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Attitudes of instructors training to deliver road safety courses to educate low risk drivers

Actitudes del profesorado de formación vial en formación para educar personas conductoras con riesgo cero

Atitudes dos professores de formação rodoviária em formação para educar condutores com risco zero

道路培训教师教育零风险驾驶员的态度

اتجاهات معلمي التأهيل حول المرور على الطرق قيد التدريب على تثقيف السائقين مع انعدام المخاطر

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Abstract

There is little research available regarding the attitudes of driver instructors. Road traffic accident data indicate a need for research on the role of this professional group in driver training, as training is internationally recognised as an essential tool for improving road safety. A questionnaire was administered to evaluate predispositions towards the teaching of safe driving (EPRECONS) in a sample of 378 trainee driving instructors. Psychometric properties of the questionnaire were examined (reliability and content, discriminant and structural validity) through exploratory factor analysis). All factors contributed towards explaining the dependent variable, however, the most explanatory variables were “risk anticipation”, “safe driving practice” and “controlling social risk”. Some differences emerged as a function of sex. Specifically, predispositions towards training safe drivers in men was explained mainly by the “safe driving practice” factor, whilst, in the case of women, this was explained mainly by the “risk anticipation” factor. No significant sex differences were found in relation to predispositions towards training low risk drivers. Significant differences only emerged in regards to two factors. Firstly, in the case of “alcohol and driving”, women presented greater rigour regarding safety, whilst, in the case of “transmission of feelings”, women showed a greater capacity than men to transmit feelings. Outcomes suggest that notable advancements have taken place in terms of the design of training actions related with driving instructors. Findings should be considered when planning the teaching models that underly initial driver education in order to favouring a reduction in accidents and progress towards zero risk driving.

Keywords: driver education, driving instructor, changing attitudes, road safety education, road safety training

Resumen

Existen escasas investigaciones sobre las actitudes del profesorado de formación vial hacia la enseñanza de la conducción segura. Los datos sobre accidentalidad muestran la necesidad de investigar sobre el papel de este profesional en la capacitación de personas conductoras, puesto que a nivel internacional la educación destaca por ser una herramienta imprescindible para mejorar la seguridad vial. Se ha aplicado un cuestionario para evaluar la predisposición a la enseñanza de la conducción segura (EPRECONS) del profesorado a una muestra de 378 aspirantes en formación. Los resultados muestran que el cuestionario tiene buenas propiedades psicométricas. Los 9 factores que lo integran contribuyen a explicar la variable dependiente, aunque los que mejor lo hacen son: “anticipación al riesgo”, “práctica de conducción segura” y “control social de riesgos”, todos ellos relacionados con el comportamiento de la persona como conductora. Se visualizan algunas diferencias en los modelos por sexo: en los hombres la predisposición a formar personas conductoras seguras se explica principalmente por el factor “práctica de conducción segura”, mientras que en las mujeres por el factor “anticipación al riesgo”. Las profesoras muestran mayor nivel de seguridad en “alcohol y conducción” y mayores niveles competenciales en “transmisión de sentimientos”. Los resultados obtenidos suponen un notable avance por su contribución en el diseño de acciones formativas relacionadas con la formación de estos profesionales y permiten considerarlos como modelos docentes que inciden en la formación inicial de personas conductoras seguras, favoreciendo así, la reducción de la siniestralidad y avanzando hacia el riesgo cero.

Palabras clave: formación de conductores, profesor de formación vial, cambio de actitudes, educación vial, formación vial.

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Resumo

Existem poucas investigações sobre as atitudes dos professores de formação rodoviária relativamente ao ensino da condução segura. Os dados relativos à sinistralidade mostram a necessidade de investigar o papel deste profissional na capacitação dos condutores, uma vez que, a nível internacional, a educação se destaca como uma ferramenta imprescindível para melhorar a segurança rodoviária. Foi aplicado a uma amostra de 378 formandos um questionário para avaliar a vontade dos professores de ensinarem uma condução segura (EPRECONS). Os resultados mostram que o questionário tem boas propriedades psicométricas. Todos os 9 fatores contribuem para explicar a variável dependente, embora os que melhor o fazem sejam: “antecipação ao risco”, “prática de condução segura” e “controle social de riscos”, todos eles relacionados com o comportamento da pessoa enquanto condutora. Existem algumas diferenças nos modelos por sexo: nos homens, a predisposição para formar condutores seguros é explicada principalmente pelo fator “prática de condução segura”, enquanto nas mulheres, é explicada pelo fator “antecipação ao risco”. As professoras revelam níveis mais elevados de confiança em “álcool e condução” e níveis mais elevados de competência em “transmissão de sentimentos”. Os resultados obtidos representam um avanço notável em termos da sua contribuição para a conceção de ações de formação relacionadas com a formação destes profissionais e permitem considerá-los como modelos de ensino com impacto na formação inicial de condutores seguros, favorecendo, assim, a redução da sinistralidade e avançando para o risco zero.

Palavras-chave: formação de condutores, professor de formação rodoviária, mudança de atitudes, educação rodoviária, formação rodoviária

摘要

关于道路培训教师对安全驾驶教学态度的研究很少。事故数据表明，有必要研究这一专业人员在驾驶员培训中的作用，因为在国际上，教育被认为是提高道路安全的必不可少的工具。我们对378名在培训中的教师样本应用了评估安全驾驶教学倾向（EPRECONS）的问卷。结果表明，该问卷具有良好的心理测量特性。组成问卷的9个因素都有助于解释因变量，但最显著的因素是：“风险预见”、“安全驾驶实践”和“社会风险控制”，这些都与个人的驾驶行为有关。

在性别模型中显示出一些差异：男性对培训安全驾驶员的倾向主要由“安全驾驶实践”因素解释，而女性则主要由“风险预见”因素解释。女教师在“酒精与驾驶”方面显示出更高的安全水平，并且在“情感传递”方面表现出更高的能力。这些结果为与这些专业人员培训相关的行动设计提供了显著的进展，并允许将其视为影响安全驾驶员初始培训的教学模型，从而有助于减少事故率并向零风险迈进。

关键词：驾驶员培训、驾驶员培训老师、态度改变、道路教育、道路培训。

ملخص

هناك القليل من الأبحاث حول مواقف معلمي التأهيل حول المرور على الطرق تجاه تعليم القيادة الآمنة. تظهر البيانات المتعلقة بالحوادث الحاجة إلى دراسة دور هذا المحترف في تدريب السائقين، حيث يبرز التعليم على المستوى الدولي كأداة أساسية لتحسين السلامة على الطرق. تم تطبيق استبيان لتقييم استعداد المعلمين لتدريس القيادة الآمنة (EPRECONS) على عينة مكونة من 378 متقدماً للتدريب. وأظهرت النتائج أن الاستبيان يتمتع بخصائص سيكومترية جيدة. وتساهم العوامل التسعة التي يتكون منها في تفسير المتغير التابع، على الرغم من أن العوامل التي تفعل ذلك بشكل أفضل هي: "توقع المخاطر"، و"ممارسة القيادة الآمنة"، و"التحكم في المخاطر الاجتماعية"، وجميعها تتعلق بسلوك الشخص كسائق. تظهر بعض الاختلافات في النماذج حسب الجنس: عند الرجال، يتم تفسير الاستعداد لتدريب السائقين الآمنين بشكل أساسي من خلال عامل "ممارسة القيادة الآمنة"، بينما يتم تفسيره عند النساء من خلال عامل "توقع المخاطر". تظهر المعلمات مستوى أعلى من الأمان في "الكحول والقيادة" ومستويات أعلى من الكفاءة في "نقل المشاعر". تمثل النتائج التي تم الحصول عليها تقدماً ملحوظاً بسبب مساهمتها في تصميم إجراءات التأهيل المتعلقة بتدريب هؤلاء المهنيين وتسمح لهم باعتبارهم نماذج تعليمية تؤثر على التدريب الأولي للسائقين الآمنين، وبالتالي تفضيل الحد من الحوادث والتقدم نحو انعدام المخاطر.

الكلمات الدالة: تدريب السائقين، معلم تأهيل السائقين، تغيير المواقف، تعليم السائقين، تدريب السائقين

Introduction

Road safety training and accidents

Regulated road safety training is the only educational action received by most individuals when it comes to road safety. In Spain, this is oriented towards obtaining a driving license, basic vehicle handling skills and knowledge of traffic laws and regulations. However, this does not guarantee that driving will be free of accidents.

Young first-time drivers are over-represented in road accidents worldwide (World Health Organization, 2022). Statistics regarding road traffic accidents from 2022 demonstrate that 97,935 accidents resulting in injury took place, with 1,746 deaths (of which 79% were males and 21% were females) and 8,503 serious injuries (DGT, 2023). The World Health Organization (2018) regards road traffic accidents as the eighth leading cause of mortality in all age groups, with human error being the cause of 90% of accidents.

Taking a gender approach, studies indicate a significant difference between driver behaviour as a function of sex (Lewis et al., 2019; Gauld et al., 2020; Safarpour et al., 2020; Azofeifa et al., 2019; Jamt et al., 2019; Aparicio-Izquierdo et al., 2017), with males assuming more risks than females (above all young males). Reports made by the World Health Organization (2022) and the DGT (2023) highlight that sex has a large impact when it comes to road traffic accidents. In 2021, globally, males were involved in 73% of road traffic accidents with mortal victims, whilst, in Spain, 77% of deaths resulting from road traffic accidents in 2022 were males.

Biological differences and psychosocial factors, such as gender role expectations, represent some potential determinants of differences between males and females (Ledesma et al., 2008). A number of psychological factors stand out when it comes to explaining the greater predisposition found in males towards risky driving behaviour, for instance, lower risk perceptions (Ivers et al.,

2009), risky and aggressive driving style (Taubman-Ben-Ari et al., 2016), positively rating speed and driving under the influence of alcohol (Cordellieri et al., 2016), and thrill seeking when driving (Ledesma et al., 2008).

Given this backdrop, regulated training together with mobility education (understood as the educational process directed towards all road users throughout the life course), comprise two strategies for changing risk behaviours. Nonetheless, some experts have demonstrated that this initial training has little impact on reducing the number of road traffic accidents, calling into question its non-systematic design and lack of theoretical basis or accompaniment with well-grounded evaluation (Rodwell et al., 2018), and failure to ensure safety to young drivers (Bates et al., 2019).

Basic training for driving instructors in Spain

This training is regulated by Royal Decree 1295/2003, 2003b, sec. 48) and is overseen by the General Traffic Administration (DGT) or pertinent regional body (the Servei Català de Trànsit (SCT) in Catalonia and Trafikoa in the Basque Country). Admittance into this profession requires:

- Hold a compulsory secondary education qualification or an intermediate level training certificate or equivalent qualification.
- Be the holder of a class B driving licence for at least two years.
- Pass all aptitude tests regulated by Royal Decree No 1295/2003, 2003rd divided into three stages:
 - Stage 1: pass a multiple choice theory examination about norms pertaining to drivers, vehicles, driving, signals and road traffic safety issues and another practical examination that demonstrates their driving ability.
 - Stage 2: online learning course following which a theory exam must be passed on norms and signals, regulation, psychology, pedagogy, first aid, road

traffic safety and automobile mechanics.

- Stage 3: face-to-face teaching course in which candidates complete an in-person course in which they will receive a certificate qualifying them as road safety educators when they achieve a passing grade.

Two training models are available for delivery of the face-to-face stage. One is proposed by the DGT and Trafikoa, and the other is proposed by the SCT. Table 1 presents the content covered by each of the two training models:

Table 1. Content covered by the two basic training models applied for driving instructor training

DGT model	SCT model
Duration: 10 weeks	Duration: 12 weeks
Content:	Content:
- Training of adult drivers and teaching abilities. - Basic life support. - Regulations, road traffic safety and transport. - The human factor and road traffic safety. - Road traffic safety: The vehicle and the road. - Mechanics and efficient driving. - Mock driving lessons.	- Pedagogy - First aid - Norms and traffic signs. - Road traffic safety. - Automobile mechanics. - Regulations. - Psychology. - Road traffic safety course directed towards first time drivers. - Car driving sessions. - Closed circuit driving sessions for cars and two-wheeled vehicles.
Booster sessions or repeating of missed sessions	
Face-to-face tutoring	
Qualification: Professional aptitude certificate for driving instructors	

Whilst the Higher Technician in Training for Safe and Sustainable Mobility has been approved to replace the training processes discussed above, both processes currently coexist and it is anticipated that both processes will remain in place until 2027.

The research presented in the present article lies within the framework of the SCT model. This model is based on safe and efficient driving and its aim is to change risk behaviours when driving into safe behaviours (Jariot & Rodríguez, 2007). The purpose of this model is to equip road safety educators so that they become leaders of road safety education and role models of safe driving. Through this, they will be instilled with attitudes focused towards understanding life as being the most important thing to protect when driving, with this being transversally integrated into all course materials.

Main lines of research

Driving instructors are key agents in the education of drivers, however, research is scarce and scattered (Jawi et al., 2017; Barboza-Palomino et al., 2017; Ledesma et al., 2008). Indeed, it can be deduced that existing research has not examined in great enough depth the attitudes, skills, motivations and values required in order to support the delivery of training based on improving aptitudes and attitudes related with safe driving.

When taking a traditional standpoint towards the skills required by instructors, possession of knowledge on risk factors is considered essential for being able to pass information onto students as a means of improving their behaviour and equipping them with the ability to handle vehicles. Previously conducted research demonstrates that training programs based on skills and knowledge have

had little impact on reducing road traffic accidents (Lonero & Mayhew, 2010; Bates et al., 2019; OMS, 2018; Rodwell et al., 2018). This is likely due to the failure of these programs when it comes to encouraging students to value the importance of risk factors on road traffic safety.

A more recent approach is to examine factors that have an impact on road traffic safety in order to incorporate them within basic training. Such factors include the development of students' basic cognitive functions, higher order cognitive capacities, verbal communication and persuasion, conviction and changing attitudes.

Basic cognitive functions (perception, storage and recovery of information) can help with the evaluation of different road traffic scenarios, raising risk awareness when driving. Nonetheless, work conducted by Martinussen et al. (2014) demonstrated that high levels of perceptual motor skills led to fewer mistakes when driving, despite increasing road traffic violations. According to Üzümcüoğlu et al. (2020), the way in which drivers perceive their level of ability can lead them to behave more dangerously. For this reason, their skill development alone is not a sufficient guarantee of accident-free driving.

Higher order cognitive capacities enable greater self-evaluation and self-reflection regarding road traffic behaviour, whilst also increasing perceptions of risk and their repercussion on road traffic accidents in a realistic way (Mynttinen, 2010; Barley et al., 2022; Watson-Brown et al., 2018). Self-evaluation, when it corresponds to reality, becomes a regulator of behaviour, whilst, when it does not correspond to reality, it can be related with an increase in road traffic accidents, above all in first-time drivers (Bates et al., 2019). Research conducted by Mynttinen (2010) confirmed that a high percentage of new drivers overestimated their abilities, whilst also identifying that engaging in self-reflection activities improved the accuracy of judgements. Driving instructors must encourage self-reflection in order to tackle this

current issue and make their students more aware of its importance (Rodwell et al., 2018). The aforementioned will not be achieved through practical driving sessions alone (Jawi et al., 2017) and, instead, the psychosocial particularities of individuals should be considered in order to be able to target the training program to meet the specific needs of students (Bates et al., 2019).

Verbal communication and persuasion is needed for driving instructors to be able to encourage their students to behave in a safe and responsible way. This is made possible through the training of good habits, aptitudes, beliefs and positive values towards safe driving (Lonero & Mayhew, 2010). Rodwell et al (2018) called for the need for instructors to be informed about ways in which to provide information about the more abstract social and contextual factors that influence driving in order to increase the effectiveness of training.

One of the most notable elements of this process is the mastery of change processes pertaining to personal attitudes (Üzümcüoğlu et al., 2020, López-García, 2016, Arnau-Sabatés et al., 2011, Jariot & Rodríguez, 2007), however, the inclusion of such content is still pending within the basic training of drivers (Passmore & Mortimer, 2011).

In order to change attitudes, emotional skills are important, alongside safe driving behaviour and having the conviction that individuals are capable of changing their behaviour through training and exhibiting favourable attitudes towards safety. Research carried out by Arnau-Sabatés et al. (2012) concluded that risk attitudes correlated negatively with emotional capacity and that the propensity towards taking risks was influenced by the ability to manage stress and by interpersonal behaviours. Öztürk & Özkan (2018) and Martinussen et al. (2014) demonstrated that driving instructors who behaved in a safer way committed fewer mistakes and violations and were less easily distracted.

This professional figure must be a role model of good driving if it is hoped that their

students assume responsibility over road traffic accidents and act accordingly. According to Üzümcüoğlu et al. (2020), the way in which instructors behave is important to the safety of their students, given that they learn to drive by practising alongside them and may consider them as role models.

The present articles has a double aim. Firstly, it aims to uncover potential explanatory predictors of the predisposition of future driving instructors towards training safe drivers and, secondly, it strives to reveal whether differences exists as a function of sex.

Method

Paradigm and design

The present research was framed by the positivist paradigm and employed a quantitative methodology and a quasi-experimental design.

Participants

The sample was composed of 378 driving instructor trainees, of whom 61% were male and 38.4% were female. A total of 7.2% were aged 18-24 years, 59.7% were aged 25-35 years, 22.8% were 36-45 years and 10.3% were older than 45 years. With regards to education level, 20.6% had completed primary education, 27.3% had completed mandatory secondary education, 39.6% had further secondary education and 12.6% had higher education. A total of 15.5% of trainees had suffered some type of accident as a driver in the two years prior to participation in the present study.

The sample represented the entire population of candidates from Catalonia presenting to obtain the professional aptitude certificate for driving instructors in two official assessment rounds. As a result, no sampling technique was applied.

Instrument

The Assessment Questionnaire of Predispositions towards Safe Driving Teaching (from now on, EPRECONS) (Jariot et al., 2021) was administered to evaluate whether trainee driving instructors had the

convictions, values and skills need to train individuals to become safe drivers.

The EPRECONS questionnaire gathers information on the skills required by professional driving instructors to train individuals to become safe drivers. Responses are assessed in accordance with safe driving experiences, assessing the context in order to minimise risk factors, commitment to reduce road traffic accidents and communicating with conviction. The questionnaire can be self-administered, self-marked and self-interpreted. Items consider affective, cognitive and behavioural aspects and are responded to through verbal statements regarding feelings, beliefs and behaviours. Responses are provided along a four-point Likert scale, producing interval scale data.

Procedure

The questionnaire was administered during the first day of the course. A member of the research team (always the same individual) introduced and explained the questionnaire and was on hand to resolve doubts. In total, between 20 and 30 minutes were required to complete the questionnaire.

Participation was voluntary with participants being informed that no identification information would be gathered and that data handling would adhere to data protection policy outlined by the European Union through, art. 4 of European Union Regulation 2016/679 handed down by the European Parliament and Council on the 27th of April 2016. Written informed consent was provided by all participants.

Analysis

Preliminary analysis was conducted to examine questionnaire reliability and identify the extent to which individual item scores correlated with overall scores. A total of 17 items were discarded as reliability coefficients higher than 0.30 were not obtained and the analysis was repeated.

Discriminant validity was examined in order to ensure that factors were not too highly inter-correlated. This was performed by

checking that, when a 95% confidence interval was used, pairwise correlations between factors did not contain the value one.

In order to examine the structural validity of the theoretical model, explanatory factor analysis was performed according to principal component analysis and using varimax rotation. This orthogonal rotation method was selected in order to address the need to maximise weightings at the individual factor level (Méndez & Rondón, 2012), assuming that each item would load saliently on only one factor with the aim of minimising as much as possible the number of items comprised by each factor.

Following this preliminary analysis, 12 factors were obtained which explained 58.55% of total variance. This model was then reduced down to a nine-factor model.

T-test analysis was performed to examine sex differences and linear regression (stepwise entry) was performed to uncover the factors that were best able to explain predispositions towards training in low risk drivers, without any potential outcome being a linear combination of another. The consistency of variance was examined through independence testing using the Durbin-Watson statistic (based on which the independence of residuals was assumed $D-W=2.124$), whilst homoscedasticity was examined based on graphical representations of the linear regression models produced. A dispersion plot demonstrated that data did not present signs of heteroscedasticity. No factors were discarded as all partial regression coefficients significantly differed from zero to an alpha level of 5%.

Data were analysed using the statistical software package Stata.

Results

General reliability

A high alpha coefficient was produced ($\alpha=0.917$), indicating excellent internal consistency and suggesting that all items measured the construct in a coherent way. An average inter-item correlation coefficient of

0.4 was produced, indicating that all items made a relatively homogenous contribution to the overall model (ranging between 0.908 and 0.911).

Reliability of factors

With regards to the practising safe driving factor, an alpha coefficient of 0.827 was produced, which is considered to be excellent. Correlations produced between individual item scores and overall scores were higher than 0.4 in all cases.

With regards to factors describing risk anticipation, motivation towards teaching safety and controlling risk caused by passengers, high alpha coefficients (0.792, 0.776 and 0.716, respectively) were produced. Correlations between individual item scores and overall scores were higher than 0.409 in all cases.

Factors describing alcohol and driving, the transmission of feelings and conviction produced acceptable alpha coefficients (0.625, 0.646 and 0.613, respectively). Correlations between individual item scores for the first two factors were greater than 0.3, whilst, for the third factor, items 4 and 5 produced correlations that were lower than 0.3 (0.253 and 0.263, respectively).

The alpha coefficient produced for the commitment to zero risk factor (0.588) indicated a low level of reliability. Correlation for three of its four items were higher than 0.318, however, item 34 produced a lower coefficient ($r=0.274$). Further, poor reliability was revealed for the teach to moderate speed factor, with an overall alpha coefficient below 0.5 ($\alpha=0.441$) being produced and with correlations lower than 0.3 being produced for two of the three items comprised by this factor.

Discriminant validity

None of the outcomes from pairwise correlations comprised the value one. The strongest correlation was produced between factors three and eight ($r=0.508$), whilst the weakest correlation emerged between factors five and nine ($r=0.124$). Given that the degree of association was not perfect, it could be

concluded that all of the measures employed exhibited discriminant validity.

Exploratory factor analysis

The Kaiser-Meyer-Olkin test of sampling adequacy produced an outcome of 0.867, whilst the Bartlett test of sphericity ($\chi^2 = 5559.318$; $p = 0.000$) indicated that null hypothesis that variables were orthogonal could not be accepted.

A nine-factor model was produced that explained 47.5% of variance in the overall model. The factor structure produced revealed that a single dominant component explained 19.64% of variance. All remaining factors explained between 5.1% and 2.51% of variance (see table 2):

- Factor 1. Practising safe driving, formed by ten items with positive correlations ranging between 0.710 and 0.336.
- Factor 2. Risk anticipation, comprising seven items with positive correlations ranging between 0.639 and 0.523.
- Factor 3. Motivation for teaching safe driving, made up of eight items with positive correlations ranging between 0.731 and 0.375.
- Factor 4. Controlling social risk, composed of five items with positive correlations ranging between 0.603 and 0.456.
- Factor 5. Alcohol and driving, shaped by three items with positive correlations ranging between 0.746 and 0.557.
- Factor 6. Commitment to risk-free driving, which includes five items whose positive correlations ranged between 0.676 and 0.335.
- Factor 7. Conveyance of feelings, formed by three items with positive correlations ranging between 0.777 and 0.511.
- Factor 8. Conviction, comprising seven items with positive correlations ranging between 0.502 and 0.323.
- Factor 9. Teaching to moderate speed, composed of three items with positive correlations ranging between 0.588 and 0.529.

Table 2. Rotated component matrix

Item	Component								
	1	2	3	4	5	6	7	8	9
12	.710	.091	.021	.076	.123	.063	.039	.108	.047
13	.698	.140	.100	-.060	.219	-.011	.096	.174	.014
35	.615	.282	.083	.311	.036	.128	.006	-.064	.079
14	.564	-.010	.210	.049	.089	.060	.238	.175	.008
23	.550	.037	.044	.116	.259	.063	.091	.146	-.031
29	.548	-.035	.208	.121	.291	.183	-.112	-.143	.023
8	.545	.155	.040	.111	-.211	.026	.192	.037	.170
24	.473	.359	-.040	-.083	.123	.116	-.026	.241	.177
30	.459	.131	.208	.235	.176	.250	-.057	-.197	.048
62	.288	.639	-.064	.134	.017	.030	.161	.120	.235
51	.080	.638	.246	.209	.179	.117	.089	-.100	-.004
61	.113	.611	.015	.063	.025	.127	.114	.279	.165
52	.045	.562	.206	.140	.068	-.191	-.029	.001	.050
47	-.009	.556	.030	.383	-.018	.102	.057	.211	.037
50	.064	.530	.312	.186	.144	.230	.078	-.181	.017
16	.213	.523	.084	.152	.054	.021	.181	.060	-.057
49	.021	.231	.731	.124	.024	.153	-.075	-.140	.075
48	-.030	.089	.721	.136	-.009	.006	-.099	.076	.132
63	.169	.045	.560	.115	.001	.149	.134	.266	-.077
55	.083	.088	.536	-.030	.018	.029	.280	.133	-.006
58	.209	.101	.470	-.029	.044	.053	-.038	.247	.124
64	.202	.141	.452	.281	-.081	.042	.161	.239	.011
36	.214	-.051	.416	.154	.027	.130	.113	-.024	.405

Item	Component									
	1	2	3	4	5	6	7	8	9	
32	-.020	-.125	.375	.218	.246	.284	.198	.161	.345	
42	.097	.083	.141	.603	.074	.042	.033	.143	.053	
41	.020	.217	.029	.601	.121	.003	.034	.085	.092	
43	.126	.078	.103	.599	.110	.093	.026	.070	-.054	
39	.093	.314	.047	.498	.163	.184	.206	.065	.027	
40	.105	.299	.084	.456	.113	.121	.235	.147	.095	
34	.128	.160	.165	.427	-.220	.346	.060	-.034	.100	
19	.143	-.019	-.015	.096	.746	.018	.050	.062	.027	
17	.198	.137	.004	.172	.602	-.067	.076	.082	-.006	
18	.134	.130	.030	-.014	.557	.078	.083	.050	-.005	
57	.336	.263	.028	.221	.456	.209	-.075	.135	.078	
38	.059	.113	.113	.060	-.052	.676	.104	.040	.124	
21	.263	-.078	.065	.113	.204	.576	.121	-.071	.079	
60	.121	.097	.010	.184	-.005	.508	.051	.316	-.074	
33	.088	.041	.173	.270	.057	.335	.152	.035	.135	
11	.081	.193	.111	.035	.041	.135	.777	.042	.049	
10	.098	.226	-.004	.129	-.050	.111	.710	-.009	.008	
3	.102	-.031	.111	.129	.271	.063	.511	-.039	.118	
9	.001	.041	.156	.117	.198	.125	-.036	.502	.043	
1	.202	.022	.156	.203	.041	.071	-.013	.483	.127	
5	.130	.025	-.049	.263	.082	-.148	.329	.403	.195	
59	.023	.253	.330	-.117	.208	.310	-.026	.402	-.194	
66	.115	.102	.345	.102	-.019	-.043	.088	.373	.072	
56	.074	.258	.101	.021	.237	.342	-.104	.358	.226	
4	.161	.157	.236	.252	-.102	-.070	.048	.323	-.189	
26	.113	.303	.175	.028	-.011	.012	.016	.101	.588	
25	.061	.235	-.052	.014	-.087	.249	.083	.115	.558	
28	.077	-.136	.427	.169	.232	-.053	.107	-.026	.529	
VARIANCE		%	%	%	%	%	%	%	%	
% TOTAL 47.48	% FACTORS	19.64	5.06	4.78	3.48	3.29	3.09	2.89	2.75	2.50

Factors explaining predispositions towards training safe drivers

The practising safe driving factor ($r=0.795$, $p=0.000$) was the most strongly correlated factor with the dependent variable, namely, predisposition towards training safe drivers, with the next most highly correlated factors being risk anticipation ($r=0.752$, $p=0.000$) and controlling social risk ($r=0.724$, $p=0.000$), with all three correlations being very strong. These were followed by the factors of conviction ($r=0.667$, $p=0.000$), commitment to risk-free driving ($r=0.652$, $p=0.000$) and motivation towards teaching safe driving, with these three

factors being correlated with the dependent variable ($r=0.645$, $p=0.000$). Factors describing the conveyance of feelings ($r=0.530$, $p=0.000$) and teaching to moderate speed ($r=0.529$, $p=0.000$) were also highly correlated with the dependent variable. Finally, the alcohol and driving factor ($r=0.489$, $p=0.000$) was moderately correlated with the dependent variable (Table 3).

Weaker pairwise correlations were produced between predictors than between the dependent variable and the nine factors, with this suggesting that multicollinearity was not present in the model.

Table 3. Correlation matrix

VARIABLE	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
DV Predisposition	.795**	.752**	.645**	.724**	.489**	.652**	.530**	.667**	.529**
Factor 1	1.00	.472**	.419**	.427**	.419**	.429**	.306**	.451**	.328**
Factor 2		1.00	.390**	.536**	.251**	.387**	.347**	.447**	.373**
Factor 3			1.00	.409**	.190**	.437**	.309**	.508**	.417**
Factor 4				1.00	.295**	.422**	.336**	.438**	.300**
Factor 5					1.00	.199**	.188**	.269**	.124**
Factor 6						1.00	.299**	.402**	.298**
Factor 7							1.00	.285**	.249**
Factor 8								1.00	.334**
Factor 9									1.00

Note: (**) Significant correlation (sig. 0.000).

The final model was produced following nine steps. In all cases, significance testing of the t statistic indicated that the explanatory value of each individual variable was not redundant, with all outcomes being <0.05 (table 4).

Outcomes presented in Table 4 reveal that all factors are predictors, given that significance statistics were below 0.05 in all cases. With regards to regression weights, the most explanatory variable was practising safe driving ($\beta=0.313$), followed by risk anticipation ($\beta=0.232$), controlling social risk ($\beta=0.194$), commitment to risk-free driving ($\beta=0.159$), conveyance of feelings ($\beta=0.125$), alcohol and driving ($\beta=0.123$), conviction ($\beta=0.113$), motivation towards teaching safe driving ($\beta=0.112$) and teaching to moderate speed ($\beta=0.104$).

Contribution of the nine factors to the model can be summarised as follows:

- Inclusion of the risk anticipation factor within the model raised R^2 to 0.815, which corresponded to an 18.3% change, whilst the critical value supported the conclusion that this factor significantly contributed towards explaining predispositions towards training individuals to be safe drivers.
- Introduction of the controlling social risk factor led to a 7.3% change in the model,

with this being the third strongest model predictor ($R^2=0.888$, sig.=0.000).

- Addition of the motivation towards teaching safe driving increased R^2 to 0.927, with this corresponding to a 3.9% change.
- Inclusion of the commitment to risk-free driving factor to the model, led to an increase in R^2 to 0.951, with this corresponding to a 2.4% change.
- Removal of the conveyance of feelings factor from the model raised R^2 to 0.966, with this pertaining to a 1.6% change.
- Introduction of the seventh factor, alcohol and driving, caused R^2 to change to 0.980, with this corresponding to a 1.3% change.
- Addition of the teaching to moderate speed factor to the model raised R^2 to 0.989, with this corresponding to a 0.9% change.
- Inclusion of the final factor, conviction, in the model, raised R^2 by 0.8% ($R^2=0.997$).

All factors significantly contributed towards explaining the behaviour of the dependent variable. Indeed, the nine factors selected for inclusion in the final model managed to explain 99.7% ($R^2 = 0.997$) of variability observed in the capacity to train individuals to be safe drivers.

Table 4. Multiple linear regression coefficients produced by the model generated to explain the capacity to train safe drivers and EPRECONS questionnaire subscales

Model	R ²	Standard error of the estimate	R ² change	Sig. of the change in F	β	t	Sig
Practising safe driving	.632	6.81142	.632	.000	.313	78.182	.000
Risk anticipation	.815	4.83585	.183	.000	.232	58.065	.000
Controlling social risk	.888	3.76288	.073	.000	.194	49.339	.000
Motivation for teaching safe driving	.927	3.03963	.039	.000	.112	28.622	.000
Commitment to risk-free driving	.951	2.49798	.024	.000	.159	42.815	.000
Conveyance of feelings	.967	2.05860	.016	.000	.125	36.911	.000
Alcohol-driving	.980	1.61577	.013	.000	.123	36.088	.000
Teaching to moderate speed	.989	1.20133	.009	.000	.104	29.651	.000
Conviction	.997	.66435	.008	.000	.113	28.959	.000

Factors explaining predispositions towards training individuals to be safe drivers as a function of sex

Outcomes presented in Table 5 indicate that all factors emerged as predictors ($p < 0.05$) in the models developed for both males and females. Slight differences did emerge with regards to the factors associated with predispositions towards teaching safe driving as a function of sex.

In the model developed for males (table 4), the factor with most explanatory power according to its regression weight was practising safe driving ($\beta = 0.316$), followed by risk anticipation ($\beta = 0.224$), controlling social risk ($\beta = 0.184$), commitment to risk-free driving ($\beta = 0.149$), conveyance of feelings ($\beta = 0.127$), alcohol and driving ($\beta = 0.125$), motivation towards teaching safe driving ($\beta = 0.114$), conviction ($\beta = 0.107$) and teaching to moderate speed ($\beta = 0.101$).

In the model developed for males, the most explanatory factor was practising safe driving ($\beta = 0.309$), followed by risk anticipation ($\beta = 0.248$), controlling social risk ($\beta = 0.215$), commitment to risk-free driving ($\beta = 0.178$), conviction ($\beta = 0.128$), conveyance of feelings ($\beta = 0.112$), motivation towards teaching safe driving ($\beta = 0.110$), teaching to moderate speed ($\beta = 0.109$), and alcohol and driving ($\beta = 0.106$).

In males, predispositions are mainly explained by the practising safe driving factor, with R^2 outcomes suggesting that this factor represents 66.6% of explained variance in the dependent variable. Incorporation of the

controlling social risk factor led to a 16.8% increase in R^2 , followed by the risk anticipation factor, which was the third strongest predictor in males (6.3% increase in explained variance). The motivation towards teaching safe driving factor increased R^2 by 4%, with the next most explanatory factors being conveyance of feelings (raised R^2 by 1.7%), commitment to risk-free driving (1.4%), alcohol and driving (1.3%), teaching to moderate speed (0.8%) and, finally, conviction, with raised R^2 by 0.7%. Standardised beta coefficients (β) demonstrate that all factors have predictive power (Table 4).

In females (Table 5), the dependent variable is mainly explained by the risk anticipation factor, with the associated R^2 represented that this factor explained 66.2% of variance observed in the dependent variable. The practising safe driving factor is the second most predictive factor in the model developed for females, increasing R^2 by 16.8%. The third most predictive factor, commitment to risk-free driving, increased the R^2 value by 7.4%, with the next most predictive factor being controlling social risk, which increased R^2 by 3.6%. The conviction factor led to a 1.7% increase in R^2 , whilst factors describing conveyance of feelings, teaching to moderate speed, alcohol and driving, and motivation towards teaching safe driving produced 1.2%, 1%, 0.9% and 0.8% increases in R^2 , respectively. Standardised beta coefficients (β) demonstrate that all factors had predictive power.

Table 5. Multiple linear regression coefficients produced by the model generated to explain the capacity to train safe drivers and EPRECONS questionnaire subscales as a function of sex

Sex	Model	R ²	Standard error of the estimate	R ² change	Sig. of change in F	β	t	Sig
Males	Practising safe driving	.666	6.81193	.666	.000	.316	58.336	.000
	Controlling social risk	.843	4.80925	.168	.000	.184	34.883	.000
	Risk anticipation	.897	3.79248	.063	.000	.224	44.486	.000
	Motivation towards teaching safe driving	.937	2.97882	.040	.000	.114	21.410	.000
	Conveyance of feelings	.954	2.54484	.017	.000	.127	28.499	.000
	Commitment to risk-free driving	.969	2.10956	.014	.000	.149	31.236	.000
	Alcohol-driving	.982	1.61491	.013	.000	.125	27.120	.000
	Teaching to moderate speed	.990	1.19882	.008	.000	.101	21.277	.000
	Conviction	.997	.70468	.007	.000	.107	20.623	.000
Females	Risk anticipation	.662	5.98535	.662	.000	.248	35.884	.000
	Practising safe driving	.830	4.25851	.168	.000	.309	52.476	.000
	Commitment to risk-free driving	.904	3.21383	.074	.000	.178	2.459	.000
	Controlling social risk	.940	2.16945	.036	.000	.215	35.562	.000
	Conviction	.957	1.19284	.017	.000	.128	20.505	.000
	Conveyance of feelings	.969	1.84362	.012	.000	.112	20.760	.000
	Teaching to moderate speed	.979	1.51887	.010	.000	.109	20.783	.000
	Alcohol-driving	.989	1.12950	.009	.000	.106	20.787	.000
	Motivation towards teaching safe driving	.997	.58928	.008	.000	.110	19.096	.000

The influence of sex

Generally speaking, no significant differences emerged between males and females with regards to predispositions for teaching individuals to drive. Analysis of individual factors reveals significant sex differences pertaining to two factors. Firstly, females exhibited higher levels of safety regarding alcohol and driving (females = 11.2 vs males = 10.6; $t(376) = -4.319$; $p = 0.000$). Secondly, females exhibited a greater capacity than males towards the conveyance of feelings (females = 10.04 vs males = 9.60; $t(376) = 3.411$; $p = 0.001$).

Conclusions and discussion

The present research reveals the existence of nine explanatory predictors underlying predispositions towards training individuals to be safe drivers. Namely, these factors are practising safe driving, risk anticipation, controlling social risk, motivation towards teaching safe driving, commitment to risk-free driving, communication, not drinking alcohol and driving, teaching to moderate speed, and believing that training can reduce accidents.

Practising safe driving implies leading by example. This factor had the most predictive power in the model. Leading as an example of safe driving may be related with favourable predispositions towards training individuals to be safe drivers, showing greater conviction in the teaching-learning process and demonstrating attitudes that are more in tune with road safety. All of these traits can be transmitted from instructors to their students. Studies conducted by Öztürk & Özkan (2018), Martinussen et al. (2014) and Üzümcüoğlu et al. (2020) agree on the importance to these professionals of competencies related to safe driving in order for them to act as driving role models for their students.

Risk anticipation, which involves engaging in safe driving in different road traffic situations, and evaluating both the context and the security of all types of vehicles, constitutes the second most predictive factor in the model. Thus, instructors who equip their students with the capacity of self-reflection will help them to foresee and prevent risky situations. According to Rodwell et al. (2018), this aspect is essential for training.

Currently available literature concludes that safe driving includes a realistic awareness of one's own driving abilities in terms of strengths and weaknesses and self-evaluation of assumed risks and their consequences. Basing training activities only on lower levels of the GDE matrix (goals for driver education schematic in Spain) reduces this professional figure to a simple teacher of vehicle handling skills, instilling drivers with excessive confidence in their own abilities, consequently, increasing risk (Mynttinen, 2010; Bates et al., 2019). Present findings coincide with European trends towards urging the need to equip these professionals with skills capable of promoting self-reflection in their students. Self-reflection promotes the transfer of learning around safe driving and guarantees its later application when students become drivers by improving their behaviour (Watson-Brown et al., 2018).

Controlling vehicle-associated social risk as drivers and passengers, whilst also being convinced that it is possible to teach to control this risk factor, constitutes the third predictor explaining variability in the dependent variable. Some studies have shown that peers have an impact on behaviour, above all in the case of young men, and can be used as a means of generating behavioural change in individuals (Ulleberg, 2004). Present findings confirm that, in males, this is the second most predictive factor, whilst in females it is only the fourth main factor. This highlights the social impact implied in driving and the need to drive in a safe way. The transmission, through education, of values supporting road safety from the family nucleus at all stages of the life cycle is an important tool for promoting change.

Motivation for teaching safe driving, attending to context, norms and signals, and traffic situations, whilst also including training on emotions and student values, also turned out to be a good predictor. One of the implications in the training of driving instructors is the knowledge and mastery of motivational and axiological elements related to the awareness of personal factors, tendencies, driving in different traffic situations and the vehicle.

(Lonero & Mayhew, 2010). Equipping student drivers with level 3 and 4 skills on the GDE matrix requires high levels of driving instructor motivation (Bartl et al., 2010), the belief that they can affect change in individuals through training (Bartl et al., 2010), and mastery and use of motivational pedagogical methods. This is related with improved and attitudes (Jariot & Montané, 2009; Bartl et al., 2010; Lonero & Mayhew, 2010; Arnau et al., 2011).

Another of the predictors to stand out from the present analysis pertains to proposing the goal of achieving that students assume zero risk when they drive. This factor is strongly related with instructors' attitudes towards road traffic safety. In this sense, positive attitudes are essential for raising student awareness about the importance of calm and risk-free driving. In line with this, research conducted by Bart et al. (2010) revealed a relationship between instructor values and an improvement in unsafe behaviour, whilst García Aretio (2019) urged the importance of raising awareness about the serious consequences of road traffic accidents and the responsibility of drivers over them.

Conveying feelings that are favourable to road traffic safety require instructors to have communication skills in order to be able to improve or change attitudes (Ledesma et al., 2008; Lonero & Mayhew, 2010; Bartl et al., 2010). The communicative capacity of driving instructors is crucial for explaining the effects of risk factors on driving and providing students with good feedback, which will help them to reflect on the context and possible alternatives. Research conducted by Cantwell et al. (2013) reveals that teaching engagement in safe driving, through the use of comments whilst driving, leads to improvements in risk perceptions, risk awareness and behaviour. Rodwell et al. (2018) consider dialogue to be paramount between driving instructors and students in order to lend meaning to the concepts being taught.

Not drinking and driving, as a habit followed by driving instructors, appears to be

another relevant predictor. It has been widely demonstrated that this risk factor is related with the number of road traffic accidents (DGT, 2023; Fernandes et al., 2010; Clares-Mena et al., 2020). Instructors who behave in a safe way with regards to this risk factor will be more predisposed towards teaching safe driving, assuming zero risk when it comes to alcohol and acting as role models as drivers themselves.

Teaching to moderate speed emerged as another predictor of driving instructor predispositions towards teaching safe driving. Speed is the risk factor with the biggest impact on road traffic accidents (DGT, 2023). Being aware of the importance of teaching to drive with self-control, moderating speed, demonstrates a commitment towards reducing the number of road traffic accidents (Fernandes et al., 2010).

Having the conviction that training can reduce road traffic accidents and that individuals are prepared to act accordingly represents the final predictor of motivation towards teaching safe driving. Driving instructors with a conviction towards safe driving behaviour will feel that their beliefs are backed up and firmly supported. According to Skitka et al. (2021), a greater conviction is associated with a greater commitment to training drivers to be safe.

Analysis of the nine factors presented here produced an outline of a profile of driving instructors who act as agents of change throughout the training process involving student drivers. In this sense, Üzümcüoğlu et al., (2020), López-García (2016) and Arnau-Sabatés et al. (2011) consider it essential to equip these professionals with a degree of mastery regarding the change process pertaining to driving attitudes.

With regards to the second objective, present findings highlight that, in the case of both males and females, the instructor as a role model of safe driving emerged as the strongest predictor of predispositions towards training grounded in the premises of zero risk. This being said, a few nuances did emerge.

Specifically, in males, the three most powerful predictors were related with the behaviour of instructors themselves as drivers (practising safe driving, controlling vehicle-related social risk and anticipating risk). In contrast, in females, the three most powerful predictors pertained to values (anticipating risk, practising safe driving and commitment to risk-free driving). No previously conducted research exists regarding driver instructor attitudes from a gender perspective. Nonetheless, present findings reveal some differences as a function of gender with males scoring more highly on behavioural factors, whilst females deem value to be of greater importance.

Significant sex differences only emerged in relation to two factors. Firstly, females reported higher levels of safety in relation to alcohol and driving. This concurs with the findings of previously conducted research (Elipe Miravet et al., 2021; Wilsnack et al., 2018), with males more often driving under the influence of alcohol. These differences may be due to the prevalence of consumption in males and females, as highlighted by studies conducted by the Spanish Observatory for Drugs and Addiction (2021) and Elipe Miravet et al (2021). Specifically, these studies revealed differences in the daily alcohol consumption of males and females, with the former reporting higher consumption. For this reason, it is deemed essential to take a gender perspective when teaching about the effects of alcohol on driving.

Secondly, with regards to conveying feelings, females reported stronger predispositions than males. This finding coincides with a previous finding that females tend to be more emotionally expressive than males (Saucedo et al., 2019). Nonetheless, it has been suggested that this is not so much of a sex issue as it is a gender issue (Sunerviola, 2020), with differences being more cultural than biological. Assuming that this difference is, indeed, more linked to gender roles and stereotypes, it is important to promote situations that make it possible to develop

these emotional skills in both males and females throughout the life cycle.

In conclusion, the present article provides evidence about the attitudes that should be held by driving instructors in relation to training driving students to be safe drivers. Nonetheless, one of the limitations of the present work is that the questionnaire administered in the present study only assesses predisposition. For this reason, it is necessary to examine whether instructors reporting high scores on the questionnaire are also likely to train safer drivers. It would be useful to compare present findings with data from a sample of experienced professionals in order to verify the predictors examined here. Another of the limitations of the present study pertains to the sample. As the present sample was comprised of individuals selected from one of the two training models (SCT), findings cannot be generalised to the whole professional group. It would be interesting to compare present outcomes with data from a sample of driving instructors receiving training in line with the other training model (DGT). Finally, it will be necessary to examine the influence of the course variable on the attitudes of trainee instructors.

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