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TITLE: **Pro-environmental behavior of hotel guests:**

application of The Theory of Planned Behavior and social norms to towel reuse

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Abstract

This paper presents a scenario-based experimental study, carried out to examine pro-environmental behavior of hotel guests. The aim of the research was to test the Ajzen's Theory of Planned Behavior (TBP) model, the influence from social norms interventions on the towel reuse behavior, and the role of habit in such.

The TPB model showed good fit to the data and better predictive power than the Theory of Reasoned Action model, while refined TBP model had superior fit over the named ones. The results of a structural equation modelling revealed that attitude, subjective norm and perceived behavioral control positively affected intention of hotel guests to reuse the towel. Social norms interventions came out with no significant difference among the four groups with injunctive, descriptive, combined and no-norm messages. Further investigation indicated that past behavior had a great predictive power of behavioral intention, explaining 19 % of variance. This effect was partially mediated by TPB constructs as attitude, subjective norm, and perceived behavioral control. Inclusion of past behavior into TPB model didn't significantly improve predictive power of such.

The results form a basis upon which towel-reuse behavior appears to be both decision-making process and a habitual action to certain extent, it is discussed in relation to possible implications, theory and practice, and further research.

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Foreword

"Preservation of the environment, promotion of sustainable development and particular attention to climate change are matters of grave concern for the entire human family"

Pope Benedict

The choice of topic expresses our social position towards raising importance of sustainable development in conditions of foregoing environmental changes. We wish to make our personal contribution in promotion of conservation over consumption, and aid hotel industry in designing successful interventions for their eco-friendly practices. From our point of view, it is of great importance that the practitioners and the researchers collaborate in order to achieve greater goals.

First and foremost, we would like to thank our advisor, Torvald Øgaard, for helping us with study design, discussing relevant theories and guiding us though the moments of doubts during the thesis elaboration process. We strongly appreciate devoted time and effort of Lukasz Andrzej Derdowski, PhD student at the Faculty of Social Sciences, enlightening us in Structural Equation Modelling analyses and LISREL software.

Finally, we would like to thank the hotels of Stavanger which were interested in our research and assisted us in the data collection process. Every personal contribution in answering the questionnaire by participants of this study is acknowledged and highly valued.

We send the warmest regards to our friends, families and colleagues, who have shown their understanding and support.

Introduction

Nowadays, the global phenomenon of climate change is no longer a contested issue, as Spence et al. (2009) claims what remains contested is what actions are done about it. To the extent of cause and consequences it is mainly attributed to human activities and need to be addressed by changing people's behavior (Spence et al., 2009). The question of how to motivate individuals for environmentally sustainable behaviors has attracted attention from wide range of researchers (Doran, Hanss, & Larsen, 2015) and even resulted in such specialized discipline as environmental psychology. There are extensive psychological literature well advanced in respect of environmental behavior change (Jackson, 2005). Nevertheless, in the tourism context there is still lack of studies of social cognitive processes underlying pro-environmental behavior (Doran & Larsen, 2014). May be it is due to hedonic in nature context of tourism, believing, for example, that conservation behavior would not be a case for a person going on vacation, rather than on self-sacrifices in sake to save the world. Indeed, such mismatch between the contexts in which behavior is going to be performed, may exist (Barr, Shaw, Coles, & Prillwitz, 2010). Even highly concerned about environment individuals (called eco-centric, not ego-centric, which are self-explanatory terms) are not willing to behave pro-environmentally when on vacation (Dolnicar, Knezevic Cvelbar, & Grün, 2016). Some justification for such sudden discrepancies have been proposed: conservation behavior must probably have some utilitarian benefits (Ackerman, 1997). And what are such in tourism? How towel reuse, for example, can be of any good, reducing hedonic value of accommodation and joy of fresh dry towels every day? It is quiet obvious, that motivating hedonic tourists for such is rather hard. Nevertheless, past research took part in discovering such motivators by testing influences of different possible interventions and stimuli. Application of the normative social influences, in particular, to towel reuse gave promising results (N. J. Goldstein, R. B. Cialdini, & V. Griskevicius, 2008), but highly inconsistent. This study aims at addressing this once more, in order to make a

contribution to better clarity of this growing body of knowledge. Moreover, in order to design an interventions for behavior's change, it is quiet useful to understand the motives laid behind (W. P. Schultz, A. M. Khazian, & A. C. Zaleski, 2008) and the decision-making chain (Spence et al., 2009). These are going be our objectives for this study. We think that such may contribute not only the practitioners but also fill the gaps in tourism studies.

There are three research questions we intend to answer in this study with underlying hypotheses we ought to test:

RQ1: What is the difference in behavioral intention for injunctive, descriptive, combined and no social norm (control) group?

H1: combined social norm will have greater effect on behavioral intention, followed by descriptive and injunctive norm with the least effect of no-norm message.

RQ2: What is the decision-making process leading to pro-environmental behavior?

Hypothesis 2(a): Antecedent behavioral belief has a positive influence on attitude, normative beliefs on subjective norm, and control beliefs on perceived behavioral control

Hypothesis 2(b): Attitude, subjective norm and perceived behavioral control will significantly predict intention to engage in pro-environmental behavior.

RQ3: What is the role of habit in pro-environmental behavior of hotel guest?

H3(a) There is significant positive relationship between past behavior and behavioral intention of engaging in towel-reuse.

H3(b): Past behavior has an influence on behavioral intention which is mediated

through the variables of TBP model (attitude, subjective norm, perceived behavioral control).

To summarize, the structure of the thesis is as follows:

Chapter 1 presents a theoretical review of the problem and empirical knowledge existing at a time;

Chapter 2 discusses methodology and the way researched phenomenon would be approached;

Chapter 3 reveals results on quality of instrument and testing the hypotheses;

Chapter 4 discovers weaknesses and suggests some further vectors of research, as well as ways results may be applied.

1. Literature Review

1.1. Theoretical review

In tourism literature, the number of studies have been devoted to examine possible interventions aimed to increase the level of pro-environmental behavior. One common approach has been predominating based on the theory of social normative influence. It explains how one's behavior might be prompt to receiving information on how others behave in alike situation (referred to as descriptive norm) or beliefs about expectations of moral approves/disapproves of such behavior from other people (referred to as injunctive norm) (Doran & Larsen, 2015).

This normative conduct has been tested within the relation to an actual behavior by some experimental studies from before.

To begin with, a study performed by Mair and Bergin-Seers (2010) tested the towel reuse rate of motels in Australia by including different messages into guest rooms and measuring the influence of those messages. The results that the authors reported showed that the highest towel reuse rate was present in the guests that were exposed to the normative request and the informational plus the request, showing both 87.5% of towel reuse. In the discussion section authors bring in an interesting detail. They speculate about the fact that reusing the towel is an habit and therefore not a reasoned behavior.

Another interesting study that has been published about social norms and towel reuse was done by Han, Hsu & Sheu (2010). This study included the theory of planned behavior (Ajzen, 1991). By doing this, the authors present a more complex model, which includes more constructs that could potentially influence behavioral intentions in a towel reuse scenario. By using structural equation modeling, they present a clear picture of what the relations among the constructs are.

Goldstein (2007, 2008) carried out two different studies in which social norms were included in order to foster towel reuse at hotels. Those influences were tested in comparison to control group without any note. Results revealed that the guests who were exposed to the message that included the social norm yielded a much higher towel reuse rate than those in the control group.

Another interesting study featuring social norms and interventions in hotels was presented by Reese, Loew, & Steffgen (2014). Authors state that social norms have a strong influence in individual's behavior. The study is testing if provincial norms are more effective than standard environmental messages. Provincial norms are defined by the authors as the norms that 'match individuals' immediate situational circumstances' (Reese, Loew, & Steffgen 2014, p.1).

The Table 1 presents in short results from relevant research.

Table 1

Results of experimental studies on towel reuse

Author	Intervention used	Theory	Findings	Suggestions
Goldstein et al. (2008)	Descriptive norm	Social comparison	Experiment I: the descriptive norm condition had higher towel reuse rate (44,1%) than the standard environmental message (35,1%) Experiment II: 4 conditions of descriptive norm conditions fared significantly better than standard message (44.5%). Same room identity norm resulted in	Better understanding of the processes underlying the driving force of provincial norms
	Provincial and global norm	Social identity		

			higher towel reuse (49.3 %)	
Schultz et al. (2008)	Normative or injunctive, descriptive, combined	Focus theory of normative conduct, discuss "knowledge-deficit model of behavior"	I: mixed results with no significant difference among high/low injunctive norm and low/no descriptive norm II: greater effect from combined high injunctive and high descriptive norm at reuse rate (62%) III: added referent group (provincial norm) note but showed no increase in reuse for it	Number of aspects: is process by cognitive elaboration or processing? How long normative social influence lasts? Is effect limited to initial context or more long lasting?
Mair & Bergin-Seers (2010)	Incentives 1) Info only 2) Info plus direct request 3) Info, request, descriptive norm 4) Info+incentive	Model of 4 variables by Stern (2000): attitudinal, contextual, personal capabilities, habit or routine	found no significant difference in towel reuse rates across proposed interventions, even though descriptive norm and "information plus request" showed slightly higher reuse rate (87,5%).	Role of habit as strongest influence, cultural background, social class, capabilities and skills, increase knowledge & awareness; Consider length of stay
Reese, Loew & Steffgen (2014)	Descriptive norm, provincial norm	Social identity theory	Hotel guests in room condition (provincial norm) used less towels than in hotel condition (general norm). No significant difference between hotel condition and	Context difference, socio-economic status, cultural background, environmental politics of home country, potential individual moderators, message delivery system

			standard message.	
Bohner & Schluter (2014)	Provincial norm, general norm	Social Identity	I: no significant difference between standard message and descriptive norm II: higher reuse rate for standard message (93,3%)	Environmental awareness at the cultural level (different countries), take into account cultural background of people
Dolnicar, Cvelbar, Grun (2016)		Cognitive dissonance theory		Suggested that pro-environmental values of people is a way to trigger pro-environmental behavior in them

Theory of Planned Behavior

Before reviewing the Theory of Planned Behavior (Ajzen, 1991), a previous theory should be mentioned. It is the Theory of Reasoned Action (TRA) which was developed by Fishbein & Ajzen (1980) (Madden, Ellen, & Ajzen, 1992). The aim of this theory was to explain and predict human behavior, based on attitudes and subjective norms, which lead to a behavioral intention (Madden, Ellen, & Ajzen, 1992). It was solidly tested in a huge range of studies and it was proven to be a good predictor for human behavior. The main difference between the TRA and the TPB is the fact that the TRA is missing the construct of control beliefs in the model.

The Fishbein & Ajzen theory of planned behavior was first developed in 1985 (Ajzen, 1991). The theory of planned behavior can be described as an individual's motivation in his/her cognizant plan/ decision to exert an effort in performing a specific behavior (Han, Hsu & Sheu, 2010). Therefore, according to this theory, most human behavior is predictable and people tend to make reasonable choices. This theory has a strong predictive power (Han, Hsu & Sheu, 2010). TPB has been extracted from the marketing literature and has been widely used in social

science research. It accounts for great explanatory power of behavioral intentions. Armitage & Conner (2001) published a review analyzing 185 independent studies that included the theory of planned behavior and the studies report that the model shows an explanatory between 27% and 39% in behavioral intentions. Attitude, subjective norm and perceived behavioral control were the constructs that accounted more of the variance in explaining behavioral intentions.

According to Ajzen (1991) behavioral intention is influenced mainly by two factors; being those, attitude toward performing the behavior and subjective norm.

Ajzen (1991) describes in addition that past behavior also has an influence on behavioral intentions to some extent, but this remains unclear in some studies. This research is therefore also aiming to include the past behavior and will try to see if it can successfully predict behavioral intentions. Therefore, theory of planned behavior will be the framework for this study since it provides a perfect theoretical background and is a good predictor of behavioral intentions. In addition, this model has been widely used in literature (Schwenk & Möser, 2009).

Review of the constructs

Behavioral Intentions

In modern psychology, one of the greatest challenges of researchers has been to predict human behavior. One of the most used models to predict behavior is the theory of planned behavior (Ajzen, 1991). Behavioral intentions are assumed to indicate the motivational factors that influence behavior and they indicate to which extent people are willing to perform actual behavior (Armitage & Conner, 2001). As defined by Ajzen (1991) behavioral intentions are the 'intention to perform a given behavior' (Ajzen, 1991, p181). Therefore, the stronger the behavioral intentions are, the more likely the individual is going to perform certain behavior. It has to be clarified that this model is only valid when the individual has a choice to perform certain behavior.

Nevertheless, there are some models that do not include this construct as predictor of behavior. For instance, Warshaw and Davids (1985) suggested a division between behavioral intentions and self-predictions to predict behavior (Armitage & Conner, 2001). Furthermore, Sheppard et al. (1988) argues that self prediction is a better predictor of behavior, since they include factors that may foster or hinder the performance of a given behavior (Armitage & Conner, 2001).

Nevertheless, since the studies have shown the explanatory power of behavioral intentions, this experiment will use this construct as predictor of behavior.

Beliefs

According to the basic theories of psychology, beliefs form one of the most basic units of explanation (Ajzen, 1991). These beliefs are relevant to the behavior and therefore are included in the model as predictors. Ajzen (1991) describes that there are three kind of beliefs which are: behavioral beliefs, normative and control beliefs. First, behavioral beliefs are assumed to influence attitudes towards the behavior (Ajzen, 1991). This means that each belief links the behavior to a certain outcome. Since the attitudes towards the behavior are already believed to be either positive or negative, we automatically create an attitude towards a behavior. Here is when the link between attitudes and behavioral beliefs can be observed. Therefore, behavioral beliefs being predictor of attitudes, also predict behavioral intentions.

Next to be analyzed are normative beliefs which are the determinant of the subjective norms. Normative beliefs are associated with the approval or disapproval of a certain group of individuals to perform certain behavior (Ajzen, 1991). For instance, the opinion of friends or relatives when performing a task can be determinant in whether to do or not to do the task. Ajzen (1991) states that subjective norm is determined by the normative beliefs of the individual and multiplied by the motivation to comply which is the individual willingness to have certain behavior.

Finally, control beliefs deal with the absence of resources or opportunities. Control beliefs are an underlying factor of perceived behavioral control. These control beliefs can be formed in several ways, such as by past behavior, by information coming from other individuals or by the other factors that might difficult the performance (Ajzen, 1991). Therefore, the more opportunities and resources are, the more likely the individual will have certain behavior.

Attitudes

According to the theory of planned behavior, there are important determinants when predicting intentions. One of the most important ones are attitudes. Attitudes can be defined as ''the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question'' (Ajzen, 1991, p. 188). Attitudes represent the weighted average between the consequences and the rewards of a certain action (Han, Hsu & Sheu, 2010). For instance, in this study, subjects can perceive reusing towels as proactively caring for the environment by doing a small action, but could also perceive this as an inconvenience during their stay.

Individuals tend to have a positive attitude towards an action if the rewards exceed the cost of the action. It can be therefore said that ''an individual's positive attitude toward a certain behavior strengthens his/her intention to perform the behavior.'' (Han, Hsu, & Sheu, 2010, p. 326). In addition, as pointed out by Ajzen (1991) some authors have stated that attitudes are the strongest predictors of behavioral intentions. On the other hand, a different group of authors suggest that attitudes together with perceived behavioral control are the strongest predictors. Nonetheless, it is agreed upon in the psychological literature that attitudes are good predictors of behavioral control.

Subjective Norm

To continue with, in the theory of planned behavior, subjective norm is regarded as the second determinant of behavioral intention (Han, Hsu, & Sheu, 2010).

Subjective norm was defined by Ajzen (1991) as ''the perceived social pressure to perform or not to perform the behavior'' (p. 188). So, subjective norm is what others think about the action one performing. This of course can influence the decision making of an action. It represents a challenge, since as pointed out by Hofstede's dimensions, depending on the background of the respondent, the subjective norm that they are exposed to, can vary (Hofstede, 1984). Since this dimension is dependent on what others in person' social circle think about his/her actions, their thoughts may vary heavily among cultures. Therefore, subjective norm is represented by what an individual thinks he/she should do/not do. In this experiment, subjective norm can serve because if others think that having a proactive attitude towards environment is important, the individual is more likely to think the same way (Han, Hsu & Sheu, 2010).

Perceived Behavioral Control

Another important element in the theory of planned behavior is the construct of perceived behavioral control. This construct is described by the authors as 'the resources and opportunities available to a person must to some extent dictate the likelihood of behavioral achievement.'(Ajzen, 1991, p. 183). Perceived behavioral control deals with the perception of the subject to deal with the assigned task. This construct has an important role in the theory of planned behavior. Different from the theory of theory of reasoned behavior is the inclusion of this construct to the model (Ajzen, 1991). More authors have researched this construct and have given their point of view about it. As per Ajzen (1991) the most similar definition of perceived behavioral control is the following: "is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122, from Ajzen 1991, p.184). Therefore, it can be stated that a person's behavior is directly influenced by the confidence in the ability to perform a certain behavior (Ajzen, 1991). In this scenario, at a simple look, reusing the towel at a hotel may not look as a very difficult task to accomplish

in terms of cost, but the reward of it may be not enough for some people. Therefore, the items for this construct will evaluate if by offering a reward by the hotel guests would be more willing to reuse the towel. Certain hotel chains offer reward to their guests who reject using housekeeping service. In addition, respondents will be asked if they think that bathroom facilities should ease towel reuse, like for example displaying a hanger for towels. As per Han, Hsu & Sheu (2010) perceived behavioral control is related to the opportunities/obstacles for performing a certain task, addressing the construct in this way is probably the most optimal way to do it.

Past Behavior

This construct has been by far the most controversial in the model. Academic literature agrees to a certain extent, that past behavior is a predictor of future behavior (Ouellette & Wood, 1998; Ajzen, 1991). Nevertheless, the question comes when deciding whether or not to include this construct into the theory of planned behavior model. For instance, Han, Hsu & Sheu (2010) suggest in this study to include past behavior into the model, since it improved considerably the confirmatory analysis. In addition, it showed a high explanatory power of behavioral intentions. Therefore, authors suggest including the construct into the model.

On the other hand, Ajzen (1991) argues that the model of theory of planned behavior is sufficient on its own and contains all important variables to predict future behavior. Ajzen states, that past behavior may have a residual value in explaining behavioral intentions, but it is already explained by the variables in the theory of planned behavior model. That is why the original author did not include this variable in the model. Nevertheless, Ajzen (1991) also states that past behavior can be a good predictor of if the given circumstances that caused a past behavior have not changed over time and thus the criterion for choosing certain behavior remains unchanged.

After having seen the controversy among literature and the possibilities that this construct may have, it has been decided to include past behavior in order to see the role of this construct into the theory of planned behavior model.

1.2. Measurement review

Before deciding how to on measurement instrument for this study, alternative scales were considered and analyzed.

To begin with, the first scale that has been reviewed is the Schwartz Value Survey (Schwartz,1992). It has been used widely in literature to measure values among a specific group of population. Internal consistency has been put into debate by several authors; nonetheless the survey shows strong reliability with most population groups. Problems can arise when it comes to translating issues, especially when the Survey is translated into Spanish. The main limitation of this method is that it has been used mainly to compare sets of values for different nationalities (Hofstede, 1984). Taking this into account, it may not be extremely useful in terms of predicting environmental values. The survey includes openness vs. tradition dimension, which can be a predictor of environmental values. In addition, the scale has demonstrated that in general younger respondents tend to have a more environmental orientation than elderly respondents. If this scale is applied, it would be necessary and interesting to include the nationality of the respondent into the survey in order to see the differences that may arise and if they are caused by chance or not. In addition, the fact that the survey has been used in several studies, comparison with previous research will be facilitated. In addition, the scale did not measure exactly what the study intended to measure, therefore this scale was rejected.

To continue with, the New Ecological Paradigm was considered to measure attitudes. It is an environmental attitudinal scale that was developed by Dunlap (2000) Again, the validity of the scale has been confirmed in several studies. Since the scale was first created in the late

70's, adaptations to it have been done in order to avoid bias. As the previous scale, the NEP shows that younger respondents as well as more educated people tend to show higher environmental attitudes. The ecocentrism vs. anthropocentrism dimension is the most interesting in order to predict environmental attitudes.

2. Method

The Method chapter brings to reader's attention description of the overall design of the study, population that ought to be investigated, the data collection procedures, measurement instrument, and way data would be analyzed.

2.1. Design

In order to answer the research question and to test the hypothesis, this study was designed as a scenario-based experiment. This methodological approach has been claimed as the most suitable for situations with high possibility of social desirability bias – respondent not willing to give the truthful answers (H. Y. Lee, Bonn, Reid, & Kim, 2017). Prior to the final choice of the design, authors were considering to carry out this study as a field experiment, as it was done by many reputable researchers exploring social normative influences (Cialdini & Trost, 1998; N. Goldstein, R. Cialdini, & V. Griskevicius, 2008; N. J. Goldstein et al., 2008; Reese, Loew, & Steffgen, 2014; W. Schultz, A. Khazian, & A. Zaleski, 2008). Such option was not taken because of number of factors. To begin with, 15 Stavanger city hotel were contacted via e-mail and face-to-face during annual event at Norwegian Hotel School "Career Fair". The outcome of this was that only one of contacted hotels showed interest to possibility of conducting experiment in real hotel settings. Further negotiations with the marketing management were successful until the idea have been presented to housekeeping department. It has been furthermore rejected on the bases of additional workload for the housekeeping stuff. This factor to a great extent influenced the further consideration of possible alternative approaches to the phenomenon of social normative influence. The further ideas developed from Mair and Bergin-Seers' study (2010), who added a survey to a field experiment of towel reuse. It seemed quiet interesting because in such approach mentioned authors managed also to explore participant's values and belief as well as personal reasons for engaging in towel-reuse.

This has given us an inspiration not to give up on chosen topic of social norms, but conduct better literature review and approach it differently. That's how scenario-based approach was chosen, which was argued to be sufficient for discovering of authentic reactions of individual to a real-time situation (H. Y. Lee et al., 2017).

In order to develop measurement instrument, the literature was searched by consulting databases and search engines of the University of Stavanger Library. The key words searches included terms as pro-environmental behavior, conservation behavior, towel reuse, social norms, and so forth. Moreover, the reference lists of important studies have been also examined. Such search engines as Oria, Google Scholar and Web of Science were mainly used to access the published materials online. The University of Stavanger Library has been contacted in order to aid help in relevant literature choice. The request was answered and training course was proposed, which took place February 7th, 2017 and equipped the authors with relevant skills. This study was furthermore based on published articles in Level 2 and Level 1 scientific journals (according to ranking of Norwegian Center for Research Data). Textbook were used mainly to get better understanding of structuring thesis (Rudestam & Newton, 2007), and following American Psychological Association style (2012).

2.2. Sample

In course of the choice of population, the knowledge about the phenomenon of pro-environmental behavior and context specific settings have been applied. As well as study has been centered around discovering factors influencing the behavior of hotel guests, convenient sample was considered to be sufficient to represent the population we wanted to make statements about.

The determination of appropriate sample size is considered to be one of the most difficult sampling problems (Rudestam & Newton, 2007). We have approached it with performing suggested in the literature calculations.

The Slovin's Formula has been chosen in order to simplify calculations, since information about the population groups was known (Tejada & Punzalan, 2012). Nevertheless, as pointed out by the authors, Slovin's formula needs to be treated with caution, since it is of best utility with a confidence level of 95% and estimating a part of a population (Tejada & Punzalan, 2012). Therefore, for estimating the sample size, an error tolerance of 5% has been used (which is common level for social sciences) and the population has been calculated with the total number of guests' nights in Norway during 2015 (2016 data was not available yet). As states in the Innovation Norway report, there were a total of 31.635.836 hotel nights in Norway in 2015 (Innovation Norway, 2015).

Calculations were done according to Slovin's: $n=N/(1+e^2)$, where n - the sample size, N - the population and e - the error tolerance expressed in percentage. After filling in the formula, the result obtained was 400. Therefore, a sample size of at least 400 respondents has been furthermore considered.

In addition, in order to be able to perform Structure Equation Modeling analysis, a minimum sample of 200 is generally advised (Reisinger & Mavondo, 2007).

3.3   Data collection

The data collection was done in two different stages. First, hotels in the area of Stavanger were contacted in order to put the questionnaires in the rooms for guests to fill them in. Some negative responses were obtained due to the strict standards that some chains have about the items a hotel room has to have. Nevertheless, some hotels agreed to have a stand at the entrance in which guests could answer the surveys. Such stands were launched in two middle size Stavanger city hotels with a duration of one day each (during breakfast time 7 a.m

to 10 a.m., check-in time 1 p.m. to 4 p.m., and evening time 4 p.m. to 7 p.m.). The hotel guests were approached and requested to participate in survey. Some of the quests were curious, while others reacted neutrally, having a reason for being occupied. Around 50 answers were obtained in such way. Moreover, two hotels agreed to place the questionnaire to the rooms for duration of three weeks, while other 2 hotels left them on reception and in the information areas. This was useful in obtaining further answers, but it was far from the total number needed in order to have significant results.

The second round of data collection was performed on students of the Norwegian Hotel School. Students were approached in the beginning of the lecture, upon agreement with their teacher to sacrifice 15 minutes of lecture time. The instructions were given and the questionnaires distributed in a random order of attaching respondents to one of four social norms' groups. The questionnaires have been mixed beforehand to achieve random belonging to the group.

The questionnaire contained "social responsibility norm" appealing to respondents to aid others who were dependent on them (Berkowitz & Daniels, 1964). The norm was formulated as following: *"By answering this questionnaire, you are helping master students of Norwegian Hotel School in their research on pro-environmental behavior of hotel guests"*, being preceded by direct request: *"Please contribute to the development of scientific knowledge"*.

Overall, desired sample size was achieved by gathering data from all mention above sources. The further descriptions of achieved sample would follow in next sections.

2.3. Measurements

In order to test the hypotheses of interest, namely H1-H3, two different measurement techniques were utilized. To investigate possible social normative influence in conditions of

not real time hotel stay situation, the scenario have been developed and implied. It described the situation, in which a hotel guest is staying in the room, was going to take a shower and notices the note containing social norm. The scenario has been solely developed by the authors of this study and have been furthermore pre-tested. Social normative messages were adapted from the study by Schultz et al. (2008) as well as the results indicated positive influence of such in their experiments. The full content of each norm can be found in Appendix A. These measures were introduced in order to test Hypothesis H1.

For testing hypotheses H3(a-b), related to the Theory of Planned Behavior (TPB), different measurement instruments were analyzed on their appropriateness for the context of study and capturing TPB domains.

The Schwartz Value Survey used in towel reuse context by Mair and Bergin-Seers (2010), was among the options to be selected as a measurement tool. Nevertheless, after careful review it was obvious that it didn't fit the TPB model, as well as it was measuring environmental values rather than TPB constructs.

Furthermore, the New Ecological Paradigm was also considered as a tool to measure environmental attitudes. Even though the scale has been validated several times and the reliability has been confirmed, it seemed rather distant from attitudinal domain, conceptualized by Ajzen (1991). Moreover, the numerous items this scale contains would overwhelm the questionnaire, drawing away the main focus from TPB model to purely attitudinal approach.

We surfed through number of studies which have been applying the TPB model to different contexts. The quick search on Google Scholar suggests 933000 results for such. It was extremely hard to find a well-validated survey, relevant to pro-environmental behavior in hotel settings. We have considered as an option to design our own measurement instrument, following instructions for TPB questionnaire development suggested by author of this theory himself (Ajzen, 2006).

Finally, we discovered the study by Han, Hsu and Sheu (2010), who applied the TPB model to measure visitor's intention for green hotel choice. The presented survey seemed well fitting the context of our study, had been fully validated by its authors, and the article itself was published in highly reputable journal as Tourism Management (Level 2, according to Norwegian Centre for Scientific Data) and been cited over 600 times according to Google Scholar.

In their study, they adapt the Fishbein & Ajzen model to fit the model of green hotel choice. Therefore, this survey was furthermore used and adapted to the context of our study.

In order to gain understanding if measurement would be valid and reliable in context-specific settings and scenario would work, the pre-test of questionnaire and a focus group have been conducted.

A pre-test was performed with a total number of respondents N=116. The survey was distributed to the students of the Norwegian Hotel School, University of Stavanger. The respondents were 71,6% female and 28,4% male, most of them having an educational level of Bachelor (94%), aged between 19 years and 43 (Mean=24.35, SD= 3.802). In addition, respondents were of 14 different nationalities, being the most represented by Norwegians (78,4%).

The results of the pre-test indicated that Control Beliefs construct had poor reliability with a low Chronbach's Alpha value of 0.46. Surprisingly, the authors of the original survey had a very similar problem in their study with the same construct, in which the inner consistency was not good enough and been resolved by elimination of one item (Han, Hsu, & Sheu, 2010). When adapting the survey to our study, one item of original control belief scale has been eliminated – CB4, as well as it wasn't fitting the contexts. After getting such poor results with this scale we reconsidered our decision and used this item in final questionnaire with maximum

possible adaptation. Reliability of all other TPB constructs was sufficient enough, as well as they all showed Alpha values higher than 0.6, as recommended by Nunnally (1967).

The results of principal component analysis revealed overall good loadings for most of the constructs, only showing problems with cross-loading issues for items from attitude, control belief and normative beliefs scales. Authors evaluated mentioned scales with face validity and rephrased some of the clearly close in meaning items.

In addition, in course of pre-test high desirability bias was observed, since the respondents rated themselves with a higher chance of reusing the towels than an average hotel guests. In order to solve this problem scenario has been reversed to an imagined third person "Mr.Smith". This technique has been claimed by Lee et al. (2017) to be effective in decreasing the bias.

Finally, the questionnaire included manipulation check in order to see if scenario worked. Results revealed that it worked quiet well with Mean = 2.3, SD = 1.2, indicating respondents answer closer to positive edge of 7 point Likert Scale.

The focus group have been also conducted with 10 participants, students of the University of Stavanger involved in drama course. They were asked to try the role of hotel guest and discuss if the scenario was sufficient enough to adept in such. The "read aloud" technique has been also used to identify ambiguously phrased items. Their comments have been taken into consideration, which were mainly related to separate words, hard to be understood for not profound English speaker.

The final survey included the four different social norms as interventions, TPB questionnaire and one additional item measuring past behavior, designed by consulting Ajzen's (2006) guidance for developing TPB survey. Full questionnaire can be found in Appendix A.

3. Results

3.1. Data Analysis

The data were analyzed using IBM SPSS Statistics version 21 and LISREL 9.20 software package.

To assess normality and assumption of general linear model, the SPSS descriptive statistical analyses would be used in the first hand, as advised by Pallant (2013).

In order to examine sufficiency of the measurement instrument the reliability and validity analyses would be furthermore proceeded.

Reliability is the degree to which all items of the concept domain have an equal amount of common core (Churchill Jr, 1979). In order to test reliability, Cronbach's Alpha coefficient would be computed using SPSS Statistics. It is believed to be the first measure which assess the quality of the instrument (Churchill Jr, 1979) and most employed indicator of the internal consistency (Pallant, 2013).

Construct validity is related to what the instrument is in fact measuring, and it is comprised of convergent validity (an extent to which multiple indicators of the construct converge), discriminant validity (an extent to which the measure is novel and distinct from the other variable), and nomological validity (a degree to which predictions in the formal theory are confirmed) (Bagozzi, 1981; Churchill Jr, 1979).

Convergent and discriminant validity would be tested with Principal Component Analysis (PCA) in SPSS Statistics to explore interrelationships among a set of variables on the early stage of this research. On the later stage, Structural Equation Modelling (SEM) would be conducted in LISREL to analyze relations among latent constructs. The SEM techniques combines aspects of multiple regression and factor analyses (Reisinger & Mavondo, 2007). The measurement model in SEM is evaluated though Confirmatory Factor Analyses (CFA) which allows to test convergent and discriminant validity in one model (Reisinger & Mavondo, 2007),

and is argued to be more appropriate than multitrait-multimethod matrix (Campbell & Fiske, 1959). For this study SEM was considered to be more appropriate based on the assumption that it assess series of dependent relationships simultaneously, which is not possible with the use of other multivariate techniques (Han et al., 2010). Composite reliability (CR) and Average Variance Extracted (AVE) would be also calculated to demonstrate reliability and construct validity, based on the results from SEM.

Nomological validity going to be evaluated though hypotheses testing. SEM would be used to compare the fits of the theorized models to the data and also to test hypotheses H2 (a-b).

Traditional analyses such as regression (hierarchical and multiple) would be conducted in SPSS Statistics to identify the predictive power of past behavior on behavioral intention, as well as possible mediating role of TBP constructs (hypotheses H3(a-b)).

One-way between-groups analysis of variance (ANOVA) would be used to test hypothesis H1 and compare groups subjected to the influence of descriptive, injunctive, combined social norm and no-norm messages.

3.2. Achieved sample

The achieved sample consisted of 469 responses, 31 cases were manually excluded based on uncompleted questionnaires and two manipulation checks: 1) indicating that a respondent didn't understand the questions asked; 2) indicating that a respondent has never stayed at a hotel before. A total of 438 usable responses were further included in the analyses. The gender distribution revealed that 39 % of the respondents were female, 60 % were male and 1 % indicated their gender as "another gender". Respondents ranged in age from 18 to 70 years, and the average age was 25.7 years (SD=9 years). The majority of the participants were Scandinavians (88 % Norwegians, 2.5 % Swedish, 1 % Danish, 0.2 % Finnish), while the remaining 8.3 % were representatives of 16 other countries all over the world. The education

level of the respondents ranged from holding high school diploma (8%), bachelor degree (83%), master degree (8%) to PhD degree (1%). Finally, most of the respondents (56 %) indicated that they have stayed at the hotels frequently (17 % very often, 14 % often and 15 % from time to time). Manipulation check revealed that the scenario worked well: the situation described was perceived as believable (Mean = 2.5, SD = 1.4), possible to happen in real life (Mean = 2.4, SD = 1.4) and the questions asked were understood (Mean = 2.4, SD = 1.4).

3.3.   Reliability and validity analyses

Before the start of the analyses the data set have been screened for errors and violation of the assumption of the general linear model. The measurements showed adequacy for inclusion to further analyses. Descriptive statistics for continuo variables are presented in the Appendix B.

The suggested values of coefficient alpha as an indicator of reliability range from α = .50 to α = .60 on acceptable level (Nunnally et al., 1967). There is little agreement on estimation of such, DeVellis (2016) argues that coefficient alpha of a scale should be above .7 while Pallant (2013) advises values above .8 as preferable.

Reliability test revealed coefficient alpha for behavioral intention as 0.69, for behavioral beliefs 0.90, for normative beliefs 0.87, for control beliefs 0.57, for attitude 0.93, for subjective norm 0.89, and for perceived behavioral control 0.78. As it can be concluded, all scales have resulted with sufficient reliability, except for control beliefs with low alpha value and attitude with too high. For the case of control beliefs, Item-Total Statistics identified coefficient alpha on acceptable level 0.61 if item CB4 is deleted. This item was kept for further principal component analysis before taking decision of eliminating it. The high alpha value of attitudinal scale could be due to the cause that Churchill (1979) argues as "garbage items" – items that are too close in their meanings in measuring the same construct. Coefficient alpha is also sensitive to the amount of items in the scale – with the increase of item's amount resulting in the increase

of coefficient alpha. (Churchill Jr, 1979). In the following study there were 7 items measuring the attitude with the semantic scale adopted from Han et. al. (2010). According to face validity it seems that items could be indeed too close in the measuring same construct and their amount most likely should be decreased. Still all attitudinal items were kept for further investigation with principal component analysis (PCA).

First, each scale was separately analyzed with PCA, oblique technique – Direct Oblimin. The results are detailed in Table 2.

Table 2

Principal component analysis for continuous variables

Measure	Recommended value [a]	BI	BB	NB	CB	AT	SN	PBC
Factor, *N*	Eigenvalue > 1	1	1	1	2	1	1	1
Total variance explained		52.63%	71.39%	79.53%	72.69%	70.41%	81.95%	69.49%
KMO	> 0.6	0.65	0.88	0.74	0.57	0.90	0.74	0.67
Barlett's test of sphericity	$p < 0.05$	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Communalities min (max)	> 0.3	0.41 (0.71)	0.64 (0.77)	0.78 (0.81)	0.66 (0.77)	0.65 (0.75)	0.80 (0.85)	0.58 (0.76)
Factor loadings min (max)	> 0.4	0.64 (0.84)	0.80 (0.88)	0.88 (0.90)	0.45 /- 0.38; (0.76)/(0.75)	0.80 (0.87)	0.89 (0.92)	0.76 (0.87)

Note. BI = behavioral intention; BB = behavioral belief; NB = normative beliefs; C = control belief; AT = attitude; SN = subjective norm; PBC = perceived behavioral control; *N* = number; KMO = Kaiser-Meyer-Olkin measure of Sampling Adequacy; min = minimum; max = maximum

[a] Recommended values were based on Pallant (2013)

The results suggest that all scales (except for control beliefs) showed presence of one component (eigenvalue > 1) with certain amount of variance, while Kaiser-Meyer-Olkin (KMO) measure verified the suitability of data set, exceeding the recommended value of 0.6 (Kaiser, 1970, 1974), and Bartlett's Test of Sphericity (1954) reached statistical significance at

p < 0.001 level. Communality values of these scales revealed that all items fit well with each other (> 0.3), while factor loadings indicated strong belonging to assigned component (> 0.3).

The problematic scale was control beliefs: two components were identified (eigenvalue > 1) with expected one, KMO measure was low = 0.574 (< .6). Also detailed results from Component matrix showed that item CB4 had the highest loading on the second factor (0.75) while CB1 and CB2 were negatively related to it (-0.39; -0.47) and CB3 related more strongly to component one (0.70) than component two (0.42).

Taking into consideration the results from reliability analyses suggesting higher coefficient alpha for control beliefs if item CB4 is deleted and the results from PCA, the decision was made to eliminate item CB4 from further analyses. PCA was conducted again for control beliefs scale without this item and resulted in one factor (eigenvalue >1), which accounted for 56,41 % of variance, KMO measure was improved to 0.6, which could be considered sufficient enough criterion, communality values were all above 0.3 and all three items strongly related to the factor above 0.4.

After theses refinements, and the final results from PCA, it could be stated that convergent validity on item level for all scales was reached.

Analysis proceeded for testing discriminant validity: all items of the scales were subjected to PCA simultaneously. Maximum likelihood extraction method was used as a more appropriate method for highly correlated scales, as discussed by Tabachnick and Fidell (2013). Fixed number of factors was set to = 7. PCA resulted in 6 components with eigenvalue > 1, which accounted for 68,62 % of variance. Since number of components was set to 7, the last component had eigenvalue of 0.826 and together with previous components accounted for 71,57 % of variance, KMO measure = 0.938 (> .6) p < 0.001.

Pattern matrix indicated that some items had cross loadings with other components, in particular two items from attitudinal scale (AT4, AT7) loaded on control beliefs component

rather then their own, while item CB3 of control beliefs scale didn't reach the loading of 0.3 and has not been included to any of components (see Appendix C). Taking into consideration previous reliability analyses for attitudinal scale and cross loadings of items AT4 and AT7, the decision was made to eliminate theses two items from further analyses.

PCA was conducted again the same way as before without eliminated items (AT4, AT7). Six components had eigenvalue > 1, the seventh component resulted with eigenvalue .819 and together accounted for 72, 15 % of variance, KMO measure = 0.930 (> .6), p < 0.001. Pattern matrix didn't have any cross-loadings this time, which can be a sign of discriminant validity of the scales on item level (see Appendix D).

3.4. Measurement validation with SEM

The measurement model was evaluated in SEM through confirmatory factor analysis (CFA). Items CB4, AT4 and AT7 were not included, $N = 438$. In order to establish convergent validity, the overall fit of the SEM model should be acceptable (Schumacker & Lomax, 2004). According to Reisinger and Mavondo (2007) there is little agreement in scientific arena when it comes to model evaluation and criteria for such. Particularly LISREL program prints out 38 indices, known as "Goodness of Fit Statistics" (Iacobucci, 2010). Researchers argue that x^2 is definitely the first index to take a look at as well as it tests the null hypothesis and allows to make statements about the significance of such (Bagozzi & Yi, 2012; Iacobucci, 2010; Reisinger & Mavondo, 2007). Nevertheless, this index is sensitive to sample size and will almost always be significant (indicating poor fit) if sample is big or even middle sized (Iacobucci, 2010). Therefore it has been previously suggested to divide x^2 by it's degree of freedom to achieve better precision in estimates. The acceptable coefficients ranges across the studies: some state that x^2/df should be less than 3.0 (Kline, 2015) while others state that it can be up to 5.0 (Hair, Black, Babin, Anderson, & Tatham, 1998), with the lower values indicating the better fit. In the current study the mentioned above indexes for TPB model resulted as: $x^2 =$

888.401, $p < 0.001$, $df = 290$, $x^2/df = 3{,}06$. Therefore, it can be assumed that model demonstrates acceptable fit.

Among other generally recommended to report fit indices are: RMSEA (root mean square of approximation) which suggests model quality and provides precise fit, NNFI (non-normed fit index) which evaluates model complexity and rewards model parsimony and CFI (comparative fit index) which compares the fit of one model to the fit of null model (Bagozzi & Yi, 2012). The recommended standards for these indexes vary across the studies, the following values would be used for further estimation: RMSEA $\leq$ 0.08, NNFI $\geq$ 0.90, CFI $\geq$ 0.90 (Reisinger & Mavondo, 2007). The TPB showed acceptable fit according to proposed standards (RMSEA = 0.07, NNFI = 0.90, CFI = 0.91).

In order to demonstrate reliability, convergent and discriminant validity of the measurement instrument in more rigorous way, Fornell and Lacker (1981) propose to calculate Composite Reliability (CR) which gives an idea about internal consistency of multiple indicators for each construct and Avarage Variance Extracted (AVE) which allows to make statements about the distinction between the constructs. Table 2 details the results.

CR has been calculated according to the formula:

$$CR = \frac{\left(\sum_{i=1}^{k} \lambda_i\right)^2}{\left(\sum_{i=1}^{k} \lambda_i\right)^2 + \sum_{i=1}^{k} \sigma_{e_i}^2}$$

Where k is the number of items, λ_i the factor loading of item i and $\sigma_{e_i}^2$ the observed variance of the error e_i (Fornell & Larcker, 1981).

Composite reliability for the study constructs has ranged from 0.61 to 0.91 exceeding recommended value above 0.60 suggested by Bagozzi and Yi (2012) indicating good internal consistency of multiple indicators for each scale.

AVE has been furthermore calculated according to the formula below, proposed by Fornell and Larcker (1981):

$$\text{AVE} = \frac{\sum_{i=1}^{k} \lambda_i^2}{\sum_{i=1}^{k} \lambda_i^2 + \sum_{i=1}^{k} \text{Var}(e_i)}$$

Where k is the number of items, λ_i the factor loading of item *i* and *Var (e$_i$)* the variance of the error of item.

As it can be seen from Table 3 all constructs reached minimum criteria of 0.50 recommended by Fornell and Larcker (1981), except for control beliefs construct resulting with coefficient of 0.34. This result suggests that the variance captured by this construct is smaller than the variance due to measurement error. Nevertheless, it is argued that the AVE is quiet conservative indicator and the statements about quality of an instrument can be solely made relying on CR evaluation (Fornell & Larcker, 1981), which was satisfactory for control beliefs (CR=0.61).

The discriminant validity can be reported if AVE in a latent construct indicator exceeds the variance that this construct shares with another construct and it can be concluded that these constructs are distinct (Reisinger & Mavondo, 2007).

It can be stated that all constructs reached the discriminant validity in the following study, except for control beliefs which had more variance (i.e., the squared correlation) with perceived behavioral control construct (see Table 2). Nevertheless, results of Pearson product-moment correlations between variables showed moderate correlation of 0.45 between these two constructs (see Appendix E). Furthermore, Bagozzi and Yi (2012) summarize that CR and AVE should be taken with a leeway in mind as well as the old standards are not fully applicable to SEM models, while goodness-of-fit indices are considered as the more appropriate

evaluators. Those are also suggested to be compared to the fit indices of the other models due to little agreement on the standards for acceptable values of such (Reisinger & Mavondo, 2007).

Table 3

Measure correlations, composite reliability, and AVE

| Measure | Correlations among latent constructs (squared)[a] | | | | | | | AVE |
	BI	BB_iOE_i	NB_jMC_j	CB_kPP_k	AT	SN	PBC	
BI	1.000							0,502
BB_iOE_i	0.438 (0.192)	1.000						0.697
NB_jMC_j	0.506 (0.256)	0.603 (0.364)	1.000					0.690
CB_kPP_k	0.440 (0.194)	0.549 (0.301)	0.512 (0.262)	1.000				0.343
AT	0.402 (0.162)	0.645 (0.254)	0.389 (0.151)	0.354 (0.125)	1.000			0.678
SN	0.539 (0.290)	0.504 (0.254)	0.835 (0.697)	0.427 (0.182)	0.325 (0.106)	1.000		0.730
PBC	0.450 (0.202)	0.403 (0.162)	0.376 (0.141)	0.736 (0.542)	0.260 (0.068)	0.314 (0.099)	1.000	0.539
Mean	3.434	3.005	3.559	2.648	3.509	3.570	2.199	
SD	1.243	1.390	1.460	1.219	1.280	1.419	1.204	
Composite reliability	0.700	0.900	0.869	0.607	0.913	0.890	0.774	

Note. BB = behavioral beliefs; OE = outcome evaluation; NB = normative beliefs; MC = motivation to comply; CB = control beliefs; PP = perceived power; AT = attitude; SN = subjective norm; PBC = perceived behavioral control; BI = behavioral intention; SD = standard deviation; AVE = average variance extracted.

[a] correlation coefficients are estimates from LISREL.

3.5. Modeling comparison

The model comparison has been conducted and TPB model has been compared to TRA and refined models using SEM, Table 4 details the results.

Table 4

Explanatory power and fit indices of models

Fit indices & R^2	Recommended value [a]	TRA	TPB	TPB1 modified	TPB2PB modified
x^2		908.698	888.401	765.736	816.679
df		289	290	289	311
x^2/df	≤ 5	3.144	3.063	2.650	2.625
RMSEA	≤ 0.08	0.070	0.069	0.061	0.061
CFI	≥ 0.90	0.906	0.909	0.928	0.926
NNFI	≥ 0.90	0.894	0.898	0.919	0.917
R^2(adjusted)					
BI		0.348	0.415	0.435	0.446
AT		0.421	0.416	0.582	0.585
SN		0.701	0.697	0.708	0.717
PBC			0.541	0.542	0.597

Note. AT = attitude; SN = subjective norm; PBC = perceived behavioral control; BI = behavioral intention.

[a] Recommended value were based on Hair et al. (1998)

It can be seen that the TPB model had slightly superior fit statistics ($x^2/df = 3.063$, RMSEA = 0.0686, NNFI = 0.898) than the TRA model ($x^2/df = 3.144$, RMSEA = 0.0700, NNFI = 0.894) and better explanatory power for the behavioural intention (Adjusted $R^2 = 0.415$) than TRA (Adjusted $R^2 = 0.348$). These results therefore suggest that inclusion of non-violational/situational constraint factors and perceived behavioural control contributes to more accurate prediction of behavioural intentions of hotel guests, which is in line with previous studies (Han et al., 2010). In course of analysis SEM modification indices revealed suggestions for alternative models, in particular the highest estimated magnitude decrease in model chi-square (for 1 degree of freedom) was by adding the path from subjective norm to attitude (chi-square decreased by 99.4). Lei and Wu (2007) warn profound researcher about performing changes on the model solely based on modification indices as well as it may not lead to getting a "true" model in realistic situations. They therefore introduce several conditions for the likelihood of success of post hock modifications: the suggested path(s) should be theoretically

justifiable, the sample size large enough and the initial model close to "true" model (which is never known in practice). From the theoretical viewpoint the suggested path altering the relations between attitude and subjective norm has been widely discussed in many studies trying to refine the TPB model (Chang, 1998; Han et al., 2010; Oliver & Bearden, 1985; Ryu & Jang, 2006; Vallerand et al., 1992). Taking into consideration strong theoretical background, modification indices and sufficiency of sample size the following path has been added, TPB1 modified model was created and compared to original TPB model. As a result, the refined model (TPB1) has shown superior explanatory power over TPB: adjusted R^2 has raised for behavioural intention from 0.415 (TBP) to 0.435 (TBP1), for attitude from 0.416 (TPB) to 0.582 (TPB1), for subjective norm from 0.697 (TPB) to 0.708 (TPB1) and slightly for perceived behavioral control from 0.541 (TBP) to 0.542 (TPB1). Moreover, the refined model showed the better fit (modified TPB1: x^2/df = 2.650, RMSEA = 0.0614 vs original TPB: x^2/df = 3.063, RMSEA = 0.0686). It should be also noted that CFI and NNFI indices in the modified model TPB1 exceeded the recommended threshold of > .90 while these values for the TBP model were on the reach of such (see Table 2).

Taking in consideration suggestion by Han et. al. (2010), past behavior construct has been added into TPB 1 refined model with direct path to behavioral intention in order to test predictive power of new TPB2PB modified model. As a result of such comparison, TPB2PB model showed slightly better model-data fit x^2/df dropped on 0.025 measurement units, RMSEA – on 0.005 while incremental fit indices showed poorer results – NNFI and CFI dropped on 0.002 units (see Table 3). It can be stated that the TPB2PB modified model didn't show so much superior improvements in comparison to TPB 1 modified model. While the data fit was indeed slightly better, there was less increase in relative model fit. Lei and Wu (2007) point out that higher values of incremental fit indices would indicate larger improvement over the baseline model – the one in which observed variable are usually uncorrelated. As it was

previously hypothesized by Han et al. (2010), model with past behavior would sufficiently increase explanatory power of TPB model. The results, however, showed that TPB2PB model didn't improve such over TPB1 modified: adjusted R^2 has dropped for behavioural intention from 0.435 (TPB1) to 0.377 (TBP2PB), for attitude from 0.582 (TPB1) to 0.498 (TPB2PB), and slightly raised for subjective norm from 0.708 (TPB1) to 0.717 (TPB2PB) and perceived behavioral control from 0.542 (TPB1) to 0.597 (TPB2PB).

Therefore, the final model better explanatory power and goodness-of-fit statistics was considered to be TBP1 modified. It is presented in Fig. 1
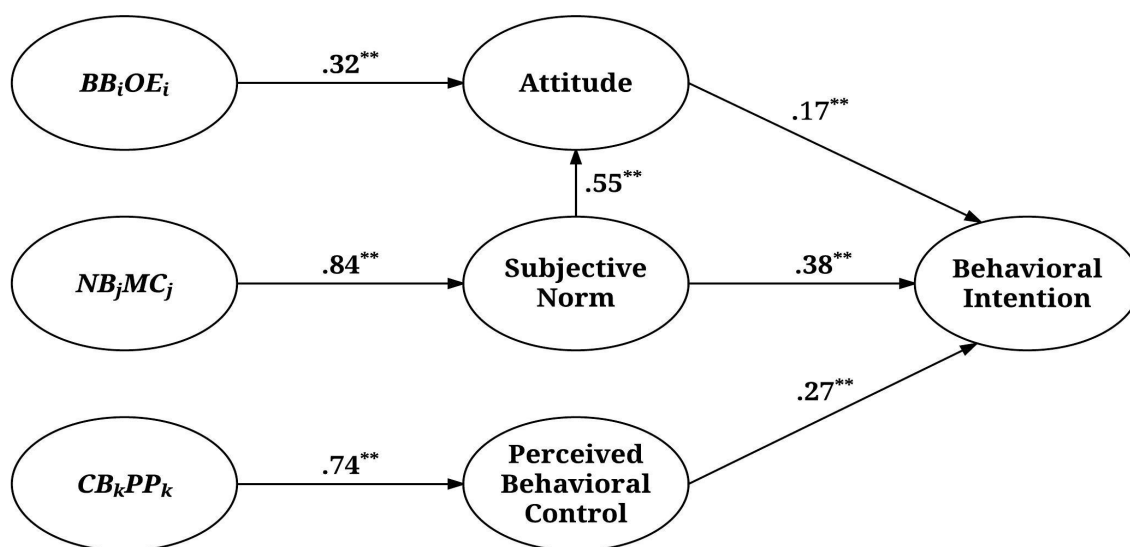

Fig. 1. Final TPB1 modified model

Note. BB = behavioral beliefs; OE = outcome evaluation; NB = normative beliefs; MC = motivation to comply; CB = control beliefs; PP = perceived power; AT = attitude; SN = subjective norm; PBC = perceived behavioral control; BI = behavioral intention.

[*]$p < .05$; [**]$p < .01$; [***]$p < .001$

3.6.   Hypotheses testing

In search of answer for RQ1, hypotheses H1 have been tested with a one-way between-groups analysis of variance (ANOVA) to explore the impact of social norms on hotel guest's behavioral intention for towel reuse. Descriptive statistics indicated that participants were almost equally divided into 4 groups: $N = 110$ injunctive social norm group, $N = 109$ descriptive norm, $N = 110$ combined injunctive and descriptive norm, $N = 109$ no norm control group. Levene's test for homogeneity of variance indicated no violation of the homogeneity of variance assumption ($p > 0.05$), according to Pallant (2013). The further results indicated that there was no statistically significant difference at the $p < 0.05$ level in behavioral intention of hotel guests. Therefore, there was no further need for post-hoc comparisons and calculation of effect size (Pallant, 2013). The groups were also compared on possible differences in attitude, subjective norm and perceived behavioral control variables. No statistically significant differences were found for any of these variables ($p > 0.05$). Therefor, hypothesis H1 was not supported. To control the possible role of habit in response to normative influence, past behavior for the four experimental groups was furthermore subjected to one-way ANOVA. The analysis revealed no significant difference in past behavior for social norms groups ($p > 0.05$).

Taking into consideration such results, all 4 social norm groups (total $N = 438$) were furthermore included for testing hypotheses H2 (a-b) and H3 (a-b).

RQ2, hypothesis H2 (a-b)

SEM analysis revealed positive and significant linkages between BB_iOE_i and attitude ($\beta = 0.32$; t = 7.056, $p < 0.001$), between NB_jMC_j and subjective norm ($\beta = 0.84$; t = 16.941, $p < 0.001$), and between CB_kPP_k and perceived behavioral control ($\beta = 0.74$; t = 9.263, $p < 0.001$). Thus, Hypothesis 2 (a) was supported. The estimates of the standardized coefficients also showed positive influences of attitude ($\beta = 0.17$; t = 2.330, $p < 0.05$), subjective norm ($\beta = 0.38$; t = 4.980, $p < 0.001$), and perceived behavioral control ($\beta = 0.27$; t = 4.744, $p < 0.001$) on

behavioral intention, supporting Hypotheses 2 (b). As it can be seen the direct effect of subjective norm on behavioral intention was bigger than the attitude and perceived behavioral control. Table 6 details these results of hypotheses H2 (a-b) testing. Further findings indicated the positive indirect effect of subjective norm on behavioral intention through attitude (βSN-AT-BI = 0.09, t = 2.31, p < 0.05) suggesting mediating role of the attitude in this effect chain. Finally, the added path between subjective norm and attitude was positive (β = 0.55; t = 11.006, p < 0.001), which is consistent with previous studies (Chang, 1998; Han et al., 2010; Ryu & Jang, 2006). As Han et al. (2010) states, this may indicate the interdependence of attitudinal and normative structures.

Table 6

Structural equation modeling results - final model TPB 1 modified (N=438)

Paths	Coefficient	t-Value	Hypotheses
$BB_iOE_i \rightarrow$ AT	0.32^{***}	7.056	H2(a): supported
$NBjMCj \rightarrow$ SN	0.84^{***}	16.941	H2(a) : supported
$CB_kPP_k \rightarrow$ PBC	0.74^{***}	9.263	H2(a): supported
SN $\rightarrow$ AT	0.55^{***}	11.006	Added path
AT $\rightarrow$ BI	0.17^{*}	2.330	H2(b): supported
SN $\rightarrow$ BI	0.38^{***}	4.980	H2(b): supported
PBC $\rightarrow$ BI	0.27^{***}	4.744	H2(b): supported

Goodness-of-fit statistics: x^2 = 765.736, df = 289, p < 0.001, x^2/df = 2.650, RMSEA = 0.061; CFI = 0.928; NNFI = 0.919

Note. BB = behavioral beliefs; OE = outcome evaluation; NB = normative beliefs; MC = motivation to comply; CB = control beliefs; PP = perceived power; AT = attitude; SN = subjective norm; PBC = perceived behavioral control; BI = behavioral intention.

*p < .05; **p < .01; ***p < .001

RQ3 hypothesis H3 (a-b)

Past behavior has been subjected to regression analyses to check if it has any influence on behavioral intention to reuse the towel and whether such relationship is mediated via attitude,

subjective norm or perceived behavioral control (H3). First, hierarchical multiple regression in SPSS Statistics was used to evaluate the ability of model control measures (attitude, subjective norm and perceiver behavioral control) to predict behavioral intention of hotel guest after controlling for the influence of past behavior.

At Step 1 past behavior construct was entered, explaining 19 % of the variance in behavioral intention. After entry of attitude, subjective norm and perceived behavioral control at Step 2 the total variance explained by the model as a whole was 28 %, $F(4, 433) = 47.27$, p $< .001$. The three control measures explained an additional 9,6 % of variance in behavioral intention after controlling for past behavior, R square change $= .096$, F change $(3.433) = 19.441$, p $< .001$. In the final model all measures were statistically significant with highest beta value for social norm ($\beta = 0.23$, p $< .001$) followed by past behavior ($\beta = 0.19$, p $< .001$), attitude ($\beta = 0.15$, p $< .001$) and perceived behavioral control ($\beta = 0.11$, p $< .05$). These results gave an idea that there might be core processes underlying the behavioral intention of hotel guests with each of the variable making a unique contribution to such. There also might be overlapping effect of other variable such as past behavior as well as it turned to be a significant predictor.

As it has been previously theorized, effect of past behavior was argued to be mediated through the other variables of the TPB model (Ajzen, 2001; Cheng, Lam, & Hsu, 2005). In order to assert the mediation effect, three regression analyses have been furthermore conducted. Baron and Kenny (1986) have specified the three conditions to establish mediation effect, proposed model for testing it in this study is depicted in Fig. 2.

First condition, depicted in Path a, is that independent variable of past behavior must significantly influence the hypothesized mediators: attitudes, subjective norm, perceived behavioral control. Second condition is represented in Path c: where independent variable of past behavior must significantly influence the dependent variable of behavioral intention. Third condition is tested through paths B and C', with regression analysis incorporating both the

mediating variables (attitude, subjective norm, perceived behavioral control) and independent variable (past behavior) as predictors for behavioral intention. Mediation occurs when effect of independent variable on dependent variable becomes insignificant in third regression (full mediation) or significantly reduced (partial mediation) while the effect of mediating variable proves to be significant (Baron et al., 1986).
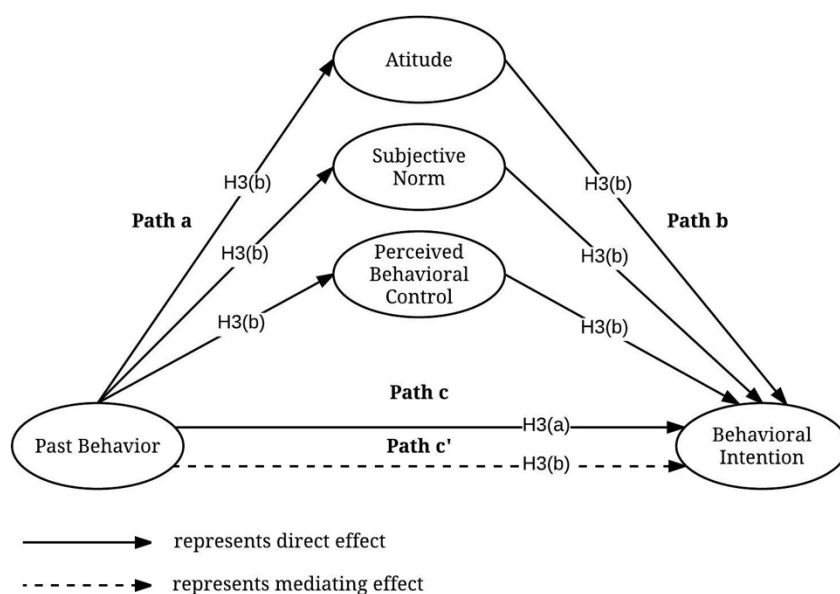
Fig. 2. Proposed model for testing mediating effects.

Note. H3(a) = hypothesis H3(a); H3(b) = hypothesis H3(b).

As it was shown in Table 5, all three conditions were achieved. Past behavior direct effect has been still significant in the third regression analyses for all mediating variables (path c'), nevertheless it was significantly reduced (path c). It can be therefore assumed that partial mediation occurred with big direct effect of past behavior being present, therefore hypotheses H3(a-b) were supported.

Table 6

Coefficients for the mediating effect with attitude, subjective norm, and perceived behavioral control as mediator

Testing path		*df*	F	R^2	β	P	Results
AT as covariate							
Regression (1) Path a	PB → AT	1	183.445	.296***	.544	.000	Achieved
Regression (2) Path c	PB → BI	1	101.829	.189***	.435	.000	Achieved
Regression (3) Path b	AT→ BI				.293	.000	Achieved
Regression (3) Path c'	PB → BI				.275	.000	Achieved
Regression (3) Path b and c'	PB → AT→ BI	2	72.478	.250***	.159	.000	Partial Mediation
SN as covariate							
Regression (1) Path a	PB → SN	1	140.352	.244***	.493	.000	Achieved
Regression (2) Path c	PB → BI	1	101.829	.189***	.435	.000	Achieved
Regression (3) Path b	SN→ BI				.308	.000	Achieved
Regression (3) Path c'	PB → BI				.283	.000	Achieved
Regression (3) Path b and c'	PB → SN → BI	2	78.850	.261***	.152	.000	Partial mediation
PBC as covariate							
Regression (1) Path a	PB → PBC	1	101.768	.189***	.435	.000	Achieved
Regression (2) Path c	PB → BI	1	101.829	.189***	.435	.000	Achieved
Regression (3) Path b	PBC → BI				.129	.007	Achieved
Regression (3) Path c'	PB → BI				.379	.000	Achieved
Regression (3) Path b and c'	PB → PBC → BI	2	55.360	.203***	.056	.000	Partial mediation

Note. $N = 438$, *p < .05; **p < .01; ***p < .001

AT = Attitude; SN = Subjective norm; PBC = Perceived behavioral belief; PB = Past behavior, and BI = Behavioral

intention

4. Discussion

4.1.   Overall reliability and validity

The present study examined influence of social norms interventions on hotel guest behavioral intention for towel reuse, appropriateness of TPB model in explaining such intention, and the role of past behavior.

Before testing the hypotheses, the constructs of measurement model were subjected to two-stages validation process. During first stage, the reliability of the instrument was assessed with Chronbach's alpha values for each scale, which were on sufficient level. Moreover, construct validity was closely examined with the help of principal component analysis. It resulted with the evidence of convergent and discriminant validity after the final refinements were done in the attitudinal and control beliefs scales. On stage two, measurement model has been tested with SEM confirmatory factor analysis. The predictive constructs have been validated by calculation of composite reliability and average variance extracted. The overall TBP model resulted with an acceptable data fit according to goodness-of-fit statistics. Furthermore, series of modelling comparisons showed that the final model (TPB1 modified) had better explanatory power and data fit over the other models.

4.2.   Limitations, implications, and further research

Social norms

During this study hypotheses H1, H2 (a-b) and H3 (a-b) have been tested with all the hypotheses being supported except H1. The analysis showed that four groups of normative interventions had no significant differences in predicting behavioral intention for towel reuse. The findings from previous literature were highly inconsistent in relation to social norm

influence on pro-environmental behavior of hotel guest. For example, some of the prior studies make strong statements on pro-environmental normative appeals triggering pro-environmental behavior being effective, in particular remarkable effect was noted in the first study of such kind conducted by Goldstein et al. (2008). It has caused great interest in the scientific arena with many other reputable researchers trying to replicate Goldstein's experiment with different extensions. Nevertheless, further replications had mostly mixed results with series of sequential experiments confirming and disconfirming the influence of social norms in the same study (Mair & Bergin-Seers, 2010; Reese et al., 2014; W. Schultz et al., 2008), while other studies indicated no significant improvements from social norm interventions in any of experiments (Bohner & Schlüter, 2014; Dolnicar et al., 2016). To solve such high ambiguity in seemingly inconsistent results, Scheibehenne et. al (2016) carried out Bayesian evidence synthesis analysis. They argue that individually analyzed, none of the previously conducted experiments has compelling evidence for social-norm hypothesis, while taken together they provide strong support. Therefore it seemed reasonable to incorporate social norm intervention into this study to re-test the possible effect by scenario-based experimental approach rather than field experiment. It allowed to control for such important condition that was previously not accounted for: if the hotel guest had actually read the note before preforming a pro-environmental behavior, so the effect of such could be firmly stated. As it turned out, hypothesis H1 was not supported, which is in line with some previous research discussed above.

Nevertheless, the finding cannot be fully comparable to other studies from before, as well as behavioral intention rather than actual behavior has been tested. It opens a full range for discussion, as well as human behavior is known to be one of the most complicated psychological construct and even closest predictor – behavioral intention – will far not always lead to actual behavior in situation-specific conditions (Bamberg, 2003; Davis, Challenger, Clegg, & Healey, 2008; Fransson & Gärling, 1999). Social desirability bias appearing in self-

report measures must be also fully recognized. It has been taken into account while developing the final questionnaires as well as pre-test suggested presence of such in high extent. The effort has been made to mitigate the effect of social desirability bias by employing scenario approach and reversing it to the third person actions. However, it is unknown to what extent discrepancies could possibly occur in process of experiment. Social desirability bias can be entirely accounted for if only all possible interfering factors between intention and behavior are explored (H. Y. Lee et al., 2017), therefore, it may still exist in this study. Thus, it may be considered as a weakness of this study and further field experiments are needed in order to cross-validate the results in real settings and control possible discrepancies. From another perspective, it was the first try, to the best of our knowledge, introducing scenario-based approach to towel reuse. Results of manipulation check revealed that scenario worked well being regarded by participants as believable and possible to happen in real life. This study may have further methodological implications, as well as conducting field experiment in the real hotel setting was found to be quiet problematic for profound researchers: number of contacted hotels have rejected such alternative due to rigorous internal room standards and simply because of additional workload for housekeeping department. Therefore, it seems that knowledge development in current towel-reuse research may be burst with simplification of obtaining data by exploring different methodological approaches. The further research should take into consideration possible limitations of scenario-based approach.

Past behavior

One of the most discussed in the previous literature was found to be RQ2 and following hypotheses H2(a-b) about the influence of past behavior on behavioral intention. It felt like the whole study could be devoted just to explore this phenomenon. Nevertheless, it wasn't the main prerogative, as well as past behavior seemed to be a variable of the other level than TBP model constructs involving effects appearing over periods of time with certain level of frequencies.

Such effects were not possible to be completely estimated with an experimental study like this, conducted at one-time point. Though, it was of great interest and foremost objective to control this measure in course of research, and possible effects of such on social norms interventions and TPB constructs, which were previously hypothesized in the reputable research literature (Bagozzi, 1981; Mair & Bergin-Seers, 2010; Ouellette & Wood, 1998), and the author of the TPB model himself (Ajzen, 2001). First interesting point to explore was that normative social influence may not work to a noticeable extent as well as role of habit in towel reuse could be quiet high (Mair & Bergin-Seers, 2010). As well as no significant difference was found for past behavior within social norms groups, it seemed that social normative influence didn't work for other reasons previously discussed rather than the role of habit. Yet, to make any causal statements between the past behavior and influence of social norms the further experimental analysis controlling frequency and occurrence of such is definitely needed.

Not without number of limitations, findings indicated that past behavior may explain significant amount of variance (19%) in behavioral intention for towel reuse, thus supporting hypothesis H2a. Once more, such result could be due to numerous biases involved, alongside not controlling this variable over time. More specifically, first of all this construct was measured only by one item, which suggests likelihood of the random error presence and no possibility to evaluate reliability and construct validity of measurement instrument (Churchill Jr, 1979). Past behavior had also a direct measure appealing to person's own evaluation of his/her past actions, which is in high risk of social desirability bias previously discussed. Last, but not least problem to be mentioned here is that past behavior item (PB1) didn't cover precise frequency, time, and specific condition of occurrence, being measured on the level of occurrence from "very often" to "never". Therefore, it is suggested to develop more precise measurement instrument for past behavior in the further research.

Another interrogation was whether past behavior and TPB control variable were related and in what way. The results from hierarchical multiple regression analysis revealed that TPB model with each of its constructs had still significant explanatory power ($p < .001$) with additional 9.6 % variance explained when controlling for past behavior influence on behavioral intention. The sole effect of past behavior was also present, suggesting for possible interpretation that towel reuse appears to be to a combination of decision-making process and habitual activities. The number of possible limitations already discussed surround this finding, it is also remained unknown to what extent personal differences of respondents could have effected it.

While testing most controversial hypothesis H2(b), the result showed consistency with the theoretical positioning from before: that the effect from all additional variables is most likely to mediated by TPB variables (Ajzen, 2001). Indeed, influence of past behavior was found to be partially mediated by attitude, subjective norm and perceived behavioral control variables. Therefore, hypothesis H2(b) was supported. Even though this finding was in line with the other studies (Cheng et al., 2005), it should be treated with precaution due to overestimation and feedback biases described by Baron and Kenny (1986). They state that such biases may occur due to different reasons when: 1) independent variable and mediator are highly correlated, leading to multicollinearity; 2) when mediator is psychological construct and involves measurement error producing underestimation of mediator and overestimation of the effect of independent variable; 3) mistaken assumptions about which variable is a mediator and which is being mediated, causing mediation chains. In the current paper the likelihood of mentioned above biases are quiet high, so the further analysis are desirable. In particular, it can be suggested to use two-stage least squares techniques or a related technique in order to deal with feedback bias (Smith & Manis, 1982), and structural modelling techniques with multiple indicator approach and estimation of mediation paths in order to cope with

underestimation/overestimation biases (Baron et al., 1986). In this study SEM analysis was used only with the direct path from past behavior to behavioral intention to test the model's (TPB2PB modified) sufficiency and significance of the inclusion of this variable comparing to TPB1 modified model. Results disconfirmed hypothesized raise of TPB model explanatory power in behavior intention by inclusion of past behavior construct, proposed by Han et al. (2010). TPB2PB modified model with incorporated past behavior showed poorer R^2 coefficient for behavioral intention than TPB1 modified model without this construct. The result was consistent with arguments of TPB author that the model is sufficient enough on its own and the inclusion of addition variables will most likely not increase its predictive power (Ajzen, 2001).

Overall, analyzing past behavior in relation to further behavioral intentions and decision-making process appears to be highly challengeable for profound researcher. It was unclear in this study how habitual behavior relates to experiences in making choices, therefore it seems that further investigation of expectancy-value models proposed by Verplanken et al. (1997) would contribute to expending knowledge of such. This phenomenon appears to be surrounded with many aspects of choice, cognitive complexity, strength of habit, amount of cognitive effort (B. B. Verplanken & Aarts, 1999) which were not properly manipulated in this study. In order to investigate the contrasts between the habit and deliberately-made choices in pro-environmental behavior of hotel guests, the further research is needed. Full acknowledgement must be also given to respondents recall of their past behavior, as well as it involves such complex and multi-construct psychological domain as "memories". Studies conducted with retrospective measurements are prompt to number of biases surrounding human memory recalls, Wolff and Larsen (2014) open a good discussion of such. Cheng et al. (2005) suggest that timeframes for past behavior recalls could contribute to minimizing effect of the recall bias – inability to accurately recall a past event. It seems appropriate to be included in the future research.

Theory of planned behavior

The findings of this study demonstrate empirical support for the adequateness of Ajzen's TPB model in measuring hotel guests' behavioral intention for towel reuse. In search of answer for research question 3, two hypotheses H3(a-b) have been tested and supported. It implies that engaging in pro-environmental behavior appears to be a decision making process to a large extent. More specifically, TPB model showed that process of intention formation has been influenced by attitude, subjective norm and perceived behavioral control. These TPB variables were affected by antecedent behavioral beliefs about perceived consequences of the behavior with evaluation of significance of such (outcome evaluation); normative beliefs of what salient referents think about the behavior and evaluation of complexity in engaging in such (motivation to comply); control belief of presence/absence of opportunities in order to perform the behavior with evaluation of importance of such in achieving the outcome (perceived power). These findings provide both theoretical and managerial implication for understanding determinants of hotel guest intention to reuse a towel. First, previous studies on towel reuse were mainly concentrated on finding interventions to motivate this kind of behavior while little was known about decision-making process underlying such. This study has utilized the TPB model in remarkably new context of environmentally conscious behavior, being employed in hotel guests' towel reuse intention formation. The results indicated that TPB model could be applicable to this contextual domain, holding strong predictive power for behavioral intention and explaining decent amount of variance in such. It forms a solid theoretical basis for the research of hotel customers' pro-environmental behaviors. The further theoretical implications could be also derived from comparison of TRA and TPB theories in different settings. Particularly in present towel-reuse context, superiority of TBP model in predicting guest's intention over TRA model suggested the need for inclusion of non-violational/situational constraint factors, consistently with previous studies in other settings (Azen & Madden, 1986;

Chang, 1998; Han et al., 2010; M. J. Lee, 2005; Park, 2003). In course of this study, it was discovered that attitudinal and normative structures of TPB model appeared to be interdependent rather than independent. Such assumption was based on significant added path from subjective norm to attitude, which also had strong theoretical support from before (Chang, 1998; Han et al., 2010; Ryu & Jang, 2006; Vallerand et al., 1992). Moreover, examination of standardized regression coefficients of SEM analysis revealed that subjective norm had a greater level of predicting behavioral intention than attitude and perceived behavioral control. The results have also verified that this influence of subjective norm was partially mediated by attitudinal construct. Thus, such mediation effect should be considered in future research designs. Moreover, it might be interesting to explore inclusion of closer reference group – friends and family – on adherence to provincial norm rather than more distant ones as "the other hotel guest" (used in this study), "guest staying in the same room", identity of citizen and gender groups (N. J. Goldstein et al., 2008).

The result of this study may also have some practical implication for hoteliers and marketers seeking to increase environmental concerns of their hotel guests. In particular, the previously discussed findings imply that formation of customer's attitudes towards performing towel-reuse behavior is in big extent influenced by one's important others. Therefore, promotion of green campaigns may benefit from appealing to family segment rather than individuals, because perceived social pressure is likely to contribute to positive evaluation of the consequences from individual's behavior in the long-term. An interesting practical example of possible ways to promote responsible behavior was a seat-belt campaign, which took place in Norway in 2005. It was launched by the governmental authority Statens Vegvesen and contained 300 road signs displaying a child holding over the parent (Terjesen, 2005). The underlying meaning of these visual elements was the usage of seat belts and reminding drivers about safety of their family members with such sensitive approach. Hotel marketers may also

try to motivate pro-environmental behavior of their guests by designing similar reminders of the effect of one's actions on sustainable future of their descendants. It can be visually displayed on the bathroom printed notes or even tried to be properly manipulated in the message, as a variation of provincial norm. In would have a two-way appeal approach, both to individual's consciousness, and attitude formation of their significant others, strengthening the influence of subjective norm.

There are some limitations of the presented research findings that should be acknowledged. First of all, the control beliefs scale and attitudinal scale have called for refinements in order to gain consistency of measurement instrument. These scales should be attempted to be improved in the further studies. Particularly, domain of control beliefs could be extended and identified with qualitative pre-test technique such as open-ended eliciting questionnaires. Bagozzi (1981) argues that such free-response format may result in better understanding of underlying beliefs. The same technique could be used to identify a set of salient beliefs influencing attitudinal scale with further improvement of it. The expected consequences of pro-environmental behavior could be rephrased to if-then implicative format, which would enable to evaluate the extent of each consequence effecting the target behavior. It has been also previously conceptualized that attitudinal reactions are most likely to be complex and multidimensional (Bagozzi & Yi, 1988). Therefore, the further research is needed to gain better understanding of this domain and development of adequate measurement instrument for each context-specific setting.

The other limitation of this study is that the data were collected from a wide range of lodging customers. From one hand, such convenient sample might enhance generalizability of the findings. From another hand, if a more homogeneous sample was used it would make it possible to argue better internal consistency and possibility to discover phenomenon of pro-environmental behavior in more concrete settings. For example, when questionnaires were

placed in the hotel rooms for a duration of three weeks, the hotel management could clearly identify which customer segment would be staying at a hotel during that time. Some hotels had normally majority of business visitors during ordinary weeks, while the holidays weeks were argued to have mainly leisure visitors. Thus, this study covered diverse customers and examined pro-environmental behavioral intention on more general level. It remained unknown how decision-making process was formed within each specific segment of hotel guests. The further research is needed to cross validate the results in various types of hotel setting. Another interesting question appearing in course of this study is how behavioral intention differs for customers staying alone and those staying together with a friend, family member or colleague. As well as influence of subjective norm showed high effect on pro-environmental behavior, it would be of big importance to discover its relation to an actual presence of significant others.

Finally, researchers agree that the problem of most behavioral studies is high possibility of presence of common method variance, which influences relations between measures (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Although common method variance issues are controversial in some respects, they cannot be ignored (Spector, 2006). According to Cote & Buckley (1988) methods' effect can either inflate or deflate observed relationships between constructs which may lead to incorrect conclusion.

The effort has been made in order to control common method bias by using different types of scales (Likert and semantic scales), negatively worded items, reversed scenario, and clarification of ambiguous questions during focus-group. The statistical technique as unrotated factor solutions has been implied. These remedies may help to deal with this sort of bias (Podsakoff et al., 2003), but it is clear that many other techniques could also contribute to resolving the problem in a greater extent.

Conclusions

This study was a humble attempt to make a contribution to the development of scientific knowledge in the areas of consumer behavior and environmental psychology. The problem of understanding and motivating pro-environmental behavior has been approached with a scenario-based experiment, incorporating social norms' interventions and TPB questionnaire. The analyses highlight the conclusion that decision-making processes and habitual actions seem to underlay the intention of hotel guests for towel reuse. Social normative influence didn't prove to be a significant motivator for such behavior. These results were critically discussed: possible weaknesses were identified and are advised to be considered.

From a theoretical perspective, this study demonstrates sufficiency of TPB to be applied in particular contextual setting. Results suggest that the role of habit may be strong predictor of specific behavior. Many aspects of this phenomenon were identified but stayed beyond of the scope of this study. These may form a solid ground for further research, addressing this interesting phenomenon from different standpoints.

Results of this study can have a practical value for hotelier and marketers when performing campaigns to foster environmental friendly activities and to try to influence hotel guests' environmental behavior.

Towel reuse doesn't appear to be fully habitual action, which opens possibility to facilitate it through strategies and different appeals, building favorable attitudes of the customers and their significant others. The role of interventions remains unclear but presents an opportunity for further research.

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Appendices

Appendix A

The following Appendix contains the final questionnaire: scenario, social norms' messages and the items measuring the variables.

Scenario

Mr. Smith has recently returned from a trip to Norway. During his vacation he stayed at one of the city hotels. He found a pile of freshly washed towels in the bathroom on arrival. When he was going to take a shower on the first night stay, he noticed the following message on a printed note:

Social norms messages

No Norm: "This hotel has initiated a towel-reuse program. Please reuse the towels".

Injunctive Norm: "Many of our quests have expressed to us their approval of conserving energy. Because so many guests value conservation and are in the habit of conserving, this hotel has initiated a towel-reuse program. Please reuse the towels".

Descriptive Norm: "Nearly 75 % of hotel guests choose to reuse their towels each day. To support our guests who want to conserve, this hotel has initiated a towel-reuse program. Please reuse the towels".

Combined Norm: "Many of our hotel guests have expressed to us their approval of conserving energy. When given the opportunity, nearly 75 % of hotel guests choose to reuse their towels each day. Because so many guests value conservation and are in a habit of conserving, this hotel has initiated a towel-reuse program. Please reuse the towels".

Variable	Measure
Behavioral Intention (BI)	*Very likely (1) / Very unlikely (7)*
	BI1: How likely Mr. Smith would be willing to reuse the towel?
	BI2: How likely Mr. Smith would ignore the message and request the new towel for the following day?
	BI3: How likely would another hotel guest be willing to reuse the towel?
	BI4: How likely would you be willing to reuse the towel in this situation?
Behavioral Beliefs (BB)	Reusing the towel would enable me to – *Strongly agree (1) / Strongly disagree (7)*
	BB1: – protect our environment.
	BB2: – be more socially responsible.
	BB3: – experience a healthy environmental friendly guestroom.
	BB4: – perform environmental friendly practices.
	BB5: – enjoy environmental friendly products and healthy amenities.
Normative Beliefs (NB)	*Very true (1) / Very false (7)*
	NB1: My family/relatives think hotel guests should reuse a towel when traveling.
	NB2: My friends think hotel guests should reuse a towel when traveling.
	NB3: My colleagues think hotel guests should reuse a towel when traveling.
Control Beliefs (CB)	*Strongly agree (1) / Strongly disagree (7)*
	CB1: Reusing a towel at a hotel is inconvenient.
	CB2: Reusing a towel at a hotel takes time and effort.
	CB3: Bathroom facilities have to make towel reuse easy.
	CB4: Incentive would encourage me for towel reuse.
Attitude (AT)	For me, reusing a towel at a hotel when traveling is:
	AT1: – *Extremely good (1) / Extremely bad (7)*
	AT2: – *Extremely desirable (1) / Extremely undesirable (7)*
	AT3: – *Extremely pleasant (1) / Extremely unpleasant (7)*
	AT4: – *Extremely wise (1) / Extremely foolish (7)*
	AT5: – *Extremely favorable (1) / Extremely unfavorable (7)*
	AT6: – *Extremely enjoyable (1) / Extremely unenjoyable (7)*
	AT7: – *Extremely positive (1) / Extremely negative (7)*
Subjective Norm (SN)	*Strongly agree (1) / Strongly disagree (7)*
	SN1: Most people who are important to me think I should reuse a towel at a hotel when traveling.

	SN2: Most people who are important to me would want me to reuse a towel at a hotel when traveling.
	SN3: People whose opinions I value would prefer that I reuse a towel at a hotel when traveling.
Perceived Behavioral Control (PBC)	*Strongly agree (1) / Strongly disagree (7)*
	PBC1: Whether or not I reuse a towel at a hotel when traveling is completely my decision.
	PBC2: I am confident that if I want, I can reuse a towel at a hotel when traveling.
	PBC3: I have time and opportunities to reuse a towel at a hotel when traveling.
Past Behavior (PB)	*Very often (1) / Never (7)*
	PB1: During my past stays at the hotels, I have reused the towels.
Manipulation Check	*Very often (1) / Never (7)*
	CHECK1: In the past, I have stayed at the hotels.
	Strongly agree (1) / Strongly disagree (7)
	CHECK2: I think situation described in scenario is possible to happen in real life.
	CHECK3: As a portrayal of a hotel stay, this situation is believable.
	UNDER1: I understood the questions asked in this questionnaire.

Appendix B

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
BI1	438	1	7	3.33	1.586	.248	.117	-.847	.233
BI3	438	1	7	3.92	1.624	.304	.117	-.602	.233
BI4	438	1	7	2.98	2.083	.769	.117	-.815	.233
BB1	438	1	7	2.71	1.651	.864	.117	.045	.233
BB2	438	1	7	3.13	1.770	.493	.117	-.738	.233
BB3	438	1	7	3.25	1.744	.394	.117	-.807	.233
BB4	438	1	7	2.80	1.520	.713	.117	.128	.233
BB5	438	1	7	3.13	1.528	.375	.117	-.436	.233
NB1	438	1	7	3.41	1.714	.403	.117	-.589	.233
NB2	438	1	7	3.61	1.664	.240	.117	-.684	.233
NB3	438	1	7	3.66	1.534	.172	.117	-.434	.233
CB3	438	1	7	2.46	1.428	.849	.117	.024	.233
CB4	438	1	7	3.25	1.467	.511	.117	.163	.233
AT1	438	1	7	3.07	1.501	.600	.117	-.086	.233
AT2	438	1	7	3.57	1.462	.233	.117	-.292	.233
AT3	438	1	7	3.72	1.442	.100	.117	-.304	.233
AT4	438	1	7	2.74	1.465	.559	.117	-.428	.233
AT5	438	1	7	3.31	1.465	.311	.117	-.203	.233
AT6	438	1	7	3.88	1.567	.051	.117	-.482	.233
AT7	438	1	7	2.97	1.567	.519	.117	-.381	.233
SN1	438	1	7	3.63	1.595	.249	.117	-.365	.233
SN2	438	1	7	3.64	1.581	.268	.117	-.377	.233
SN3	438	1	7	3.43	1.526	.365	.117	-.176	.233
PBC1	438	1	7	2.27	1.540	1.072	.117	.244	.233
PBC2	438	1	7	2.08	1.373	1.310	.117	1.059	.233
PBC3	438	1	7	2.25	1.432	1.167	.117	.775	.233
PB1	438	1	7	2.86	1.844	.770	.117	-.452	.233
CHECK1	438	1	6	3.24	1.470	.010	.117	-.900	.233
CHECK2	438	1	7	2.39	1.401	.920	.117	.453	.233
CHECK3	438	1	7	2.54	1.453	.712	.117	-.265	.233
UNDER1	438	1	6	2.40	1.422	.797	.117	-.309	.233
BI2REC	438	1.00	7.00	3.5114	1.57166	.187	.117	-.880	.233
CB1REC	438	1.00	7.00	3.2237	1.78737	.404	.117	-.920	.233
CB2REC	438	1.00	7.00	2.2580	1.63755	1.377	.117	1.016	.233
Valid N (listwise)	438								

Appendix C

Pattern Matrix[a]

	Factor						
	1	2	3	4	5	6	7
AT1	0.495						0.382
AT2	0.715						
AT3	1.016						
AT4							0.691
AT5	0.584						
AT6	0.875						
AT7	0.371						0.510
BB1		0.722					
BB2		0.872					
BB3		0.902					
BB4		0.753					
BB5		0.765					
PBC1			0.655				
PBC2			0.780				
PBC3			0.779				
NB1				0.764			
NB2				0.779			
NB3				0.854			
BI1					0.800		
BI2REC					0.618		
BI3					0.353		
BI4					0.319		
SN1						0.605	
SN2						0.896	
SN3						0.717	
CB1REC							0.334
CB2REC			0.302				0.319
CB3							

Note. Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Appendix D

Pattern Matrix[a]

| | Factor | | | | | | |
	1	2	3	4	5	6	7
BB1	0.777						
BB2	0.921						
BB3	0.882						
BB4	0.795						
BB5	0.738						
AT1		0.614					
AT2		0.790					
AT3		1,029					
AT5		0.681					
AT6		0.879					
NB1			0.740				
NB2			0.757				
NB3			0.849				
PBC1				0.688			
PBC2				0.836			
PBC3				0.759			
BI1					0.941		
BI2REC					0.548		
BI3					0.354		
BI4					0.302		
SN1						0.632	
SN2						0.920	
SN3						0.765	
CB1REC							0.828
CB2REC							0.615
CB3							

Note. Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Appendix E

Pearson Product-moment Correlations Between Variables

Measure	Correlations among latent constructs (squared)[a]						
	1	2	3	4	5	6	7
BB	0.485**	—					
NB	0.526**	0.479**	—				
CB	0.404**	0.371**	0.356**	—			
AT	0.443**	0.554**	0.593**	0.438**	—		
SN	0.448**	0.503**	0.718**	0.303**	0.653**	—	
PBC	0.294**	0.322**	0.291**	0.454**	0.333**	0.227**	—

Note. BI = behavioral intention; BB = behavioral belief; NB = normative beliefs; C = control belief; AT = attitude; SN = subjective norm; PBC = perceived behavioral control.

** Correlation is significant at the 0.01 level (2-tailed).