TECHNISCHE
UNIVERSITÄT
DRESDEN

Faculty of Traffic Science, Traffic and Transportation Psychology

Acceptance towards traffic rules and compliance

Lars Rößger

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Introduction

➢ Acceptance of and compliance with traffic rules play a crucial role for traffic safety

  o Evans (1991): Noncompliance with traffic code is one of major causes for accidents
  o ETSC (1999): 50% of accidents could be prevented if road users would comply with traffic code
  o ESCAPE (2002): 48-76 % reduction in fatalities if existing traffic law could be enforced

➢ However: traffic violations – one of most frequent law violations committed by people

Why do road users violate traffic regulations? / Why obey road users the traffic regulations?

Background

Necessary distinction:

➢ **Acceptance towards the formal (codified) regulation** as a positive attitude, expresses the indivdual's approval towards the regulation as it is formulated in the traffic law

➢ **Acceptance towards traffic rule**; in terms of behaving in accordance to the regulation / compliance

➢ Acceptance towards a regulation need not to be sufficient for the compliance.

➢ Is a formal regulation accepted, however, at least the intention to comply should exist.
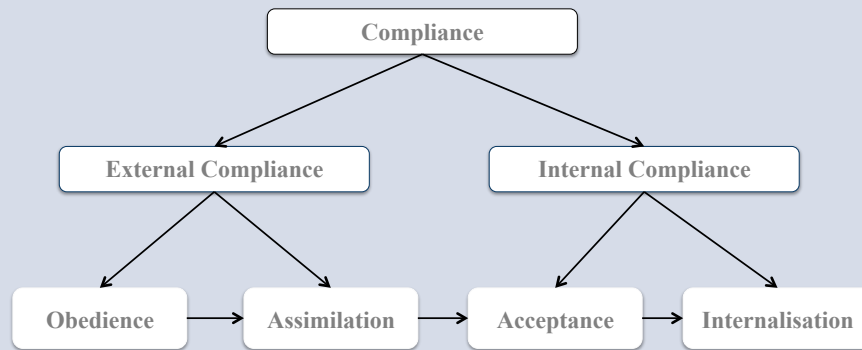
Background

Recent approaches:

➢ DBQ Research (a.o. Reason, 1994; Parker et al., 1995; Özkan et al., 2006)

➢ TRA/TPB* (applied to traffic violations a.o. Parker et al., 1992; Manstead & Parker, 1995; Åberg, 2001; Elliot et al., 2005)

➢ WINKOVER Study (Stern et al., 2006; Rößger, 2008): considered the role of surveillance within a TPB approach
  Results:
  o For different types of violations (speeding vs. drive while intoxcated) different explanatory variables provide predictive power
  o Marginal influence of perceived sanction likelihood on stated traffic violations
  o But: Significant impact of surveillance on stated violations for young road users

* Fishbein & Ajzen, 1975, Ajzen, 1984

Background

Sources of Rule Compliance; (according to Fischer & Wiswede, 1997)

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                        ┌──────────────┐
                        │  Compliance  │
                        └──────────────┘
                          ╱          ╲
          ┌────────────────────┐   ┌────────────────────┐
          │ External Compliance│   │ Internal Compliance│
          └────────────────────┘   └────────────────────┘
             ╱          ╲              ╱           ╲
    ┌──────────┐  ┌────────────┐  ┌────────────┐  ┌────────────────┐
    │ Obedience│→ │ Assimilation│→│ Acceptance │→ │ Internalisation│
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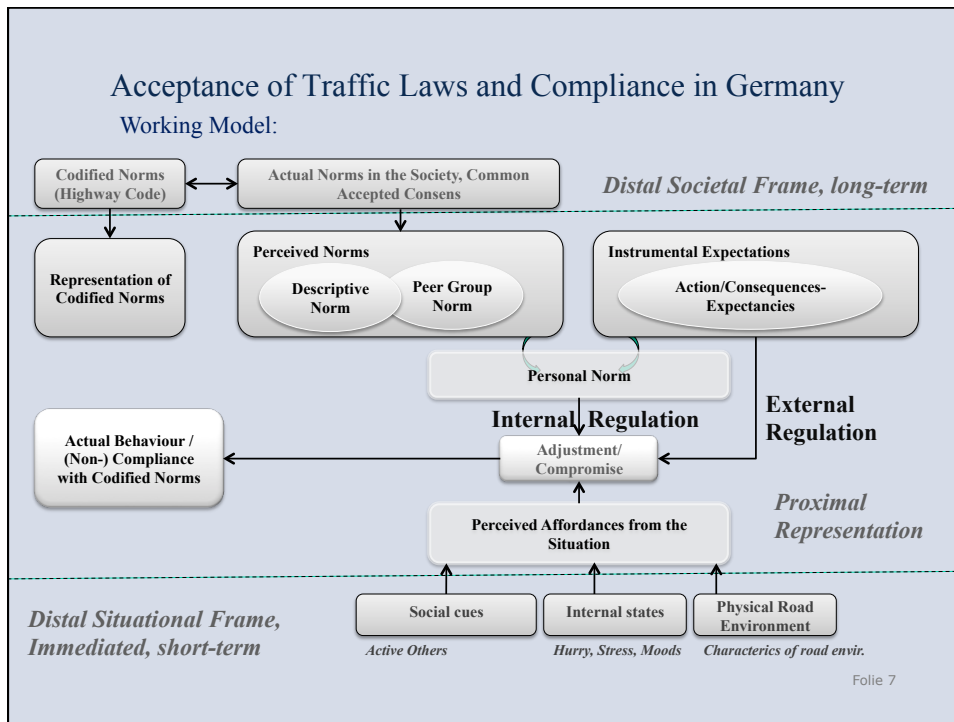
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Acceptance of Traffic Laws and Compliance in Germany

Study on Acceptance of and compliance with existing Traffic Regulations
(Rößger, Schade, Schlag & Gehlert, 2011)

➢ Acceptance towards the codified regulation in the traffic law
   o Stated approval toward the relevant norm as it is codified vs stated preferences in terms of stricter or less strict regulations

➢ (Stated) Compliance with the regulations and its determinants

➢ Focus on:
   o Speed violations in inner-urban areas (above 10-15 km/h)
   o Red-light running
   o Driving while intoxicated (blood alcohol concentration; $0.5\ ‰ \leq BAC < 1.1\ ‰$

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Working Model:

Codified Norms (Highway Code)	Actual Norms in the Society, Common Accepted Consens		*Distal Societal Frame, long-term*

Perceived Norms
- Descriptive Norm
- Peer Group Norm

Instrumental Expectations
- Action/Consequences-Expectancies

Representation of Codified Norms

Personal Norm

Internal Regulation   **External Regulation**

Actual Behaviour / (Non-) Compliance with Codified Norms

Adjustment/ Compromise

Proximal Representation

Perceived Affordances from the Situation

Distal Situational Frame, Immediated, short-term

Social cues	Internal states	Physical Road Environment
Active Others	*Hurry, Stress, Moods*	*Characterics of road envir.*

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Acceptance of Traffic Laws and Compliance in Germany

Method:

➢ Standardised, scenario-based telephone interviews for three violation types:

> *Imagine the following situation: You have been on a party in the suburbs and want to go home. You have drunk some alcohol during the party. You suspect to have a blood alcohol above the legal limit. You could drive at home OR call a taxi and pick up your car the other day.*

➢ Compliance:
How likely is it that you would sit down behind the wheel in this situation?
How often did you drive in a similar situation like this during the last 12 months?

➢ Acceptance of the formal regulation:
What legal limits for alcohol would you approve?
[no alcohol at all – less alcohol than allowed by law – I approve the existing regulation– bit more alcohol than allowed by law – no restriction needed]

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Method: Variables obtained in the telephone interview

Perceived Norms and normative Beliefs	Descriptive Norm	*Perception of the behaviour of others; statistic norm, compliance rate in a society*
	Peer Group Norm (Subjective Norm sensu Ajzen)	*Perception of important others` expectation (friends, relatives) on my behaviour*
	Personal Norm	*Personal (moral) beliefs about what ought to be done / about what is morally defensible.*
Instrumental expectations	Risk perception (- tolerance)	*What (degree of) violation will imply a serious safety risk for me or/and others?*
	Perceived Sanction Likelihood	*How likely does a violation lead to formal sanctions?*
Situational Affordances & Perceived Control	Perceived inhibiting and facilitating factors	*What factors make a violation more likely or less likely?*
	Perceived behavioural control	*Perceived ease/difficulty to behave in a certain way*

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Method:

➢ Sample N = 1.009; 50.5 % female, 49.5 % male

➢ Age: MW = 49.4 years (SD = 17.73); range from 16 to 83 years

Age group	
16-25 years	11.5 %
26-45 years	31.8 %
46-65 years	33.0 %
> 65 years	23.7 %

➢ Driving licences for MW = 28.5 years (SD = 15.82); range from <1 to 67 years

➢ Use of motorised vehicle; MW = 5.4 days per week

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Results:

➢ Acceptance of formal regulation
  - o wide acceptance to formal regulations as codified in the Highway Code:

  85 % stated their approval to the 50 km/h limit in inner-urban areas

  70 % stated their approval to the regulation stop when approaching a traffic light that
         is yellow

  56 % would prefer a <u>stricter</u> limit concerning alcohol and driving

➢ Acceptance of formal regulation and Compliance:
  - o Approval to the norm is not a sufficient predictor for the compliance

  20% stated a increased likelihood to violate the speed limit in spite of a positive
       statement to the regulation

  30% stated a increased likelihood to drive through the signaled intersection in spite of
       a positive statement to the regulation

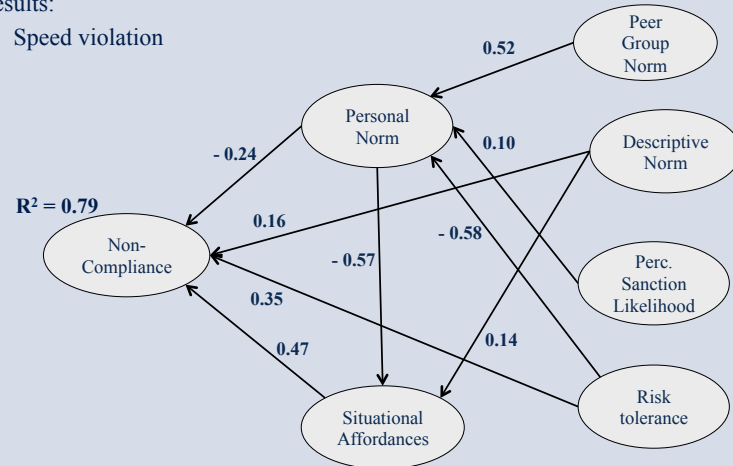## Acceptance of Traffic Laws and Compliance in Germany

Results:

➢ High explanatory value of the variables for the prediction of the stated
  likelihood of non-compliance in linear regression models:

  - o $R^2_{adjusted} = 0.45$ / $R^2_{adjusted} = 0.43$ / $R^2_{adjusted} = 0.41$

  - o the acceptance towards the formal regulation had no significant weight for the
       prediction in the context of other variables

  Testing of direct and indirect effects with structural equation models;
  Example: Speed violation model

Acceptance of Traffic Laws and Compliance in Germany

Results:

➢ Speed violation

Chi-Square = 545.716, df = 125, p ≤ 0.01, GFI = 0.941, AGFI = 0.920, RMSEA = 0.058

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Results:

➢ Summary of total effects on non-compliance with the speed limit:

Factor	
Risk Tolerance	.652
Personal Norm	-.575
Situational Affordances	.471
Descriptive Norm	.223
Perc. Sanction Likelihood	-.047

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Acceptance of Traffic Laws and Compliance in Germany

Caveats:

➢ Study deals with self-reported behaviour and attitudes; socially desirable responding?

        Can we trust self-reported driving behaviour?

Lajunen & Summala (2003): Bias caused by socially desirable responding is relatively small for reports on driving behaviour

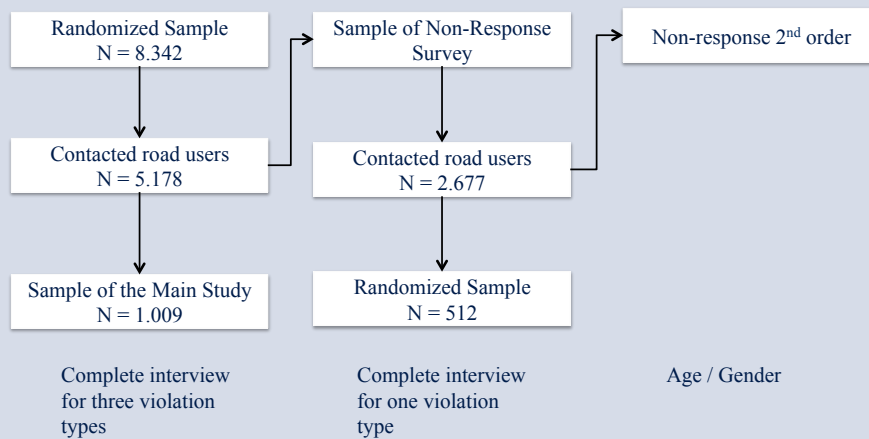➢ Sample bias non-responders / Low response rate in the study: 20 %

  Do individuals who were not willing to participate in the study systematically differ from individuals who were willing to participate?

Non-Response Survey
(Rößger, Schade, Schlag & Gehlert, 2010)

Overview:

Randomized Sample N = 8.342	Sample of Non-Response Survey	Non-response 2nd order
Contacted road users N = 5.178	Contacted road users N = 2.677	
Sample of the Main Study N = 1.009	Randomized Sample N = 512	
Complete interview for three violation types	Complete interview for one violation type	Age / Gender

Non-Response Survey / Summary

➤ Results Main Survey vs Non-Response Survey

  o No differences in the statements concerning predictors of red-light running & drunk driving
  o No differences in the acceptance to formal regualtions
  o Non-responder reported more likely to violate the speed limit than responders
    But: no structural differences in the prediction models

➤ Non-Response vs Non-Response 2nd order

  o Women were less likely willing to participate than men

Results of the main study / non-response survey are not biased in terms of too positive picture about traffic violations in Germany

Summary

➤ Wide acceptance to formal regulations as codified in the Highway Code in Germany

➤ Acceptance towards the formal regulation is not a sufficient predictor for the compliance (in terms of behavioural acceptance)

➤ Normative Beliefs, Risk tolerance and Situational Affordances are crucial factors when considering actual compliance with traffic regulations

➤ Focusing on acceptance with self-reports might imply the risk of socially desirable responding (sensitive topics),

➤ Non-responding can be a problem for the validity of a survey;

Thank for your attention!