Does the group membership shape evaluations on other drivers? The role of symbolic cues in traffic

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A B S T R A C T

The present study investigated the effects of group membership on drivers' evaluations of themselves and other drivers. An online survey was completed by 144 university students. As measurement, mini Driver Behavior Questionnaire (DBQ) with the addition of three aggressive violation items of the original DBQ, the Positive Driver Behavior Scale, and an adjective list were used. Participants assessed their own driving behavior as well as three different driver identities represented by three sets of car photographs. In-group (the uni-versity) identity, out-group (politically provocative) identity and no identity (control) were represented to participants by use of different car stickers and accessories. As our hypothe-ses suggested, the participants made the highest evaluations for their own driving behav-ior, while making the lowest evaluations for the out-group in both measures. Additionally, participants evaluated their in-group members' driving behaviors more favorable than other identities. Results were discussed in terms of social identity theory.

1. Introduction

Road traffic is a self-oriented environment without a mutual goal, where all road users start their journeys in order to reach a destination specific to them. At the same time, people, vehicles, roads, and other elements form a complex sys-tem where all these elements interact with each other (Du & Yang, 2015). Due to the inherent high interactions and interdependencies among road-users, they can be expected to form groups (e.g., cyclists) and subgroups (e.g., commuting cyclists) in traffic. The group formation can be based on apparent characteristics (e.g., commuting mode) or to more hid-den and less definite features. For example, Volkswagen Beetle – officially the Volkswagen Type 1 – is one of the most famous car models in the world due to the strong commitment and connection among its owners (Alagöz, Ekici, & Islek, 2011). Moreover, it is a common experience among drivers in Turkey to wave the hand for greeting or even to give way when they come across with a person driving the same model and color of the car. These examples show that inter-group behavior becomes visible in traffic context to some degree and can be reflected in altitudes to in-group members and, finally, driving behavior.

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1.1. The individual in social groups

As a natural tendency, individuals portray and assess themselves based on their social groups. In other words, group identity represents our identity with personal values, thoughts or emotions. People, who are a member of a group, share some emotional involvement and achieve some degree of social consensus. From an evolutionary perspective, individuals prefer being a recognizable member of a group rather than being an outlier, since being a member of a group provide us protection and support (Tajfel & Turner, 1979). Consistent with this idea, Social Identity Theory [SIT] (Tajfel & Turner, 1979) may be used to gather useful concepts and tools to conduct further investigations based on group membership approach. SIT, as a social-psychological theory, attempts to explain and understand people's attitudes and behaviors with regard to group-based attributes. Tajfel and Turner (1979) define social identity as "aspects of an individual's self-image related to the social categories that perceive himself/herself as belonging." Hence, when individuals define, evaluate, and classify themselves based on their social groups, the three basic assumptions of social identity are achieved (Tajfel & Turner, 1979; Turner, Brown, & Tajfel, 1979). In the end, the achievement of these basic assumptions of social identity brings more questions to ask and more concepts to interpret:

Since the first stage of social identity is the individual himself/herself, it is important to note that individuals have automatic tendencies to consider themselves as more trustworthy, moral, or physically attractive than others and people think that they are above the average. This cognitive process is called self-serving bias, which serves to maintain and enhance self-esteem. Self-serving bias has a protective use for self-esteem since individuals take responsibility for successful tasks and blame others for failures. In other words, individuals' attributions emphasize the causal effect of internal, dispositional reasons when explaining positive actions and experiences; while attributing external, situational factors when identifying the reasons of negative events (Forsyth, 2008; Sedikides, Campbell, Reeder, & Elliot, 1998). Just like many other contexts, self-serving bias becomes visible also in the traffic environment. Various studies have revealed that individuals evaluate themselves as more skilled and less risky drivers than others in traffic (e.g., Svenson, 1981; Karlaftis, Kotzampassakis, & Kanellaidis, 2003), young drivers underestimate their own probability to be involved in traffic accident when compared to other drivers (Finn & Bragg, 1986) and they believe that they are more skilled than other drivers (Matthews & Moran, 1986).

According to Trepte (2006), in addition to self-evaluations, people attribute positive or negative values to different groups by making social comparisons. Social comparisons are effective tools to make group classifications: to enhance the self-esteem and acquire a positive social identity, individuals need to know the position of their own groups; whether they are better or worse than others (Tajfel & Turner, 1979). The tendency that evaluating one's own group membership (in-group) more favorable than a member who does not belong to this group (out-group) is called in-group favoritism (Turner et al., 1979). On the other hand, the strict and permanent stereotypes, prejudice or even hostility towards an out-group member is named out-group hostility (Giles & Giles, 2012). Out-group hostility is a group-based tendency which can lead to discrimination of out-group members (Mackie & Smith, 1998; Wilder & Simon, 2001). Related literature suggested that both aspects of social categorization (i.e., in-group favoritism and out-group hostility) have some evolutionary background. Favoring in-group can improve the conditions for oneself and, thus, increase the possibility to survive. On the other hand, out-group hostility occurs as the protection of the in-group members from the intergroup conflict (Yamagishi & Mifune, 2009). In other words, an outgroup member can be perceived as a potential threat to the survival of oneself and the in-group members. Even if people are not aware of these cognitive tendencies, most of the social classifications may be based on evolutionary benefits. The bias toward out-group members creates an implicit expectancy related to unfavorable behaviors. Research has shown that people tend to remember more unfavorable information related to out-group members than to in-group members (Howard & Rothbart, 1980).

People can express more positive tendencies like trust, positive regard, cooperation, and empathy towards in-group members, whereas they can express negative attitudes towards out-group members (Hewstone, Rubin, & Willis, 2002). Allport (1962) pointed out that positive attributions for the in-group do not require negative evaluations or hostility towards the out-group. On the other hand, recent group studies related to intergroup relations, prejudice, or discrimination indicated that there is a reciprocal relationship between in-group favoritism and out-group hostility (Brewer, 1999). In the study of Tarrant and North (2004), participants were asked to evaluate positive and negative behaviors of their friends and non-friends in "achieved" groups. The results revealed that participants showed clear biases in favor of their friends rather than out-group members. Therefore, it can be said that in-group favoritism and out-group negativity have reciprocal relations on evaluations of people on the basis of their group membership.

1.2. Intergroup behaviors in traffic

Traffic is a complex system in which individuals do not share a clear mutual goal or interdependency with each other. Although these two factors leading to group formation are mostly lacking in traffic, it is important to highlight that road users interact with each other. Sherif stated already in 1966 that "whenever individuals belonging to one group interact, collectively or individually, with another group or its members in terms of their group identification, we have an instance of intergroup behavior." Hence, there is a possibility that road users can perceive others in traffic as in-group and out-group members even if they do not share the same goal (except the safe mobility as a common goal). According to the literature, studies investigating different road user group's attitudes towards each other support

this assumption. Accordingly, drivers have higher negative attitudes towards motorcyclists compared to the drivers who are both drivers and motorcyclists (Crundall, Bibby, Clarke, Ward, & Bartle, 2008). Consistent with our assumptions, another study indicated that motorcyclists and car drivers show in-group bias towards each other; car drivers and motorcyclists perceive each other as a risk factor. However, it should be noted that the study mentioned above did not find a difference related to blaming each other for accidents, whereas both groups put the blame on the car drivers. The authors explained this contradictory finding with the fact that motorcyclists have the right of way on junctions by the law (Robbins, Allen, & Chapman, 2018).

The literature on intergroup relationships has shown that the categorization of individuals into distinct groups based on trivial criteria is sufficient for discrimination. This tendency is called "minimal group paradigm," which describes the minimal conditions required for intergroup discrimination (Tajfel, Billig, Bundy, & Flament, 1971). In a well-known study, participants were divided into two groups based on a trivial criterion such as preferences for one of the two abstract painters: Kandinsky and Klee. Different prisoner's dilemma games were played by participants with an ingroup and an outgroup member. Results showed that people tend to favor their in-group members, whereas they are biased to an out-group member (Brewer, 1999; Wit, Wilke, & Oppewal, 1992; Yamagishi, Jin, & Kiyonari, 1999). The minimal group paradigm shows that being a group does not necessarily require a reasoned intention. Instead, people tend to create groups even when the differentiating factor is trivial. Consistent with minimal group paradigm and the aforementioned in-group biases in traffic, we can assume that social or symbolic cues regarding identity can create group perception in traffic. The study of Chiluwa (2008) conducted in Nigeria revealed that people make evaluations of others concerning their displayed identities in traffic, such as car stickers. Since the most religious Nigerians define themselves and their group membership with regard to religion (i.e., Christianity and Islam), stickers have been essential instruments to express their loyalty and attachment to their religious group and related practices.

1.3. Car stickers as symbolic cues in traffic

Symbolic cues regarding identity are believed to create group perception. The communication between road users is limited and, thus, there are also limited ways to express oneself. Car stickers are one of these ways of self-expression in traffic since they are self-exploratory. For example, the government of Japan established stickers for novice drivers in 1972. Novice drivers who have experienced less than a year in traffic were obliged to attach a novice driver's sticker to their vehicle. The sticker was meant to serve as a public warning for other drivers about the novice driver, but it was also assumed that the sticker would reduce other drivers' possible aggressive behaviors (Yazawa, 2004). An experimental study conducted in Japan showed that the novice driver's sticker reduced other drivers' aggression when the sticker was attached to a low-status car. On the other hand, a high-status car with the sticker had the opposite effect. If the novice driver had a high-status car with the sticker, other drivers showed more aggression than in no-sticker condition (Yazawa, 2004).

Social Identity Theory (Turner & Tajfel, 1986) suggests that in-group identity becomes salient when people in the group wish to hold some characteristics of their groups. Therefore, group symbols become communicative symbols for both in and out-group members and emphasize the characteristics of the group like organizational jargon, feminist sentiments or ethnic accents. Moreover, the theory proposes that people who share distinctive characteristics of their in-group feel proud of their group membership. Thus, expressing the group identity via symbols makes an important sense for personal worth in public (Giles & Giles, 2012). These group-based differences can become manifest when drivers encounter a person driving a car with repulsive stickers.

1.4. The aim of the study

Group symbols (i.e., car stickers) can be considered as indicators of group membership since they provide other drivers with social cues about group belonging. In the context of driver behavior, being "a member of a group" has both light and dark sides. One may not only favor positive behaviors of an in-group member, but she/he may also be more likely to tolerate their risky behaviors while being more intolerant and hostile to someone from the out-group. On the other hand, these group-based classifications may also be vulnerable to the effect of self-serving bias. Regardless of how people evaluate others in traffic or how good drivers they are, attributions for themselves will be more positive. The present study aims to investigate the influence of different group symbols (i.e., car stickers) on evaluations of other drivers in traffic.

Based on the assumptions listed above, the following hypotheses were formed:

H1. Participants evaluate their own driver behaviors (i.e. 'self' condition) more positively than the other three groups (i.e., in-group, out-group, control group).
H2. Participants evaluate in-group members more positively than control group members.
H3. Participants evaluate out-group members more negatively than both in-group and control group members.

2. Method

2.1. Participants

A total of 144 Middle East Technical University (METU) students holding a driving license participated in this online study. Participants were aged between 19 and 32 years with the mean age of 23.29 (SD = 2.60). In detail, 29.9% were female with a mean age of 22.86 years (SD = 2.44), and 70.1% were male with a mean age of 23.48 years (SD = 2.65). They had held a driver's license for 4.7 years on average.

2.2. Measures

2.2.1. Open-ended questions

Open-ended questions were presented to the participants for four cases: to evaluate themselves, in-group (METU identity), out-group (politically provocative identity) and control group (no identity). Participants were asked to answer: "When you evaluate your/this driver's driving behaviors, which driving behaviors do you think that you/this driver tend to commit to?" There is proof in the literature that this kind of priming makes a stimulus more salient (Theeuwes & Van der Burg, 2013). The primary purpose of these questions was to create a priming effect on the participants by directing them to reimagine not only their own driving behavior but also to the assess the represented photographs and tell their attributions related to the driver of the car presented in the photograph.

2.2.2. Relevant adjective selection

Participants chose appropriate adjectives from the list of 12 positive and 12 negative words to evaluate their own driving behaviors as well as the drivers of the cars portrayed in three photographs. No upper or lower limit was determined for the number of adjectives that the participants could choose. Hence, positive words were coded as +1 and negative words as −1. Finally, the scores were summed up to calculate the total score in each condition.

2.2.3. Driver behavior questionnaire

In the present study, driver behavior was measured by the combination of two measurements. First one is the 9-items short version of the Driver Behavior Questionnaire (Mini-DBQ) (Martinussen, Lajunen, Møller, & Özkan, 2013). The mini DBQ measures lapses, errors and ordinary violations. Secondly, three aggressive violation items of the original Driver Behavior Questionnaire (Lajunen, Parker, & Stradling, 1998) was combined with the mini DBQ. The questionnaire was evaluated on a six-point Likert type scale (0 = never; 5 = always) and higher scores indicate higher levels of the given behaviors. In the present study, the Cronbach's alpha internal consistency values of subscales were found as follows: 0.67 for lapses, 0.69 for errors, 0.63 for ordinary violations, and 0.61 for aggressive violations. Although 0.70 is the general cut-off for the reliability, instruments with few items usually will get low alpha values (Cortina, 1993; Martinussen et al., 2013).

2.2.4. Positive driver behaviors scale

Positive driver behaviors scale was developed by Özkan and Lajunen (2005) as an addition to the DBQ to measure intentional driver behaviors to take care of the traffic or other road users with or without safety concerns. Consistent with DBQ, positive driver behavior scale was evaluated on a six-point Likert type scale (0 = never; 5 = always) and higher scores indicate higher levels of the given behaviors. The scale consists of a one-factor solution 14 items and the Cronbach's alpha internal consistency was found as 0.84 in the present study.

2.2.5. Demographic information form

Demographic information of the participants regarding age, gender and driver license status were collected.

2.3. Procedure

As stated above, the present study aims to investigate the influence of different group symbols (i.e., car stickers) on evaluations of other drivers in traffic. In order to achieve it, a repeated measured experimental design was used and drivers' evaluations regarding driving behaviors of himself/herself, in-group, out-group, and control conditions were compared. The in-group condition was defined as "members of METU" while the out-group consisted of people who were supposed to drastically differ from METU students and staff in terms of ideology and lifestyle. METU is characterized by the dominance of left-wing secular ideology (Öymen, 2012). On the other hand, the out-group condition was defined by symbols of representing right-oriented, Islamist and conservative political movement. Recent developments in Turkey have led to extreme polarization between these two groups (Kolcu, 2015). Thus, this preexisting group effect was considered as a functional tool to use to compare in-group (left-wing secular METU members) and out-group (Islamic conservative right-wing supporters) differentiation. The Islamic Conservative group will be later called as "politically provocative identity" since it is in drastic contrast to the "METU identity" represented mostly by the participants in this study. Lastly, the control condition did not include any identity.

Fig. 1. Images of in-group (i.e. METU) and out-group (i.e. provocative) conditions.

The procedure of this study included three main stages: participants' self-evaluation of driving behavior; participants' evaluations about driving behaviors of owners of the cars with three different identities (i.e., in-group, out-group and control), and the demographic questions. In the first stage, the participants evaluated their own driving behaviors through open-ended questions and the DBQ. Participants were asked to write a comment about their own driving behaviors in the first open-ended question. Then, they were asked to pick positive and/or negative words among the relevant adjectives defining their own driving behaviors best. After that, participants were asked to fill the DBQ to evaluate their own driving behavior in the traffic.

In the second stage, the participants were shown three groups of car photographs. In this purpose, photographs of a gray sedan car, Renault Megane 2007, was taken due to its popularity among Turkish drivers (see Fig. 1). The photographs were manipulated so that the signs of brand and model of the car were not visible. Photographs of the car with METU identity (in-group condition), with politically provocative identity (out-group condition) and with no identity (control condition) were taken from three different angles as the front, back, and side.

The car representing METU identity (in-group condition) had three symbols as one METU student sticker on the windshield, one METU sticker on the rear bumper and one METU auto accessory hanged on the rear-view mirror. The car representing politically provocative identity (out-group condition) also had three symbols. First one is the sticker of a hand gesture (Rabia), which has first appeared in protests of Muslim Brotherhood (a Sunni Islamist religious movement) in Egypt and then accepted by supporters of a similar conservative Islamist political movement in Turkey. This symbol was attached to the windshield. Second, a sticker of Ottoman sultan's signature on the rear window and the last one is a rosary hanged on the rear-view mirror. As mentioned before, in control condition, the car with no identity had no accessories or specific symbols represented in the photographs (see Fig. 2).

In order to maximize participants' close attention on car photographs, each car photograph was shown separately, and participants had to wait for five seconds to pass to the next photograph. Participants evaluated the three groups of photographs in the same manner as they evaluated their own driving behavior: they were asked to comment about driving behaviors of owners of the cars and to pick positive and/or negative words among the relevant adjectives defining the corresponding drivers' driving behaviors. Also, participants were asked to fill the DBQ to evaluate the driving behaviors of these

Fig. 2. Examples of stickers placed on cars as in-group and out-group symbols.

Self-evaluations ⟶ In-group evaluations ⟶ Out-group evaluations ⟶ Control group evaluations

Fig. 3. The repeated measure research design (In-group, out-group and control conditions were counterbalanced).

car owners. Each block of the experimental conditions was counterbalanced to avoid any order effect. Lastly, participants were asked to fill the demographic form in order to gather data about their background information and driving history (see Fig. 3).

3. Results

In order to test the hypotheses, repeated measures ANOVAs conducted to compare the effect of (IV) group membership of drivers (i.e., self, control, METU student and provocative) on (DVs) evaluations about drivers (i.e., relevant adjectives and driver behaviors).

3.1. Relevant adjectives

According to the results of the effect of group membership on relevant adjectives, Mauchly's test indicates that the assumption of sphericity was violated (χ^2 (5) = 17.73, $p < .01$), and therefore, degrees of freedom were corrected by Greenhouse-Geissner correction ($\varepsilon = 0.92$). Results showed that the effect of group membership of drivers on relevant adjectives was statistically significant F (2.75, 393.93) = 87.41, $p < .001$. Comparisons with Bonferroni correction indicated significant differences between groups (i.e., self, control, METU student and provocative). In detail, the mean of self ($M = 6.47$, $SD = 3.44$) was significantly higher than control ($M = 1.19$, $SD = 3.91$), METU ($M = 2.28$, $SD = 4.43$) and provocative ($M = -0.64$, $SD = 4.47$) conditions. Similarly, the provocative group has significantly lower mean than METU and control conditions. The only non-significant relationship between groups was between control and METU conditions ($p = .08$) (see Table 1, Fig. 4).
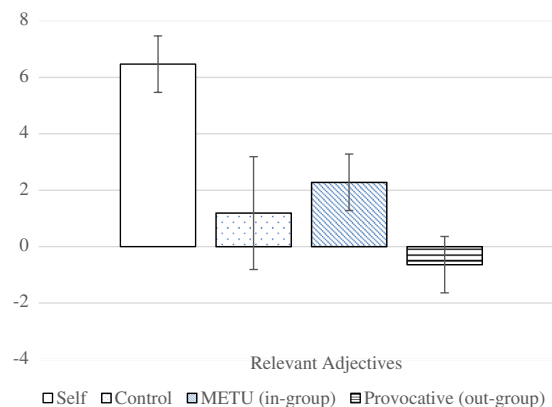
3.2. Positive driver behaviors

Mauchly's test indicates that the assumption of sphericity was not violated (χ^2 (5) = 6.81, $p = .23$). Results showed that the effect of group membership on positive driver behaviors was statistically significant F (3, 429) = 33.95, $p < .001$. Bonferroni corrected comparisons indicated significant differences between groups regarding positive driver behaviors (see Table 1). The mean of control condition ($M = 3.37$, $SD = 0.91$) was significantly higher than provocative ($M = 2.85$, $SD = 0.95$) and METU ($M = 2.51$, $SD = 0.93$) conditions. The "self" condition did not differ statistically significantly from the control condition ($p = .23$) (see Table 1).

Table 1
Mean differences between conditions regarding study variables.

	Self	Control	METU	Provocative	F
Relevant adjectives	6.47 (3.44)[a,b]	1.19 (3.91)[a]	2.28 (4.43)[b]	−0.64 (4.47)[a,b]	87.41[***]
Positive driver behaviors	3.19 (0.67)[a]	3.37 (0.91)[b]	2.51 (0.93)[a,b]	2.85 (0.95)[a,b]	33.95[***]
Aggressive violations	1.17 (0.73)[a]	2.84 (1.10)[a]	1.74 (1.07)[a]	3.52 (1.22)[a]	176.29[***]
Ordinary violations	1.20 (0.91)[a]	2.78 (1.05)[a]	1.76 (1.02)[a]	3.37 (1.18)[a]	149.27[***]
Errors	0.94 (0.71)[a]	2.83 (0.90)[a]	1.79 (0.89)[a]	3.16 (1.12)[a]	223.37[***]
Lapses	1.02 (0.78)[a]	2.67 (0.85)[a]	1.63 (0.92)[a]	2.93 (1.11)[a]	180.38[***]

p < .05[*], p < .01[**], p < .001[***], Same letters represent significant group comparisons, whereas different letters represent non-significant ones.

□Self □Control ▨METU (in-group) ▤Provocative (out-group)

Fig. 4. Means of relevant adjectives for experimental conditions.
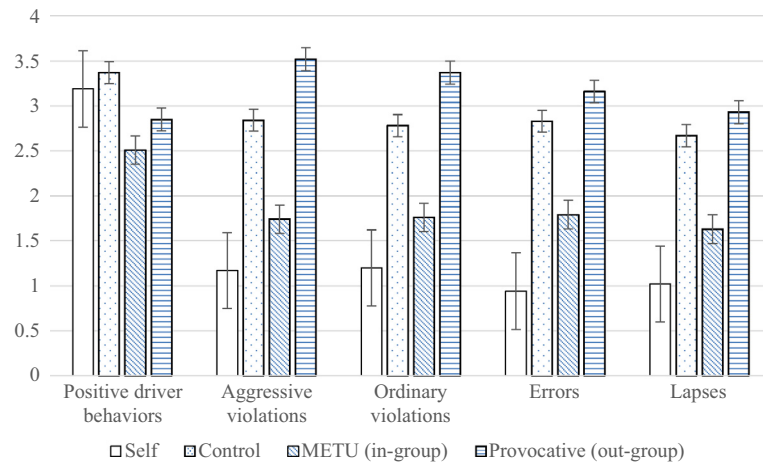
Fig. 5. Means of positive driver behavior questionnaire for the four conditions.

3.3. Aggressive violations

Mauchly's test indicated that the assumption of sphericity was violated (χ^2 (5) = 14.73, p < .05), therefore degrees of freedom were corrected by Greenhouse-Geissner correction (ε = 0.94). Results showed that the effect of group membership on aggressive violations was statistically significant F (2.82, 402.74) = 176.29, p < .001. Bonferroni comparisons indicated significant differences between all of the group comparisons regarding aggressive violations (see Table 1). In detail, the mean of self (M = 1.17, SD = 0.73) is significantly lower than METU (M = 1.74, SD = 1.07), control (M = 2.84, SD = 1.10) and provocative (M = 3.52, SD = 1.22) conditions, respectively (see Fig. 5).

3.4. Ordinary violations

Mauchly's test indicates that the assumption of sphericity was not violated (χ^2 (5) = 7.71, p = .17). Results showed that the effect of group membership on positive driver behaviors was statistically significant F (3, 429) = 149.27, p < .001. Bonferroni comparisons indicate significant differences between all of the group comparisons regarding ordinary violations (see Table 1). In detail, the mean of self (M = 1.20, SD = 0.91) is significantly lower than METU (M = 1.76, SD = 1.02), control (M = 2.78, SD = 1.05), and provocative (M = 3.37, SD = 1.18) conditions, respectively (see Fig. 5).

3.5. Errors

According to the results of the effect of group membership on errors, Mauchly's test indicates that the assumption of sphericity was violated (χ^2 (5) = 26.09, p < .001); therefore, degrees of freedom were corrected by Greenhouse-Geissner correction (ε = 0.89). Results showed that the effect of group membership on errors was statistically significant F (2.66, 379.75) = 223.37, p < .001. Bonferroni corrected comparisons indicated that all of the group comparisons were statistically significant (see Table 1). In detail, the mean of self (M = 0.94, SD = 0.71) was significantly lower than METU (M = 1.79, SD = 0.89), control (M = 2.83, SD = 0.90) and provocative (M = 3.16, SD = 1.12) conditions, respectively (see Fig. 5).

3.6. Lapses

According to the results of the effect of group membership on lapses, Mauchly's test indicates that the assumption of sphericity was violated (χ^2 (5) = 25.59, p < .001) and, thus, degrees of freedom were corrected by Greenhouse-Geissner correction (ε = 0.89). Results showed that the effect of group membership of drivers on lapses was statistically significant F (2.67, 381.05) = 180.38, p < .001. Bonferroni comparisons indicate that all of the group comparisons regarding lapses are statistically significant from each other. In detail, the mean of self (M = 1.02, SD = 0.78) is significantly lower than METU (M = 1.63, SD = 0.92), control (M = 2.67, SD = 0.85) and provocative (M = 2.93, SD = 1.11) conditions, respectively (see Table 1, Fig. 5).

4. Discussion

Traffic is a complex social environment in which group dynamics and memberships can be expected to play an important role. In the present study, it was assumed that indicators of group membership influence drivers' evaluations of other road

users, which may also be reflected in driving behavior. Just like other social interactions, traffic system is vulnerable to the effects of social-cognitive biases.

As a common cognitive bias shared almost by everyone, self-serving bias was expected to affect the self-evaluations of participants. As an ego-enhancing tendency, self-serving bias refers to more favorable evaluations about oneself without any objective standards (Blaine & Crocker, 1993). Self-serving bias is not only about evaluations of oneself, but people tend to extend its limits to their social groups (Ciadini et al., 1976). In the present study, it was hypothesized that participants would evaluate their own driver behaviors more positively than the behavior of other drivers. Drivers were expected to define themselves with more positive adjectives and to evaluate themselves higher in positive driver behaviors but lower in aggressive violations, ordinary violations, errors and lapses than other drivers. According to the results, the first hypothesis was supported. Participants evaluated their own characteristics with more positive adjectives than those of drivers who belong to the in-group, out-group or whose group membership was not visible. Similarly, they evaluated themselves lower than other groups regarding aggressive violations, ordinary violations, errors, and lapses. Also, participants evaluated themselves being better than in-group and out-group members on positive driver behaviors. The only controversial finding was that participants did not show self-serving bias regarding the control condition (a car without any symbols attached). It is possible that this discrepancy occurred because of the public perception regarding the presented car as "a family car." A gray sedan Renault Megane 2007 without any symbol was used in control condition. This model is commonly used in Turkey by families and, thus, the responses might attribute such characteristics as "a responsible parent" to the driver of the vehicle. Participants were asked to write brief comments as a part of the manipulation. Although these comments were not included any qualitative analysis, descriptions such as "*a family car*," "*experienced driver*" or "*it belongs to a father*" supported above-mentioned explanations.

The second hypothesis of the study claimed that participants would evaluate their in-group members more positively than the control group. The second hypothesis was supported for all study variables, except positive driver behaviors. Participants attributed more positive adjectives to in-group condition than the control condition. Also, they assumed that their in-group members would make less aggressive violations, ordinary violations, error and lapses than the control condition. According to the results, it can be stated that the second hypothesis supported the related literature with regard to in-group favoritism. Group belonging is an essential part of social identity. Since the definition of self is made through social groups, people tend to attribute better characteristics to their in-group (Giles & Giles, 2012). Thus, in-group favoritism can be considered as an extended version of self-serving bias, in the context of traffic, the role of in-group favoritism may create positive regard, cooperation, and empathy for other drivers who are in-group members (Hewstone et al., 2002). In addition, it should be noted that in-group favoritism and out-group hostility are strongly interrelated (while being conceptually different) since both concepts are based on intergroup bias. In fact, in-group favoritism can even have positive effects on traffic safety as long as it does not lead to out-group hostility. Similar to the results about self-serving bias, participants assumed that drivers in control condition might exhibit more positive driver behaviors than in-group members. This contradictory finding can be explained by the mean age and drivers' license year of the sample. Since they are young drivers and evaluate drivers in images as experienced and relatively older, the present results can represent a perception of control condition as safer, altruistic and more responsible drivers than themselves.

The third hypothesis of the study was that out-group members would be evaluated more negatively than both in-group and control conditions. According to the results, out-group members were evaluated more negatively in relevant adjectives compared to the other two conditions. Moreover, they were considered as getting involved in aggressive violations, ordinary violations, errors and lapses more often than the other two conditions (i.e., in-group and control). This finding supported the fact that people tend to discriminate others who are different from themselves. As a consequence, they are exposed to strict and permanent stereotypes, prejudice or even discrimination (Hewstone et al., 2002). In traffic, this discrimination can be manifested as unsafe behaviors, and thus out-group hostility can be considered as a dangerous motivation. According to the present results, out-group members were expected to behave badly, i.e. to drive aggressively and to make more violations, errors, and lapses. To expect other drivers to behave negatively may create a desire for reciprocity and hence it may shape how the driver reacts to other drivers in traffic. According to a recent study by Coughenour et al. (2017), racial biases were found as a potential factor in pedestrian crashes. The study revealed that more cars passed through the crosswalk while the black pedestrian was crossing the road compared to white pedestrians at the high-income neighborhood. In addition, Crundall et al. (2008) found that drivers who were not also motorcyclists had more negative attitudes towards motorcyclists compared to the drivers who were both drivers and motorcyclists. In the same vein with Crundall et al. (2008), a recent study by Robbins et al. reported that motorcyclists and car drivers show in-group bias towards each other (Robbins et al., 2018).

Lastly, the third hypothesis of the study was not supported in terms of positive driver behaviors. As expected, out-group members were evaluated lower in positive driver behaviors compared to the control condition. However, the control condition was evaluated higher in positive driver behaviors that the in-group condition. This discrepancy in the results can be explained by the black sheep effect (Hutchison, Abrams, Gutierrez, & Viki, 2008). The related literature on in-group favoritism points out that well-performing in-group members are evaluated more positively than comparable out-group members. However, if an in-group member performs (or acts) poorly, they are evaluated more harshly than an out-group member would be, even they are excluded from the group (Hutchison et al., 2008). In the case of positive driver behaviors, it is important to remember that positive driver behaviors are not the opposite of risky driver behaviors. Positive driver behaviors require a different behavioral intention. Thus, in this presented results, METU students can expect more positive driver behaviors from other students. Lack of positive driver behaviors in campus and, thus, a black sheep effect can explain these

results. The present result may suggest that participants of the study expect other student drivers to exhibit more positive driver behaviors that the in-group members.

4.1. Limitations

The present study has some limitations that should be taken into count when evaluating the applicability of the results. Firstly, the study sample included only in-group members, i.e., METU students. Out-group members (i.e., conservative sample endorsing traditional Muslim values) were not included in the analyses since their level of participation was very low. One reason might be again in-group vs. out-group hostility: people belonging to the politically conservative Islamic movement are not necessarily willing to participate in any study launched by researchers who can be seen endorsing opposite values (left-wing liberalism and secularism). In future, a more balanced sample with both groups should be obtained. While the present study shows how the "liberal left" perceives the out-group (right-wing Islamists) as drivers, it would be very informative to investigate if the same phenomenon can be found in the opposite pole of the continuum. Second, the data was collected with self-reports. Although DBQ has been widely used and accepted as a valid instrument for measuring driver behavior, it still has the limitations of a self-reported instrument. It should be noted that the DBQ is a self-evaluation of driving, not a measurement of the actual driver behavior. Since the present study was focused on perception and attributions to other drivers in traffic as a sign in-group favoritism and out-group hostility, the use of a self-report is justified. Lastly, the degree of group belonging of the METU students was not measured. Considering "minimal group paradigm," which describes the minimal conditions required for intergroup discrimination, it can be assumed that just being a METU student can be enough to create a group belonging (Tajfel et al., 1971). However, in future studies measuring the degree of group belonging could strengthen the analyses.

4.2. Conclusion

This study was aimed at investigating the role of group processes in traffic context by focusing on the influence of different group symbols. Although intergroup differences and biases have been investigated by many studies (e.g., Giles & Giles, 2012), their effect on traffic psychology is a relatively new topic. Driving is a self-oriented task, which does not involve a mutual goal with others. Although each individual in traffic has his/her own motivation, the traffic system is also social. It includes many road users such as drivers, pedestrians or passengers, who interact with each other. The role of three social-cognitive biases (i.e., self-serving bias, in-group favoritism, and out-group hostility) on driver evaluations was demonstrated in this study.

Intergroup biases are automatic processes that shape attitudes, beliefs, and behaviors. Because errors, violations, lapses, and positive driver behaviors are affected by the group perception, these behaviors may be manipulated in traffic safety interventions by using group identification (i.e., bumper stickers).

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