et al., 2015).

In this particular context, the local educational authorities strive to cope with social exclusion (Papakitsos et al., 2017b), in-school violence (Karakiozis & Papakitsos, 2018) and the underfunding of schools (Foulidi et al., 2017). Planning though in a systemic manner (Papakitsos et al., 2017a), the local Secondary Education Directorate of Western Attica (WASED) initiated a major action of the local sustainability network of the schools in this area.

Specifically, there are 47 schools (24 Junior High-Schools, 14 General Senior High-Schools, 5 Vocational Senior High-Schools, 1 Special Vocational Education Training Center and 3 Laboratory Centers), located in five municipalities, with a total educational population of more than 1,200 teachers and 11,000 students. The main purpose of this action is to form a sustainable school, namely a school that is a model of an organization that promotes sustainability and adopts it in school life. It seeks to create, in long-term and gradually, a culture and ethics oriented towards sustainability; to make school a learning organization, through which all those who participate in will be able to learn, create, act and make choices with a view to protect the environment and the right of all people to live in conditions of economic, cultural, social and environmental sustainability. Within this framework, a pilot project has been designed and implemented in 10 high-schools of two municipalities (Megara and Aspropyrgos), titled "Road Safety" (Korakidi & Mavrakis, 2018).

2. Method

This pilot project ("Road Safety") was mainly addressed to third grade junior high-school pupils, but latter on it was also expanded for senior high-school students, because of their demand for such training. It was the result of collaboration between WASED, a local voluntary organization (Note 6), some private Vehicle Technical Inspection Centers (VTIC) and the local traffic-police department. The project took place during 7 days (4 in May 2017 and 3 in March 2018) and addressed a total of about 850 pupils from 10 participating schools (6 Junior High-Schools, 2 General Senior High-Schools and 2 Vocational Senior High-Schools), accompanied by about 110 teachers.

The role of parents and teachers is to take the issues of road safety seriously (Keskinen, 2014). Adolescents of this age should be informed on the following topics:

- For the dangers of traffic; to wait for the traffic to stop before crossing a road, to use pedestrian crossings, not to cross roads by zigzagging, if there is a pavement in the middle of an avenue (separating the opposite lanes) then to cross it as if it were two separate streets, by stopping and waiting on the pavement.
- To be aware of the potential dangers for each route that they are going to take (mainly the one to their school).
- To properly estimate the speed and distance of cars on a busy road and recognize its "safer passes".
- They must not cross a road by blindly following their friends or others; they must always think and pay attention for themselves.
- Adults (parents and teachers) should become the right model of traffic behaviour (Ehsani et al., 2015; Goodwin et al., 2014; Note 1), by their example, both as pedestrians and as drivers or riders (fastening their seat-belts, putting their helmets on, etc.).

In addition, pupils should become aware of the Sustainable Urban Mobility Plan (SUMP), a strategic plan based on existing planning practices, taking into account principles such as citizens' participation in decision-making processes, holistic approach for exerting policies, as well as the ongoing evaluation of interventions (Note 7). A key criterion for the planning of the project is the satisfaction of existing and future travel needs, in order to improve the quality of life in urban centers. SUMPs are distinguished from conventional long-term or short-term transport-planning studies, as well as traffic and parking management studies. The most important differences between SUMPs from the other studies are basically the following:

- They focus on people and not on vehicle-traffic.
- Their main objective is to improve accessibility and quality of life, instead of improving the capacity of the road network to facilitate traffic flow.
- They require unified planning approaches (transportations, land use, environment, social cohesion, etc.) and not only a plain thematic approach.
- They are based on a multidisciplinary approach, involving scientists from many disciplines.
- They are not limited by administrative boundaries but are geographically extended on the basis of operational criteria.
- They require continuous assessment of the impact of different interventions and the formation of a process for learning and improving.
- They are based on the participatory process of all stakeholders, as well as other directly interested parties, and not only on the involvement of the contributing party.
- They aim at the reduction of environmental pollution, greenhouse gas emissions and energy consumption.

- They seek to increase the efficiency and cost-effectiveness of transport of people and goods.
- They try to enhance the attractiveness and quality of the urban environment.

The training goals have been categorized into cognitive, emotional and psychomotor.

Cognitive goals:

- By the end of the action, the pupils should be able to report at least 4 points that they must know as pedestrians.
- To walk on the sidewalks if they exist.
- To use the pedestrian crossings.
- To recognize/understand pedestrian traffic signs.
- To cross a road safely.
- To recognize any risk and play in secured places.

Emotional goals:

- To realize that life is valuable and should be careful.

Psychomotor goals:

- To respond to visual signals.
- To understand and take the role of a sensitized citizen.

An overall picture with the main factors of the training methodology that includes collaborators (i.e., training agencies), tools (i.e., projects) and goals can be seen in Appendix A.

The topics of road safety had been approached experientially. The participating pupils (per school) were divided into six teams of about fifteen persons each. These teams attended circularly six workshops of 15 minutes each. This particular duration of each workshop copes well with the phenomenon of "lazy brain" (Kahneman, 2011), by keeping each topic less complex, boring and difficult, in order to ensure the cognitive attention of pupils. Based on the timetable within 90 minutes, all teams had passed through the workshops, in this one-day (per school) training activity that included also an additional introductory presentation, being similar to relevant educational activities that have been reported elsewhere (Senserrick et al., 2009). After its completion and the qualitative evaluation of the outcomes, this pilot project resulted in a standard educational proposal for learning road safety to junior teenagers, which is presented in the next section.

3. Results

The educational project for learning road safety has two main parts. The first part is titled "The right transition from bicycles to motorized vehicles". It is a half-hour lecture, conducted by specialized persons, namely: representatives of the local department of traffic police, representatives of VTICs, who may also give the training-place, a representative of a driver's school, a representative of motorway assistance, a racing car driver and representatives of a bicycle club. The second part is titled "After the bike, what?" and is composed of the six workshops. These workshops elaborate the following topics:

- "What is the relationship between the conventional safety belt and the racing one?" An experienced car racing driver will analyze to pupils what the difference between the two belts is and the difference between a family and a racing car (1st Workshop).
- "What do the tires have to do with road safety?" An experienced tire-engineer will analyze the need for tire pressure control, when and where to replace the tires, how to test whether a tire is suitable for our vehicle and how to replace a flat tire (2nd Workshop).
- "Why should I always have a first-aid kit and a fire extinguisher in my vehicle?" Specialized staff of a drivers' club will analyze the necessity to have a fire extinguisher and a first-aid kit, how to use them and how to inspect their functionality (3rd Workshop).
- "What is the use of the Emergency Lane (LEA)?" Specialized staff will analyze the necessity of LEA, as well as the problems that occur during its illegal/improper use, when we can use it, which vehicles can do it (4th Workshop).
- "Sustainable Urban Mobility;" Qualified members (spokesman from a local traffic-police department and a member of a voluntary organization) will analyze what is sustainable urban mobility, how we can implement it and what are its benefits, e.g., respect for our fellow human beings, practical respect for the

environment, less pollution, less wear and damage to the vehicle, use of environmentally friendly transport means (like subways or other public transportations) that reduce our ecological footprint, etc. (5th Workshop).

- "Motorcycle;" Specialized members of a Motorcycle Club will analyze (through examples) the proper use of the motorcycle, the potential dangers, safe driving and the value of using a helmet (6th Workshop).

All the workshops are experiential, because in this way the pupils understand better the cognitive issues and, at the same time, they can perceive in real conditions the existing dangers, either as future drivers or as passengers.

4. Discussion

This pilot project was carried out in open space premises of VTICs (Figure 1), where pupils and teachers attended it, without any cost of participation for all. The pupils were transferred from school to workshops and back.

(a) (b)

Figure 1. The premises of a VTIC: (a) A workshop's briefing; (b) Teachers, experts and authors.

This project had a great impact on pupils and educators. The participating pupils commented that this was their first participation in such action, taking the view that this approach was different and original. It has been requested to repeat such actions in the future, by widening the range of pupils and classes. Therefore, the necessity of prevention of road accidents by informing the school population on traffic education and road safety was achieved. It would be very useful to implement similar practices to more pupils and to carry out a more extensive evaluation of such learning activities.

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Appendix A

Main Factors of the Training Methodology

Collaborators	Projects	Goals
Health Education Office	Sustainable Urban Mobility Plan (SUMP)	Cognitive
Environmental Education Office		Emotional
Secondary Education schools	Road Safety	Psychomotor
Automobile Association Clubs		
Vehicle Technical Inspection Centers (VTIC)		
Traffic-Police Department		

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