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Developing a Typology of Misbehaving Customers: An
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Developing a Typology of Misbehaving Customers: An Observational Study of Airport Travelers

----- MSc in Strategic Marketing Management -----

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Summary

The customer is *King*, or at least that is what we are told. But some *Kings* choose to misbehave and take advantage over service recoveries, service providers, and organizations. Customer misbehavior can be found as a broad range of intentional or unintentional actions and behaviors and can impact both the service experience of their own, other observing customers, the service provider in question, and whole organizations. In this study we developed a model capable of predicting customer misbehavior, making it possible for service providers and organizations to predict customer misbehavior before the service encounter in order to initiate measures to prevent the misbehavior from happening.

We have done this by conducting an observational study of 509 subjects at one of Norway's busiest airports. We collected data of all subjects through 27 different variables, enabling us to build 4 different models. In addition to building a model predicting misbehavior with 83.6% accuracy, the other models made us aware of factors significantly influencing the probability of misbehavior and the severity of this misbehavior.

These findings enabled us to construct a typology consisting of 7 different categories. These are (1) *The stressed group member*, (2) *Female Fury*, (3) *The Check-In Rager*, (4) *The Impolite Norwegian*, (5) *The Sceptic Age Discriminant*, (6) *The Stressed Bully*, and (7) *The Impatient White Collar*. This typology can help service providers detect potential misbehavers more easily and can help organizations develop strategies and guidelines on how to deal with these types of misbehavers.

1.0 Introduction

There is a common understanding among organizations about the importance of customer satisfaction. Several studies acknowledge the importance of the link between customer satisfaction and customer retention. Kotler (1994, p.20) stated that “the key to customer retention is customer satisfaction”. Hallowell (1996) further found a link between customer retention and profitability. These findings suggest that higher customer satisfaction will lead to higher profitability for organizations. Broadly speaking, Kotler (1991) defines customer satisfaction as a customer’s post-purchase evaluation of a product/service. Among others, Hennig-Thurau, Gwinner and Gremler (2002) connected customer satisfaction with an organization’s ability to form good relationships with its customers. The customer service department has an essential function in shaping these relationships, as the service department is the first point of interaction with the customer. Customer service employees’ main work task is to answer customer inquiries, making sure their customers are satisfied with the company.

But what happens when a customer misbehaves? In an encounter with a misbehaving customer, the service employee must generally respond with a smile and fulfill the customer’s needs regardless of their desire to do so or not (Madupali & Poddar, 2014). Customer misbehavior can be found as a broad range of intentional or unintentional actions and behaviors, which can impact the service experience of their own and of observing customers and even service providers and the whole organization. Misbehaving customers are either unsatisfied with the product or service or are “problematic” people in general (Madupali & Poddar, 2014). Among others, Berry and Seiders (2008) found that some customers use different forms of misbehavior as a mean to achieve their own goals or even solely to cause harm to the employee or organization. This type of behavior has been found to potentially lead to financial, physical and psychological harm to organizations, employees and other customers (Fullerton & Punj, 1993)

An extensive number of researchers have studied different forms of customer misbehavior, consequences of customer misbehavior, how to manage misbehaving customers and how and why customer misbehavior occurs. To our knowledge, no one has succeeded in identifying a specific set of characteristics, making it possible to foresee customer misbehavior. The purpose of this study to find whether it is

possible to predict customer misbehavior before the service encounter, which can help organizations and service employees identify customer misbehavior *before* the misbehavior takes place.

Being able to predict customer misbehavior can help organizations to establish methods to cope with misbehaving customers before they misbehave, and to develop defense mechanisms preventing misbehavior from happening. This will hopefully reduce the occurrences of unwanted and harmful behavior, and in turn increase customer satisfaction as customers do not have to resort to misbehavior or retaliation to be heard or to fulfill their needs. Being aware of such characteristics identifying misbehavior can further help the service provider to tailor their treatment of the specific customer, stretching even further to keep the customer satisfied and meeting their needs. Hopefully, the long-term effect will benefit the customers, the service providers, and whole organizations in terms of customer retention, staff turnover, and profitability.

2.0 Literature review

There are especially 3 dimensions which have been found to influence customer misbehavior in a service encounter; psychological and demographic characteristics of the misbehavior (e.g. Fullerton & Punj, 1993), characteristics of the service provider (e.g. Salomonson & Felleson, 2014), and characteristics of the servicescape (e.g. Bitner, 1992). All of these dimensions have been found to influence customer behavior both individually and collectively. In the following, we will look into previous literature on these topics to further understand the influence of these dimensions, and to develop a thorough framework for our research.

2.1 Customer Misbehavior

2.1.1 What is customer misbehavior?

“Dysfunctional customer misbehavior” (Daunt & Harris, 2012; Reynolds & Harris, 2009), “Deviant customer behavior” (Reynolds & Harris, 2006; Amine & Gicquel, 2011), “Customer unfairness” (Berry & Seiders, 2008), “aberrant consumer behavior” and “customer misbehavior” (Fullerton & Punj, 1993), are only a few of the terms we have encountered describing customer behavior that violates norms

by being intentionally destructive, and which negatively disrupt service encounters. Throughout this paper, we will use the term “customer misbehavior” to refer to customers who act in an aberrant manner. Harris and Reynolds (2003, p. 145) define customer misbehavior as “actions by customers who intentionally or unintentionally overtly or covertly, act in a manner that, in some way, disrupts otherwise functional service encounters”. Lovelock (2001, p. 73) defines misbehaving customers as “ones who act in a thoughtless or abusive way, causing problems for the firm, its employees and other customers”.

An extensive amount of literature has found that some customers use aggression or other forms of misbehavior as a mean to achieve their own goals or even solely to cause harm to the employee or organization (Berry & Seiders, 2008). This type of behavior could lead to financial, physical and psychological harm to organizations, employees and observing customers (Fullerton & Punj, 1993), and it has even been found that prolonged exposure to customer misbehavior can decrease quality of life (Rose & Neidermeyer, 1999). In recent studies both Gursoy, Cai, and Anaya (2017) and Rummelhagen and Benkenstein (2017) have found evidence that misbehaving customers could also affect the service experience of other observing customers.

Fullerton and Punj (1993) argue that customers who misbehave are ordinary-seeming people, who cannot be differentiated from other consumers; misbehavers are representative of consumers overall, not a group apart. However, many researchers, including Fullerton and Punj (1993), and Gursoy, Cai and Anaya (2017) who developed a tool to identify customer misbehaviors, points out certain characteristics which could lead to misbehavior, including characteristics about the customer (psychological, physical and demographic), the service provider and the servicescape.

2.1.2 Who misbehave and why?

There have been done studies on opportunistic customer claiming (Wirtz & McColl-Kennedy, 2010) about the creation of perceived opportunities to misbehave (Daunt & Greer, 2015), about customer misbehavior influenced by other customers (Rummelhagen & Benkenstein, 2017), about verbal abuse (Grandey, Kern & Frone, 2007) and about Pinocchio-customers (Harris, Fisk & Sysalova, 2016). A big similarity between these customer misbehaviors is the emotional state of the

customer before, during and after a service failure. How customers react with both real emotions and even faking feelings to achieve opportunistic service claims or retaliate on the organization.

The Pinocchio-effect describes customers who exaggerate their perceived experience of a service-failure, where admission of failure on their behalf is impossible. Instead, they will exaggerate the story to fit their perceived experience and expectation to strengthen their claims regarding the service provision (Harris et al., 2016). Similarly, Wirtz and McColl-Kennedy (2010) found that customers who indulge in opportunistic customer claiming use emotional-driven language and elaborations of violations to themselves to justify the customer claim and service failure. One example is when consumers are trying to fraud the company. Finding that emotional language is commonly used (Wirtz & McColl-Kennedy, 2010) shows how emotions, real or faked, are a large contributor to why customers misbehave.

Even though the traditional onlook of how customers are rational beings and good-willed service participants (Reynolds & Harris, 2005), a major driver of customer misbehavior is opportunity (Daunt & Greer, 2015). Fullerton and Punj's (1993) framework listed opportunity as an important key driver of customer misbehavior. Consumers will rationalize the likelihood of success of misbehavior by asking themselves if they could "get away with it" (Cole, 1989). Consumers are still rational beings even though they will use this rational behavior in an opportunistic setting, which could be damaging for an organization. Wirtz and McColl-Kennedy (2010) found that consumers indulge in opportunistic service recovery to restore equity, even if the service was provided as promised. They further found that opportunistic service claims were more likely when the consumer dealt with a big organization, compared to a small business. Consumers believe that misbehavior and misconduct will not harm high-profit organizations, but misbehavior towards small organizations is regarded as intolerable behavior (Rummelhagen & Benkenstein, 2017).

Another aspect important to understand is that of cultural differences. Nicholls (2010) explored the customer-to-customer interaction in a cross-cultural context, where he found that cross-cultural customer-to-customer interactions are likely to be a significant feature of the service experience. Mattila and Patterson (2004) argue that understanding the influence of national culture seems to be crucial

to implement effective recovery strategies, and further that people of different cultures are likely to have different expectations to service and, and even different relational behaviors. Both of these studies suggest that what is perceived as misbehavior by an observing customer or employee, might not be meant as misbehavior by the ‘misbehaving’ customer, and vice versa.

Fullerton and Punj (1993) developed a model whose interaction framework characterizes the consumer’s decision to misbehave or not and suggest that demographic and psychological characteristics and social/group influences are important drivers of misbehaving customers.

Even though an exact description of individuals likely to misbehave has been found difficult to obtain as it seems to be a common understanding that *anyone* has the ability to misbehave. Some researchers have found that certain characteristics of the customer and the service environment are more prone to lead to misbehavior. From a socio-demographic perspective, for example, younger consumers, males, individuals with low education and low income would be more likely to misbehave in a service setting (Daunt & Greer, 2015) than older, more educated individuals with a higher income (Rummelhagen & Benkenstein, 2017).

2.1.3 Different forms of customer misbehavior

Harris and Reynolds (2003) highlights *customer resistance, aggression* and *complaining* as important forms of customer misbehavior. Customer resistance is one of the broadest forms of misbehavior and can be organized in multiple categories, from altering products or using products in unattended ways, to boycotting products, services or whole organizations (Harris & Reynolds, 2003). By altering products, the customer will alter an organization's products to fit their liking, for example, by ripping up jeans (Penaloza & Price, 1993). Creating individual fashion statements is also an individual form of resistance to the industry or trend (Fiske, 1989). Penaloza and Price (1993) found that customer resistance is troublesome for marketers, as the customers thinks and acts in a different manner than the marketer predicted, leading to the customers contesting the authority and place for the marketing position. Harris and Reynolds (2003) found that the effects of customer resistance can be harmless and even advantageous to the firm but could also have the potential to destroy the reputation of the firm. Boycotting of products,

services or whole organizations are especially harmful for an organization (Harris and Reynolds, 2003).

As with customer resistance, customer aggression can also be found at different levels of extremity. Yagil (2017) found that customers in a service interaction do not possess the common social inhibitions against aggression, as the service provider is not ‘allowed’ to attack back, thus lowering the perceived danger of acting angrily. Customer rage involves a spectrum of negative emotions, which can simmer for days, weeks and even months after the incident. Some consumers may “re-live” the encounter and experience it all over again when asked to recount their experience (McColl-Kennedy, Patterson, Smith & Brady, 2009). This simmering of anger can be a confirmation of feeling treated unfairly in an encounter and can also be the root of a long-time disliking or hate against the company that wronged them (McColl-Kennedy et al., 2009). Non-verbal anger behavior, or *Rancorous Rage* (McColl-Kennedy et al., 2009), usually takes the form of eye-rolling, giving dirty looks, cursing, throwing objects around – to trying to suppress their anger by counting to ten, taking a deep breath and leaving, or even starting to cry out of frustration (McColl-Kennedy et al., 2009). Verbal anger behavior, also called *Retaliatory Rage* (McColl-Kennedy et al., 2009) is explained by the feeling of ferocity, malice, fury, rage, and wrath, and is a physical expression of anger, usually taking the form of actually hurting objects or employees (McColl-Kennedy et al., 2009). Non-verbal anger usually has a more long-term negative effect on the firm than verbal anger (McColl-Kennedy et al., 2009; Ray, Gross, & Wilhelm, 2008), often leading the customer to keep a long-term grudge towards the company that wronged them, and at worst leading to boycott and switching of companies.

Customer complaining is a form of misbehavior that is not expressed through aggression or violence, but as legitimate or unauthentic complaints towards a product, service or organization (Harris & Reynolds, 2003). From the perspective of the receiver of the complaint, some complaints might be viewed as misbehaving, as the customer purposely and knowingly make unauthenticated complaints as a negotiation technique to achieve certain outcomes (Harris & Reynolds, 2003). Legitimate complaints of products and services are not viewed as customer misbehavior, to be clear. Inauthentic complaints can reduce the tolerance of employees towards customer complaining, even if the following complaints are authentic. Kowalski (1996) found that complaints can have a contagious effect

among customers, where customers compete with each other to achieve the greatest sympathy and redress from the service provider.

Gursoy et al. (2017) identified 7 categories of customer misbehavior which could affect an observing customer, and included categories such as ‘inattentive parents with naughty kids’, which describes parents who lack control of their children, and entails children whose behavior annoy other customers, ‘hysterical shouters’, which describes customers who raise their voice and cause a scene at the first sight of a perceived service error, and ‘poor hygiene manners’, which describes customers who exercises poor hygiene at service establishments (bad smell, not covering coughs or changing diapers at inappropriate places) (Gursoy et al, 2017). Further, Gursoy et al. (2017) argue that even though these typologies cover a wide range of customer misbehavior, the influence of customer misbehavior on observing customers is not fully included.

2.1.4 Consequences of customer misbehavior

Multiple researchers have explored the topic of consequences caused by customer misbehavior. Broadly speaking, customer misbehavior could lead to financial, physical and psychological consequences for whole organizations, employees and even other, observing, customers (Harris & Reynolds, 2003; Fullerton & Punj, 1993).

Organizations: Customer misbehavior can provoke consequences for whole organizations, usually in the form of financial losses. Misbehaving customers can, for example, lead to increased workload for employees who are required to deal with them, and thus decrease time spent on potential behaving customers. This could also affect staff retention, and require organizations to spend financial resources on recruitment and training (Harris & Reynolds, 2003). Customer misbehavior is known to affect employees’ work motivation and health, which leads to both operational and strategic problems for the company (Salomonson & Felleeson, 2014).

Regardless of the cause of the misbehavior, a misbehaving customer will tend to express their emotions in some way or form. McColl-Kennedy et al. (2009) found that customers reacting with anger to a service failure, would tend to express their emotions by physical, verbal, non-verbal and displaced expression, and even non-confrontational behaviors such as exiting, negative word of mouth,

boycotting, complaints to third-parties and damage on property (McColl-Kennedy et. al., 2009). These forms of behavior can create severe consequences for the company, as the receiving employees might feel threatened, affecting their motivation and health, and as the customer might engage in a type of coping-behavior that seeks revenge on the company (McColl-Kennedy et. al., 2009). Revenge often takes place as spreading bad word of mouth of the company to friends, family, coworkers, and on social platforms (McColl-Kennedy et. al., 2009).

Harris et al. (2016) found that spreading negative word of mouth is especially exaggerated from the individual's rhetorical storytelling, to strengthen their claims regarding the service provision. They called this the Pinocchio-effect. Spreading negative word of mouth and exaggerating the service misconduct in form of lies is naturally a big problem for organizations, as it is out of their control and could cause a negative and misrepresenting reputation.

Employees: A service provider must generally fulfill the customer's needs regardless of their desire to do so or not. They must suppress their feelings of anger, irritations, and their desire to walk away in an encounter with a misbehaving customer, and must often instead respond with a smile, helpfulness and a pleasant tone (Madupali & Poddar, 2014). Harris and Reynolds (2003) reported that customer misbehavior in the form of rudeness, threat making, and aggression affected the mood and temper of the employee negatively. Harris and Reynolds (2007) and Wegge, Vogt, and Wecking (2007) both found evidence of emotional display as a response to customer misbehavior, meaning the service provider faking his/her emotions and mood to please the misbehaving customer. Wegge et al (2007) further found that rude customer behavior promotes bad mood and emotional dissonance in the service provider, as well as it reduces the well-being of the service provider.

Extreme customer misbehavior, such as takes physical violence and aggression, can result in long-term psychological consequences for the service provider, in the form of flashbacks, anxiety, and sleeplessness (Harris & Reynolds, 2003), which are typical symptoms of post-traumatic stress disorder.

As for behavioral and physical effects, the most common effect customer misbehavior can affect is on the employees' morale and motivation. Customer

misbehavior can also lead employees to take revenge on customers to justify or equalize the customers' behavior (Harris & Reynolds, 2003).

Physical consequences, on the other hand, refer to injuries or damage to either people or property, caused by misbehaving customers. Harris and Reynolds (2003) found that the physical impact on people or property could take on different levels of extremity, from mild physical violence such as being thrown a sandwich on or getting their car scratched, to more extreme forms of physical violence such as fistfights or serious assaults (Harris & Reynolds, 2003).

Customers: Nicholls (2011) argues that interactions between customers might significantly influence the customers' satisfaction and service experience, and further that cross-cultural customer-to-customer interactions might have a significant influence on the service experience. Gursoy et al (2017) found that misbehaving customers could elicit negative emotions, which in turn could affect observing customers satisfaction and behavior. Bitner, Booms, and Tetreault (1990) identified four categories of unfavorable incidents that contribute to customer dissatisfaction, including observing other customers' misbehavior. Similarly, Harris and Reynolds (2003) proved that customer misbehavior could lead to consequences for customers, either by witnessing or getting involved in the actions of the misbehaving customer. They found that witnessing fellow customers misbehave could lead to feeling sympathy for the employee, and sometimes making it their task to correct their wrongdoings or even interfere in the interaction. As with employees, customers witnessing/getting involved in other customer's misbehavior, can experience psychological, emotional and physical effects, which can lead to decreased loyalty and satisfaction (Harris and Reynolds, 2003). Further, Harris and Reynolds (2003) found that witnessing fellow customers misbehave could lead customers to inherit the bad behavior and joining the misconducts. This corresponds with Fullerton and Punj's (1993) research, where they found that one of the characteristics of customer misbehavior was social/group influences, suggesting that misbehavior is learned and engaged in by small groups, where new norms form themselves and peer pressure might lead to misbehavior.

2.2 Service Providers

Customer service is often bound to company routines and guidelines, while factors like flexibility and common sense are what truly dominates the service interaction between a customer and service employee (Salomonson & Felleeson, 2014). To handle difficult customer encounters, service providers have made different tactics and mental preparations which will be presented in this section.

Salomonson and Felleeson (2014) found that the size and appearance of the service provider can influence how the service provider will behave; being a young female tend to create troublesome positions because of their size and posture, and the employee can in some situations feel that the customer has the upper hand. In contrast, a male service provider who is big in stature and has several tattoos tend to be picked on less because of his appearance (Salomonson & Felleeson, 2014). How service employees use their appearances as a tactic is also found in a study by Reynolds and Harris (2006), who found that female bartenders and waitresses tend to exploit their sexual attractiveness to calm customers down or prevent an argument to occur. They would play on looks or use sexually explicit language to pacify acts of customer deviance and keep the “customer is king” ethos (Reynolds & Harris, 2006). These are examples of how service employees use their physical appearance as a tactic in a customer encounter, where males typically “buff up” their appearance, and women use their sexuality.

Another tactic is to use emotional labor. This occurs when a service provider is faking a smile or politeness to cope with a misbehaving customer. This form of emotional dissonance may influence employees in different service settings (Madupalli & Poddar, 2014). It can be used to calm the customer down by nodding in agreement or being sympathetic towards the situation (Harris & Reynolds, 2004). They further found that service providers alter their speech patterns to fit the customer’s way of speaking and manner to be aligned closer to the deviant customer.

Verbal skills are highly important to prevent customer misbehavior. In a discussion between a customer and a service provider, one tactic is to let the customer stand for the talking (Salomonsen & Felleeson, 2014). In that case, the customers get to finish their thought and get it off their chests. Not only will this strategy help the service provider gather all the information needed to solve the

problem, but the customer might not feel frustrated or treated unfairly as they are being taken seriously and not ignored.

A service employee can also consciously try to ignore or disregard a misbehaving customer. Some service providers ignore the customers if the argument gets too heated; instead of staying in the argument, they will either turn away or state “this is enough, I’m leaving” to the misbehaving customer (Salomonson & Felleson, 2014). Harris and Reynolds (2004) found that employees using this tactic often would avoid eye contact with the misbehaving customer, in an attempt to avoid conflict. Both Harris and Reynolds (2004) and Salomonson and Felleson (2014) found that most service providers (of those they studied) feel they are not paid enough to take any physical risks in directly tackling misbehaving customers.

Establishing trust is an important tactic for service employees. Service providers will benefit from training in listening and anger management (McColl-Kennedy et al., 2009), mostly to learn how to establish trust in a failed service encounter. Apologizing and redeeming for the failed service encounter might decrease the feeling of injustice for the customer and prevent rancorous rage where the customer can develop harsh feelings towards the company and spread negative word of mouth to retaliate or get vengeful (McColl-Kennedy et al., 2009).

Several researchers have stated the importance of training service employees in customer misbehavior. Berry and Seiders (2008) stated the importance of companies acknowledging the unfair behavior of certain customers and manage them properly. If not, denying the existence of misbehaving customers can erode the ethics of fairness of the company. Service employees should be trained to handle aggressive customers, and not take complaints or abuse personally, and they should be trained to acknowledge and provide an explanation and even apologize for a failed encounter (McColl-Kennedy et al., 2009).

2.3 Servicescape

Bitner (1992) argues that in the service industry (e.g. restaurants and hotels, banking and office facilities), the service is produced and consumed at the same time, leading to customers experiencing the service in the organization’s physical facility. The physical environment surrounding the customer receiving service can have a strong impact on the customer and their perception of the character and quality of

the service (Bitner, 1992). Berman and Evans (1995) divided the physical atmosphere into four groups; the exterior of the store, the general interior, the layout, and design variables, and the point-of-purchase and decoration variables. Bitner (1992) found that environmental conditions could influence behaviors like small group interaction, friendship formation, participation aggression, withdrawal, and help. This finding is defended by Daunt and Harris (2012) who found that physical, social and perceptual factors could affect customer misbehavior. The factors *perception of employee service*, *inequity*, and *satisfaction* were especially significant in terms of social servicescape.

Bitner (1992) however, claimed that it is self-evident that human behavior is influenced by the physical setting and their perception of the environment, including factors like music, scent, temperature, air quality, lightning, colors, layout, and signage. Bitner identified three dimensions of servicescape, which can affect both customers and employees, these are (1) ambient conditions, (2) spatial layout and functionality, and (3) signs, symbols and artifacts (Bitner, 1992).

Ambient conditions can be defined as the conditions that affect the five senses, including background characteristics such as music, noise, temperature lighting, and scent. Music can, for example, affect the time spent shopping or eating or be perceived as a stressing component in a crowded space (Bitner, 1992). Milliman's (1982) findings supports that music can influence behavior, such as time spent in the store.

Spatial layout and functionality refer to the design of the surroundings, for example how furnishing and equipment are arranged (Bitner, 1992). This dimension is important for organizations in the service industry, as their facilities exist to fulfill consumers' needs, and especially important for self-service facilities, as consumers must perform on their own (Bitner, 1992). Turley and Milliman's (2000) empirical review found that several studies have found a connection between general perception of interior and influenced behavior.

Signs, symbols, and artifacts can be used for labeling or instructions. Bitner (1992) found that signs can give users an idea of the meaning of the place, of the norms expected to be followed, and of the expected behavior. Symbols can communicate symbolic meaning and create an overall impression, again giving users an idea of how to behave or a prejudiced perception of the environment.

The servicescape can, however, be altered by the impact of individuals in the physical setting. For example, an intimate dinner for two can be changed by a group of people behaving badly in the restaurant, even if the lighting, comfortable seats or music is perfect (Tombs & McColl-Kennedy, 2003). How the customer behaves influences part of the servicescape's atmosphere, so it becomes an environmental stimulus (Tombs & McColl-Kennedy, 2003). Evidence of this was found in a shoplifting-study, where the authors found an interaction effect between social density and social strength. They found theft was most likely when consumers are in a crowd full of people who are strangers (Daunt & Greer, 2015), social factors is, therefore, an important factor of servicescape, and can alter the atmosphere that is originally expected.

2.4 Characteristics

Based on these empirical findings, we believe an observational study will enable us to find whether it is possible to predict customer misbehavior. In the following section we will discuss and enhance factors to create a base for our study.

2.4.1 The customer

We find that the model presented by Fullerton and Punj (1993) serves as a great base to find factors enabling us to identify misbehaving customers.

Fullerton and Punj (1993) suggest that demographic and psychological characteristics and social/group influences are important drivers of misbehavior. The demographic characteristics include sex, age, education, and economic status. Daunt and Greer (2015) argued that younger consumers, males, individuals with low education and low income would be more likely to misbehave in a service setting, corresponding with Rummelhagen and Benkenstein (2017) who argued that more educated individuals with a higher income were less likely to misbehave. Fullerton and Punj (1993) argue that customers of all income levels and educational backgrounds can misbehave, but their motivation to do so may differ (greed vs need), and that the form of misbehavior tends to differ based on educational background. The characteristics of education and economic status will need to be modified for an observational study, as these factors are difficult to identify through observation. We can, however, look at the way the subjects dress and behave to establish a sense of income level and social status.

Most of the psychological characteristics presented by Fullerton and Punj (1993), must to some extent be excluded from the list of characteristics we will look for through our observational study. Needs and psychological traits cannot be observed and would demand another form of study. A continuous similarity between the different forms of misbehavior is, however, the emotional state of the customers before, during and after the encounter. We find it likely that certain moods, such as stress, sadness, anger or despair, will influence the customer's behavior, and will, therefore, have an impact on the findings of our study. We, therefore, find it important to report the mood of the customers at these instances.

Being in a group can cause peer pressure to behave in a certain way, in which the subject might not have behaved if being alone. Groups may also have formed their own norms, which might influence how a member behaves. Even though it will be difficult to observe affiliation to a group (social/group influences), we can observe if the subject is in a group at the time of the encounter, both before and during.

Further, cultural differences have been found to play a role in relational behavior (Nicholls, 2011), and people of different cultures might have different expectations for the service experience (Mattila & Patterson, 2004). To account for cultural differences in our study will hopefully give us valuable and meaningful information.

2.4.2 The service provider

As with customers, multiple factors might influence how service providers behave and interact with customers, and how they cope with misbehavior among customers. We find that it is important for us to account for demographic characteristics such as sex, age, ethnicity and physical shape of the service provider, as these characteristics might influence how the customer perceives the service encounter both before and during the encounter. As we have seen, service providers use different tactics to deal with different forms of customer misbehavior (Salomonson & Felleeson, 2014). It is safe to say that the way a customer is treated will affect their perception of the service experience both during and after the encounter, and we, therefore, find it important for our study to collect this type of information.

2.4.3 *The servicescape*

We previously discussed how the servicescape can affect how a customer behaves. Among others, Bitner (1992) claimed that it is self-evident that human behavior is influenced by the physical setting of the servicescape, and the customer's perception of the environment, including factors like music, scent, temperature, air quality, lighting, colors, layout, and signage. As the servicescape evidently has an impact on a customer's perception of the service encounter, we find it important to include characteristics of the servicescape to our study.

3.0 Study

Throughout the literature review we found that a common agreement among researchers is that it is not possible to predict if a customer will misbehave. However, multiple researchers points out certain factors which could lead to misbehavior, including characteristics about the customer (psychological, physical and demographic), the service provider and the servicescape. To our knowledge, there has yet to be studied whether it actually is possible to predict customer misbehavior. The aim of this study is to find whether it is possible to predict customer misbehavior based on factors describing the customer, the service provider and the servicescape. Our research problem states:

Misbehavior in service encounters: Is it possible to predict which customers who will misbehave in an encounter with a service provider?

3.1 *Method and variables*

We found that a qualitative study with an observational approach would fit our mission best, as we want to observe the true behavior for both the customer and the service provider. We found that an observational study would give the most accurate results, as other methods would increase the probability of influencing behavior as people in general do not want to show their bad side when knowingly being observed. We contacted an airport in Norway to ask for permission to observe travelers, and after briefing our idea and study they welcomed us to observe both outside of the airport and gave us clearance to roam freely past security. The data was collected during the Easter holiday to observe all types of travelers, both

business and leisure. In total we collected observations of 509 subjects, on 27 different variables. All observations were observed in a timeframe of 30 seconds to 10 minutes. To code correctly and consistently throughout all observations we followed a self-constructed guide. It is important to remember that we coded subjects as we perceived them. We have no way of knowing whether our judgements are correct as there was no interaction between us and the observed subjects. We might have perceived a subject to be in the age group 36-45, while he actually was 48, or maybe we misinterpreted that a customer was in an irritated mood while he actually was neutral. We have included this guide in *appendix 1*.

To analyze the data the programming tool R was used. R is specially fitted for statistical analyzes with field-specific advantages and is commonly used in academics and research. The coding language is easy to understand and comprehend.

The complete dataset and coding can be found in the Excel-file attached to this thesis. Sheet 2 in the Excel-file includes the R-script, which can be copy pasted into R.

3.2 Pre-observation

After the thorough literature review, we ended up with multiple factors to report for. We conducted a pre-observation over the course of two days to see whether there were some factors we had not accounted for which could be of value in our study, or if factors we intended to use were not of value.

Firstly, we found that customers often traveled with their kids, and observed that these customers quite often resorted to misbehavior during a service encounter. To find whether this factor had a significant influence on misbehavior we decided to include this in our framework.

Secondly, we found that 4 of the service provider tactics discussed in the literature review was also used by service providers at the airport, these include *establishing trust*, *let the customer stand for the talking*, *exploiting sexual attractiveness* and *ignoring*. This was a rather interesting finding, as evidence of these tactics was originally collected at restaurants and bars. Service providers exploiting sexual attractiveness was especially interesting to see, as one would presume service providers behind service desks would use more developed tactics to deal with customers. We therefore decided to account for all of these tactics.

During our pre-observation we further found two additional tactics commonly used; *Confidence* and *call for help*. We found several service providers being confident in their service, which seemed to make the customer reassured that the service they were given was the best. Service providers calling for help or assistance in a service encounter was also a quite common tactic used.

Thirdly, a customer's reason to enter a service encounter is presumably an influencing factor on misbehavior, we therefore decided to include this in our framework. During our pre-observation we found several common problems; problems with tickets, baggage, directions and missing or delayed flights. We decided to account for all of these types of problems.

Fourthly, through our literature review we discovered several different forms of misbehavior. Through our pre-observation we found that we could distinguish between 7 different forms of misbehavior through observation; complaining, sarcasm, profanity, raised voice, hand gestures, ignoring and violence.

Lastly, our assumptions that some factors were unobservable was confirmed. These included socio-demographic factors like educational background and income level and needs and psychological traits. Further we found that it was difficult to declare a customer's origin through observation, we therefore decided to distinguish between those clearly Norwegian and those foreign based on what language they spoke during the encounter. All of these factors would have demanded another form of study where we could interact with the customer.

The final framework of factors we ended up using and how we accounted for them, can be found in *appendix 1*.

3.3 Explanation of variables

3.3.1 Customer Characteristics

Gender, age, physical shape and whether the subject was accompanied by kids were coded for customer characteristics. We coded age in groups; under 20, 21-35, 36-45, 46-55, 56-65 and above 65. To decide physical shape, we used the template found in the framework in *appendix 1*.

3.3.2 *Group and mood before, during, and after*

To report whether a customer was affiliated with a group we observed whether the customer was standing in a group or talking to other people before the service encounter, and whether the group accompanied the subject throughout the encounter.

To code mood before, during and after we looked for 5 different factors. If they were happy, neutral, irritated, sad or stressed. Happy was coded for those who smiled, laughed, or were in a positive mood in general when interacting with others. Neutral was coded for those who did not show a particular facial expression, neither negative or positive, and behaved within the norm and was polite towards the service provider. Irritated was coded for those who behaved irritated, naturally, had a frown, or spoke negatively to those they interacted with. Sad was coded for those who was close to tears or already crying. Stressed was coded for those who looked at the clock several times, tapped with their feet or hands, or could not keep still in the queue.

3.3.3 *The misbehaviors:*

If a subject conducted one or more of the different misbehaviors, *complaining, sarcastic, profanity, raised voice, ignoring, gestures, or violence* they would get a score on the variable *Misbehavior*. During our observations, we did not restrict a customer to only perform one type of misbehavior, meaning a customer could perform up to 7 different misbehaviors at a time.

Complaining: The subject had illegitimate complaints, and often stood for a long time to complain about the service or product offered.

Sarcastic: The subject is rude and sarcastic towards the service provider. The subject will be sarcastic towards the feedback he or she gets from the service provider. If the subject thanks for the service offered, it would be illegitimate and often with a grin or negative facial expression.

Profanity: The subject uses swear words and is behaving in a rude manner towards the service provider. The subject calls the service provider negative names.

Raised Voice: The subject increases the volume of their voice. The subject shouts at the service provider or other customers.

Ignoring: The subject will not look at the service provider. The subject will seem uninterested in the solution the service provider gives him or her. The subject will disregard the message given by the service provider.

Excessive Hand Gestures: The subject will use excessive hand gestures. This will not be coded if the subject is pointing to another area to explain where he or she got from. The subject will use hand gestures aggressively towards the service provider or other customers.

Screaming: The subject screams towards the service provider.

Violence: The subject is violent towards the service provider, customer or interior (e.g. kicks at the service desk or ticket machine, or other objects).

3.3.4 Characteristics of service providers

Gender, age and physical shape were coded for service provider characteristics. We coded age in groups; under 20, 21-35, 36-45, 46-55, 56-65 and above 65. To decide physical shape we used the template found in the framework in *appendix 1*.

3.3.5 The tactics of the service providers

Let the customer stand for the talking: The service provider lets the customer speak out properly before addressing the problem, even though the customer behaves angry or misbehaves.

Confidence: The service provider is confident with the solution he or she brings to the customer and does not show any sign of insecurity.

Ignoring: The service provider is ignoring the customer, refuses to talk back, or avoids eye contact.

Exploiting sexual attractiveness: The service provider changes the tone of their voice to seem younger and comely or would portrait certain bodily assets.

Establishing trust: The service provider will make sure to create a trusting bond between him/her and the customer. They will make sure that the customer is all right and that he or she can trust their words.

Leaves for help/calls for information: The service provider calls for information while talking to the customer or ask a colleague for help or assistance.

3.3.6 *Type of problem*

Type of problem proved difficult to report for as it demanded that we heard the conversation between the subject and the service provider, this unfortunately resulted in a number of missing values. The problems we accounted for are the following:

Delayed flight: The subject will tell the service provider that the flight is delayed, or the service provider will tell the subject that the flight is delayed.

Missing flights/transit: The subject will notify customer service that they lost their flight/transit.

Losing baggage: The subject will consult with customer service in baggage claim for their lost baggage.

Luggage problems: The subject will ask for assistance with certain types of luggage. The service provider will tell the subject that their luggage needs to be transported as “special luggage”. The service provider will notify the subject that the hand-luggage is too big or too heavy to carry into the cabin. The subject has not purchased enough checked-in parcels.

Not finding directions: The subject is lost. The subject cannot find directions.

Ticket problems: The subject is experiencing problems with their ticket.

3.4 *Descriptive statistics*

Demographic subject: We collected observations on 509 subjects, where 295 were male and 214 were female. The observed age of the subjects had a mean of 3, which can be translated into between 36 and 45 years old. There was observed 12 subjects under 20 years old, 177 subjects between 20 and 35 years old, 170 subjects between 36 and 45 years old, 109 subjects between 46 and 55 years old, 31 subjects between 56-65 years old, and 10 subjects over 66 years old. To get a sense of what kind of traveler we were observing, we coded their outfit. 361 was coded to have casual wear (jeans, jumpers, hoodies, etc.), 64 was coded to have a business attire (suit, formal wear, business bags), 59 was coded to have a traveler outfit (big bags/backpack instead of suitcase, below casual, joggers), 17 was coded to have comfy outfit (joggers, below casual, hoodies, suit case). In addition, we coded the subject’s observed ethnicity. 268 subjects were found to be Norwegian,

136 were White, 16 were Black, 80 were Asian, 2 were Native, 4 were Mix and 3 were Hispanic. When analyzing the data, we modified this variable to account for Norwegians and foreigners.

Demographic service provider: We observed the service provider's gender, age, ethnicity and physical shape. It is important to note that the same service providers were reported multiple times, this has not been accounted for,

Group before and kids: We coded for subjects that were in a group before, during and after a service encounter to see if there was an effect of being in a group. This was also done for subjects with kids as a common idea is that traveling with kids might be stressful for parents or adults in general. 44% of our subjects were in a group before the encounter, and 15,52% subjects were traveling with kids.

Mood before, during and after: As a predictor we wanted to code the mood of the subject before, during and after the interaction with a service provider. Before the encounter, 73 subjects were found to be happy, 233 were neutral, 95 were irritated, 3 were sad, and 105 were stressed. During the encounter 83 subjects were found to be happy, 280 were neutral, 67 were irritated, 16 were sad and 56 were stressed. After the encounter, we found that 143 subjects were happy, 249 were neutral, 84 were irritated, 4 were sad, and 29 were stressed.

Misbehavior: Out of the 509 subjects 29,4% (150 subjects) misbehaved in some kind way. The misbehaving score that got the highest mean was *complaining*, with a mean of 26,13% (136 subjects). The misbehavior occurring the least is *violence* with a mean of 0,19% (1 subject).

Type of problem: Type of problem was divided into 6 factors; delayed flight, missing flight/transit, lost baggage, luggage problems, not finding direction, and ticket problems. 69 subjects experienced a delayed flight, 1 subject was coded for missing a flight or transit, 26 had lost their baggage, 110 had trouble with their luggage, 52 lost direction and 128 had ticket problems.

Type of tactic: *Type of tactic* is the tactic the service provider uses to help the customer. Tactics were divided into 6 categories; letting the customer stand for the talking (used on 38 subjects), radiate confidence (used on 379 subjects), ignoring the customer (used on 5 subjects), exploiting sexual attractiveness (used on 1 subject), establishing trust (used on 55 subjects), and leave for help/call for information (used on 31 subjects).

3.5 Results of study 1

3.5.1 Study: Is it possible to predict customer misbehavior?

The main task of this paper is to find whether it is possible to predict customer misbehavior based on observable factors, to find whether this is possible we used a logistic regression using the variable *Misbehavior* as dependent variable (DV). Predicting the level of the potential misbehavior would be of high value and we believe our data is capable of giving an answer to this. To find whether it is possible to predict level of misbehavior we conducted a linear regression and a linear discriminant analysis. Before reporting the results of our analysis, we will explain the steps we made to prepare our data.

To build the said models we split all non-binary variables, except for the ordinal variables Age and Physical Shape (for both the customer and the service provider), into 0/1 dummy variables, as this helped us to get more information out of the non-binary variables and to weed out multicollinearity. A rule of thumb in regression is to exclude variables with few observations. We set the threshold at a minimum of ten observations and deleted the variables containing observations below this threshold. Keeping variables with fewer than 10 observations could have made it difficult for us to find differences between our categories.

When we ran the first logistic regression, we found that some of our variables showed up as *NA / Not available* or with quite high estimates and high p-values, both signs suggesting multicollinearity. We therefore decided to exclude the variables showing *NA*, as the most probable cause of the *NA* was that the variable was explained by another variable (multicollinearity).

To further explore multicollinearity, we used the Variance Inflation Factor (VIF) function. As a rule of thumb, a VIF value should not exceed 5 or 10, this indicates a problematic amount of collinearity, while a value of 1 indicates complete absence of collinearity (James, Witten, and Tibshirani, 2003). Multiple of our original predictors showed a VIF value above 10, suggesting multicollinearity. James et. al. (2003) presents two solutions to this problem. (1) to drop one of the problematic variables (usually the variable with the highest VIF value), or (2) to combine collinear variables into one predictor. We discovered a repeating pattern in our problematic variables, they were originally coded as ordinal or categorical

variables, which we previously split into individual 0/1 dummy variables. To solve the collinearity problem, we decided to drop the variables explaining if the customer was *dressed casually*, if the customer was *in a group during the encounter*, if the customer was showing a *neutral mood* before the encounter and whether *the service provider was using the confidence tactic*. This solved the collinearity problem and improved our ROC-curve, suggesting a better predictive ability of our model. These decisions were also carried over to the other analysis', VIF tables for all models can be found in *appendix 5*.

3.5.2 Model 1: Predicting customer misbehavior - Logistic regression

The aim of this study is to find whether it is possible to predict customer misbehavior before the service encounter, making it possible for the organization and service provider to handle the customer in a more tailored way to avoid potential misbehavior. To find if this is possible it is therefore natural to solely look at the observable characteristics of the customer before the service encounter takes place. The variable *Misbehavior* is coded as 1 if the customer misbehaved, and 0 if they did not, and is, therefore, the perfect DV for our model. Using a binary variable as a DV demands a logistic regression, which will give us the probability of a customer misbehaving. Table 1 shows the summary of our regression.

Table 1

Summary of logistic regression on customer characteristics

	<u>Estimate</u>	<u>Std. Error</u>	<u>Z value</u>	<u>Pr(> z)</u>
(Intercept)	-3,17717	0,60129	-5,284	1,26e-07 ***
Gender	0,26203	0,24298	1,078	0,2808
Age	0,09997	0,11985	0,834	0,4042
Phys. Shape	0,07564	0,19092	0,396	0,6920
Kids	0,09357	0,35184	0,266	0,7903
Group_before	0,51409	0,27057	1,900	0,574 .
Outfit_business	0,32371	0,34963	0,926	0,3545
Outfit_comfy	-0,17334	0,70037	-0,248	0,8045
Outfit_traveler	0,51041	0,35185	1,451	0,1469
Before_happy	-0,79325	0,56537	-1,403	0,1606
Before_stressed	2,04140	0,29335	6,959	3,43e-12 ***
Before_irritated	2,75656	0,30895	8,922	< 2e-16 ***
Domestic	0,40074	0,24368	1,645	0,1001

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Null deviance: 617.22 on 508 degrees of freedom. Residual deviance: 449.37 on 496 degrees of freedom
AIC: 475.37

Number of Fisher Scoring iterations: 5

3.5.2.1 Model diagnostics

R Squared: Unlike in linear regression with ordinary least squares estimation, a logistic regression will not report an R squared to explain the proportion of variance in the dependent variable that is explained by the predictors. To find if our model has predictive power, we computed a pseudo R squared using the McFadden method, which gave us a pseudo R squared of 0.2719405, suggesting a predictive power of approximately 27%. This is a quite low predictive power, however, as we are trying to predict human behavior a low R squared is anticipated. To further investigate the abilities of our model, we ran multiple diagnostics tests.

Predicting: To see how well our model would predict customer misbehavior, we calculated the probability of misbehavior for every subject in our dataset. In table 2 we have shown the probability of misbehavior for the first 20 subjects. The subjects marked with a ‘*’ and *italic* script in the table are subjects misclassified. The 0 or 1 in the parenthesis says whether the subject misbehaved or not.

Table 2

Predicted probabilities of misbehavior of the first 20 customers

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5*</u>	<u>6*</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
77.65%	16.12%	62.41%	17.12%	<i>19.01%</i>	<i>7.55%</i>	8.41%	83.89%	5.5%	9.01%
(1)	(0)	(1)	(0)	<i>(1)</i>	<i>(1)</i>	(0)	(1)	(0)	(0)
<u>11</u>	<u>12</u>	<u>13*</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20*</u>
69.96%	13.76%	<i>12.02%</i>	8.12%	10.31%	78.3%	76.55%	71.72%	75.75%	<i>21.76%</i>
(1)	(0)	<i>(1)</i>	(0)	(0)	(1)	(1)	(1)	(1)	<i>(1)</i>

Misclassification: We can see some evidence of misclassification, meaning that our model sometimes predicts a customer to not misbehave while they actually do (false negatives), or vice versa (false positives). To find to what extent our model misclassifies, we calculated the misclassification error with an optimal prediction probability cutoff, which gave us the percentage of misclassifications the model made when predicting our data. The misclassification error to this model is 19.65%, meaning our model will predict wrongly in 19.65% of all cases. Even though this seems like a high number, we believe correctly predicting customer misbehavior in 80.35% of cases is a success, especially considering we are predicting human behavior based on observable characteristics. Table 3 shows how our model classified the data. *False negative* represents the number of times our model

predicted a subject to not misbehave while they actually did, *False positive* represents the number of times our model predicted a subject to misbehave while they did not, and *True* represents the number of times our model correctly predicted a subject to misbehave or not.

Table 3
Classification table

<u>False negative (-1)</u>	<u>True (0)</u>	<u>False positive (1)</u>
44	409	56

AUROC: Another important evaluation metric for checking a classification model’s performance is the AUROC curve (Area Under the Receiver Operating Characteristics). The AUROC curve tells us how much our model is capable of distinguishing between classes, in this case between true or false predictions. This model’s ROC curve can be seen in *appendix 2, plot 1*. We got an AUC value of 0.8356, meaning our model has 83,6% accuracy in predicting.

Concordance: The concordance statistic denotes the probability that a randomly selected subject who misbehaved will have a higher predicted probability of misbehaving than a randomly selected subject who did not misbehave. The concordance test gave a concordance statistic at 0.8345, meaning our model predicts correctly 83,45% of the time.

3.5.2.2 Interpretation of model 1

After running these tests, we believe it is safe to say that our model is highly capable of predicting customer misbehavior and we will therefore proceed to interpret the outcomes of the model. In the following formula, we have reported the equation to calculate the probability of a customer misbehaving.

$$Probability\ of\ misbehavior = \frac{e^{\beta_0 + \beta_i X_i}}{1 + e^{\beta_0 + \beta_i X_i}}$$

Where X_1 is Gender, X_2 is Age, X_3 is Phys.Shape, X_4 is Kids, X_5 is Group_before, X_6 is Outfit_business, , X_7 is Outfit_comfy, X_8 is Outfit_traveler, X_9 is Before_happy, X_{10} is Before_stressed, X_{11} is Beore_irritated and X_{12} is Domestic.

We can make multiple assumptions based on this model. First of all, the intercept takes on a negative and highly significant value, suggesting that the possibility of misbehavior is quite low to begin with. The variables *Before_stressed* and *Before_irritated* shows very high significance levels and quite high and positive estimates, suggesting it is certain that the presence of these moods in the customer will increase the possibility of misbehavior. The estimate of variable *Group_before* suggests that a customer standing in a group before the encounter will have an increased possibility of misbehaving. The remaining variables does not show any significance but gives quite interesting results. Being dressed in comfortable clothes seems to decrease the possibility of misbehavior, while being of Norwegian (variable Domestic) origin will increase the possibility of misbehavior.

3.5.3 Model 2: Predicting customer misbehavior when service provider and problem is known - Logistic Regression

As we have collected an extensive amount of data, most of which was not used in the previous model. We found that in addition to predict customer misbehavior, our data might also be capable of predicting how circumstances during the encounter would affect the occurrence of customer misbehavior. To find this, we ran another logistic regression using *Misbehavior* as DV and included variables like customer and service provider characteristics, as well as different tactics and customer problems. Table 4 shows the summary of our regression.

Table 4

Summary of logistic regression on customer characteristics and circumstances during the encounter

	<u>Estimate</u>	<u>Std. Error</u>	<u>t-value</u>	<u>Pr(> t)</u>
(Intercept)	-5.77172	1.39401	-4.140	3.47e-05 ***
Gender	0.09930	0.31697	0.313	0.754074
Age	0.24896	0.15361	1.621	0.105090
Phys.Shape	0.07737	0.26277	0.294	0.768416
Kids	-0.10083	0.47753	-0.211	0.832776
Group_before	0.37273	0.34703	1.074	0.282791
SP_Gender	-0.14766	0.41910	-0.352	0.724599
SP_Age	-0.13473	0.25817	-0.522	0.601768
SP_phys.shape	0.28102	0.40432	0.695	0.487026
Outfit_business	-0.44499	0.49400	-0.901	0.367695
Outfit_comfy	-0.08988	1.04777	-0.086	0.931636

Outfit_tralever	0.60909	0.44075	1.382	0.166993
Before_happy	1.67481	0.99481	1.684	0.092270 .
Before_stressed	1.14013	0.40096	2.843	0.004462 **
Before_irritated	1.65122	0.40590	4.068	4.74e-05 ***
Prob_baggage	1.47658	0.69568	2.122	0.033797 *
Prob_dir	2.77603	0.77719	3.572	0.000354 ***
Prob_luggage	2.96487	0.66254	4.475	7.64e-06 ***
Prob_ticket	3.27112	0.72731	4.498	6.87e-06 ***
tactic_help	1.20460	0.55457	2.172	0.029844 *
tactic_trust	0.46084	0.51085	0.902	0.367001
tactic_talk	0.64108	0.54983	1.166	0.243634
Domestic	-0.04894	0.33335	-0.147	0.883284
SPDomestic	-0.59841	0.53004	-1.129	0.258901
During_happy	-18.77672	1087.73461	-0.017	0.986227
During_stressed	3.35387	0.54475	6.157	7.43e-10 ***
During_irritated	2.99411	0.49577	6.039	1.55e-09 ***
During_sad	3.47326	1.11320	3.120	0.001808 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Null deviance: 617.22 on 508 degrees of freedom. Residual deviance: 288.62 on 481 degrees of freedom.
AIC: 344.62
Number of Fisher Scoring iterations: 18

Using this model to predict misbehavior requires the following equation;

$$Probability\ of\ misbehavior = \frac{e^{\beta_0 + \beta_i X_i}}{1 + e^{\beta_0 + \beta_i X_i}}$$

Where X_1 is Gender, X_2 is Age, X_3 is Phys.Shape, X_4 is Kids, X_5 is Group_before, X_6 is SP_Gender,, X_7 is SP_Age, X_8 is SP_phys.shape, X_9 is Outfit_business, X_{10} is Outfit_comfy, X_{11} is Outfit_traveler, X_{12} is Before_happy, X_{13} is Before_stressed, X_{14} is Before_stressed, X_{15} is Before_irritated, X_{16} is Prob_baggage, X_{17} Prob_dir, X_{18} Prob_luggage, X_{19} is Prob_ticket, X_{20} is tactic_help, X_{21} is tactic_trust, X_{22} is tactic_talk, X_{23} is Domestic, X_{24} is SPDomestic, X_{25} During_happy, X_{26} During_stressed, X_{27} is During irritated, and X_{28} During_sad.

3.5.3.1 Model diagnostics

R Squared: To find if this model has predictive power, we computed a pseudo R squared again using the McFadden method, which suggested a predictive

power of 53.24%, almost double the predictive power of the previous model. This is however not that surprising as we have included more variables describing the encounter (e.g. being irritated during the encounter will probably not lead to a lower probability of the customer misbehaving).

Predicting: To see how well this model would predict customer misbehavior, we calculated the probability of misbehavior for every subject in our dataset. In table 5 we have shown the calculated probability of misbehavior for the first 20 subjects. The subjects marked with ‘*’ and *italic* script are misclassified.

Table 5
Predicted probabilities of customers misbehaving

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5*</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>
79.42%	1.09%	45.89%	2.67%	<i>21.45%</i>	71.48%	1.06%	99.14%	0%	14.03%
(1)	(0)	(1)	(0)	<i>(1)</i>	(1)	(0)	(1)	(0)	(0)
<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
97.43%	21.6%	86.29%	0.27%	0.73%	96.82%	95.97%	94%	96.74%	93.03%
(1)	(0)	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(1)

Misclassification: We can again see some evidence of misclassification, but the misclassification error calculated at the optimal cutoff to this model is only 11.59%, meaning this model predicted correctly in 88.41% of all cases. Table 6 shows how our model classified the data.

Table 6
Classification table

<u>False negative (-1)</u>	<u>True (0)</u>	<u>False positive (1)</u>
44	450	15

Comparing the two misclassification tables shows that the model increases its ability to classify false positives, while its ability to classify false negatives remains the same, when including variables explaining circumstances during the encounter.

AUROC: We got an AUC value of 0.9328, a very high AUC, meaning our model has 93,26% accuracy in predicting. The ROC-curve can be seen in *appendix 2, plot 2*.

Concordance: Our concordance test gave a concordance statistic at 0.9355, meaning our model predicts correctly 93,55% of the time.

3.5.3.2 Interpretation of model 2

These tests clearly show that this model is better at predicting misbehavior than the previous model, however, to use this model the encounter must already have begun as it is impossible for the service provider to know what the customer's problem is. In addition, the customer will not know which service provider will assist them or what tactic they will use before the encounter. Because of this, the model is not too much use to predict. Nevertheless, we can make interesting assumptions based on the model.

The intercept is of a negative value with a highly significant p-value, which suggests that misbehavior is unlikely to occur. All moods, both before and during the encounter, are significant at some level but are surprisingly not collinear. This suggests that mood before and during the encounter cannot be explained by each other. Interestingly, being happy before the encounter will now increase the probability of misbehaving during the encounter, while being happy during the encounter unsurprisingly decreases the probability with an extreme amount.

The most interesting assumptions we can make is however of service provider characteristics, tactics and customer problems. The tactic *call for help* has a high estimate and a significant p-value, suggesting a customer being assisted with this kind of tactic will misbehave. It is however difficult to say whether the customer misbehaved because of this tactic, or if the service provider used this tactic to deal with a customer who were already misbehaving, based on the data collected. All customer problems were also reported as having significant p-values and positive estimates, suggesting that any problem recorded for will increase the probability of misbehavior. The customer having ticket problems seems however to be the most serious problem. Except for tactics, moods before and during, and type of problem, no other variables were recorded with significant p-values. It is however interesting to see that the higher the age of the service provider, the lower the probability of misbehavior, suggesting an older service provider will not provoke customer misbehavior.

3.6 Results of study 2

3.6.1 Study 2: Predicting seriousness of potential misbehavior

Our data include what type of misbehaviors the subjects conducted, and we want to further see whether it is possible to predict the level of misbehavior a customer potentially would use if they are likely to misbehave. During our observations, we did not restrict a customer to only perform one type of misbehavior, meaning a customer could perform up to 7 different misbehaviors at a time. The misbehaviors we reported for are, however, not possible to rank in a sensible order (e.g. being violent is much more serious than making hand gestures). In order to be able to find whether it is possible to predict the seriousness of possible misbehavior, we used logical sense and assumptions to rank the subjects' level of misbehavior in a new ordinal variable; *Seriousness*. The misbehavior the subjects conducted is ranked in three levels; mild-, moderate-, and serious misbehavior. *Appendix 3, table 1* includes a table reporting how we ranked the different variables. In the following analysis, we excluded all subjects not misbehaving, as they are not of interest, meaning this model can only be used if you find that the customer is likely to misbehave through model 1. In summary, 150 of the 509 subjects conducted some sort of misbehavior, the distribution across the different levels can be seen in table 7.

3.6.2 Model 3: Predicting seriousness of potential misbehavior -Linear regression

The ordinal variable *Seriousness* can be used as DV in a linear regression. This regression model still showed signs of multicollinearity when it contained the same variables as in the first logistic regression. *Outfit_comfy* only had 4 observations, which is quite interesting as it suggests people dressed in more comfortable clothes generally misbehave less. This variable was by that reason excluded from the model. As expected, we also found that *Before_happy* had few observations, this variable was therefore also excluded from the model. Table 8 shows a summary of our model.

Table 8
Linear regression on Misbehavior Level

	<u>Estimate</u>	<u>Std. Error</u>	<u>t value</u>	<u>Pr(> t)</u>
(Intercept)	1.05191	0.34208	3.075	0.002535 **
Gender	0.15196	0.13273	1.145	0.254255
Age	0.05101	0.06998	0.729	0.467244
Phys.Shape	0.09867	0.09671	1.020	0.309396
Kids	0.19879	0.18212	1.092	0.276934
Group_before	0.17486	0.15017	1.164	0.246246
Outfit_business	0.38894	0.17996	2.161	0.032387 *
Outfit_tralever	0.03340	0.17541	0.190	0.849246
Before_stressed	0.71229	0.18002	3.957	0.000121 ***
Before_irritated	0.65444	0.17373	3.767	0.000243 ***
Domestic	-0.29432	0.13127	-2.242	0.026539 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
 Residual standard error: 0.7685 on 139 degrees of freedom
 Multiple R-squared: 0.2245, Adjusted R-squared: 0.1688
 F-statistic: 4.025 on 10 and 139 DF, p-value: 7.368e-05

Leading to the following equation which can be used to calculate level of misbehavior;

$$\text{Misbehavior level} = \beta_0 + B_i X_i + \epsilon$$

Where X_1 is Gender, X_2 is Age, X_3 is Phys.Shape, X_4 is Kids, X_5 is Group_before, X_6 is Outfit_business, , X_7 is Outfit_traveler, X_8 is Before_stressed, X_9 is Before_irritated and X_{10} is Domestic.

3.6.2.1 Model diagnostics

R squared: Our model does unfortunately return a very low R squared at 0.1688 = 16,88%, which is as anticipated as we have previously explained, that human behavior is not easy to predict. To find whether our model might still be of use, we will run several other diagnostics tests.

Diagnostics tests: According to the diagnostic plots (*appendix 2, plot 3*), our model does not work well. Even though *Residuals vs Fitted* shows a rather flat line at 0, the residuals shows a distinct pattern, with clear signs of linearity, where it seems that over- and underpredicting is present. An explanation might be that the response variable depends on another variable that acts as a parameter, or that another form of analysis might be better suited for the purpose. The *Normal Q-Q*

plot looks promising as the residuals follows a rather straight line, suggesting our DV is normally distributed. We do, however, observe that the tails on both the left and right side are light, meaning they have smaller values than one would expect under standard assumptions. The *Scale-Location* plot shows a clear pattern, suggesting our residuals are not spread equally between our predictors, meaning we should reject the assumption of homoscedasticity. *Residuals vs Leverage* shows that we presumably have no influential subjects, meaning excluding a subject or including a new one will probably not make our model any better. Even though these tests gave us rather negative results, the following test gave us conflicting results.

GVLMA: Global Validation of Linear Models Assumptions (GVLMA) performs a single global test to assess linear model assumptions, as well as performing specific directional tests designed to detect skewness, kurtosis, a nonlinear link function, and heteroscedasticity (Pena and Slate, 2019). According to this test, our model seems to be acceptable at 4 of 5 levels. As *Global Stat* accepts our model, we can presume the relationship between the DV and the predictors is linear. Acceptance of *Skewness* suggests our model meet the assumption of normality, suggesting we do not have to transform our data. Rejection of *Kurtosis* suggests the distribution is either highly or shallowly peaked, indicating that we should transform our data. This might be because one or more of our variables does not have an equal representation of choices (e.g. *Outfit_business* has 125 0's and 25 1's), we therefore choose to ignore this rejection to some degree. Acceptance of *Link Function* indicates that our model is truly continuous, suggesting a linear regression is better than e.g. a logistic or binominal regression. Acceptance of *Heteroscedasticity* indicates that the variance of our model residuals is constant across the range of our DV, this confirms the findings of the *Scale-Location* plot, which suggests our model rejects the assumption of homoscedasticity. Table 9 shows a summary of the results of the GVLMA tests.

Table 9

Global Validation of Linear Models Assumptions

	<u>Value</u>	<u>p-value</u>	<u>Decision</u>
Global Stat	8.8561	0.06480	Assumptions acceptable.
Skewness	1.1536	0.28279	Assumptions acceptable.

Kurtosis	4.6888	0.03036	Assumptions NOT satisfied!
Link Function	0.7901	0.37407	Assumptions acceptable.
Heteroscedasticity	2.2236	0.13592	Assumptions acceptable.

These varying results from the diagnosis causes some concerns, we do however believe being able to predict level of misbehavior would be of extreme value and will therefore continue to investigate our model.

Predicting: To see how well our model would predict, we calculated the predicted scores of every subject, in table 10 the first 20 subjects is represented with its scores. 10 of the 20 subjects were calculated correctly if we set the cutoff at every 0.5 (e.g. 2.48 = misbehavior level 2, while 2.56 = misbehavior level 3). The subjects misclassified are marked with a ‘*’ and *italic* script.

Table 10
Predicting level of misbehavior of first 20 subjects

<u>1</u>	<u>2*</u>	<u>3</u>	<u>4*</u>	<u>5*</u>	<u>6</u>	<u>7</u>	<u>8*</u>	<u>9</u>	<u>10*</u>
2.09	<i>1.86</i>	1.49	<i>1.33</i>	<i>2.22</i>	1.89	0.99	<i>2.19</i>	2.14	<i>2.30</i>
(2)	(1)	(1)	(2)	(3)	(2)	(1)	(1)	(2)	(1)
<u>11*</u>	<u>12*</u>	<u>13</u>	<u>14*</u>	<u>15*</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19*</u>	<u>20</u>
<i>2.19</i>	<i>1.78</i>	2.04	<i>2.25</i>	<i>1.38</i>	2.48	2.33	2.14	<i>2.25</i>	2.45
(1)	(3)	(2)	(3)	(2)	(2)	(2)	(2)	(3)	(2)

Table 11
Confidence intervals: First 10 predictions of level of misbehavior

	<u>fit</u>	<u>lwr</u>	<u>upr</u>
<u>1</u>	2.090311	1.6274323	2.553189
<u>2*</u>	<i>1.861081</i>	<i>1.5388506</i>	<i>2.183312</i>
<u>3</u>	1.485799	1.1296836	1.841914
<u>4</u>	1.333842	0.9502310	1.717453
<u>5*</u>	<i>2.220481</i>	<i>1.7742419</i>	<i>2.666720</i>
<u>6</u>	1.886261	1.4688883	2.303634
<u>7</u>	0.991692	0.4620011	1.521383
<u>8*</u>	<i>2.187899</i>	<i>1.8340689</i>	<i>2.541728</i>
<u>9</u>	2.136886	1.7336210	2.540151
<u>10*</u>	<i>2.301031</i>	<i>1.8874348</i>	<i>2.714628</i>

To further investigate the predictions, we looked at the 95% confidence intervals. In table 11 a summary of the first ten subjects’ confidence intervals is reported. The marked subjects were neither classified correctly by the model, nor fitting in the confidence intervals. When taking these confidence

intervals into account, it seems like our model will predict slightly better.

3.6.2.2 Interpretation of model 3

Through our diagnosis we have found that that our model is neither the best nor the worst at predicting level of misbehavior. The model passed some of the most significant validation tests, and we therefore believe that it is possible to predict a customer's potential level of misbehavior even if our model is not the most accurate. It seems like the most important struggle our model is facing is to distinguish between classes, which might be solved by using more specified and distinguishable classes, and maybe even more levels of misbehavior. Further, it seems like our model has a tendency to exaggerate the level of misbehavior, which in a real-world situation might not be that bad; it is better to prepare for the worst.

The model did however bring some interesting results. The variable *Outfit_business* has a positive and significant estimate, suggesting customers dressed in business attire has a higher probability to misbehave at a more serious level. *Before_irritated* and *Before_stressed* are highly significant and have very high estimates, suggesting customers stressed or irritated before the encounter will have a greatly increased probability of conducting a more serious level of misbehavior. Being of a Norwegian origin seems to decrease the level of misbehavior, suggesting foreign customers have a higher probability of misbehaving at a more serious level.

3.6.3 Model 4: Predicting seriousness of potential misbehavior - Linear Discriminant Analysis (LDA)

As the linear regression caused many concerns, we conducted a linear discriminant analysis to further explore the possibility of predicting level of misbehavior. An LDA focuses on maximizing the separability among known categories. Table 12 shows a summary of the group means according to level of misbehavior. Interestingly, the number of women increases slightly from mild to the more serious misbehaviors, while the number of men decrease. This suggests that when women misbehave, they have a weak trend to misbehave at a more serious level. We can also see that the age mean is *slightly* higher at the serious level than at the other two levels, suggesting that older customers are more prone to misbehaving at a serious level. Customers dressed in business attire also seems to be more prone to conduct serious misbehavior, this corresponds with the findings of the linear regression, where *Outfit_business* had a significant and positive score, suggesting customers

dressed in business attire will generally misbehave at a more serious level. Further, only a small number of business dressed customers conduct moderate misbehavior, suggesting a business dressed customer will either conduct mild or serious misbehavior. We can also see that customers in a stressed or irritated mood have very high chances of conducting serious misbehavior. 50% of those conducting serious misbehavior was in an irritated mood before the service encounter, and 45% was in a stressed mood, meaning only 5% was in another mood before the encounter. These moods are significantly less present in the moderate and mild misbehaviors. Further, it seems like customers of Norwegian origin are more likely to conduct mild misbehavior than more serious misbehavior, while foreign customers are more likely to conduct more serious misbehavior.

Table 12
Group means according to level of misbehavior

	<u>Mild</u>	<u>Moderate</u>	<u>Serious</u>
Gender	0.4468085	0.4883721	0.4833333
Age	3.021277	3.139535	3.1833333
Physical shape	2.148936	2.232558	2.250000
Kids	0.1702128	0.1627907	0.300000
Group before	0.4468085	0.6046512	0.616667
Outfit Business	0.12765957	0.04651163	0.28333333
Outfit Traveler	0.1914894	0.1162791	0.1833333
Before stressed	0.2553191	0.3488372	0.4500000
Before irritated	0.3404255	0.4418605	0.5000000
Domestic	0.7021277	0.5348837	0.4833333

Predicting: Using the LDA, we predicted the level of misbehavior scores of all 150 subjects. Table 13 shows how the LDA predicted the classifications, the model’s classifications are quite similar to the actual numbers of different misbehavior levels, which can be seen in

Table 13 <i>LDA classification predictions</i>		
<u>Mild (1)</u>	<u>Moderate (2)</u>	<u>Serious (3)</u>
42 (47)	47 (43)	61 (60)

the parentheses, suggesting a lower misclassification error. The confusion matrix (table 14) however, shows how the model actually classified the data among classes and we can see that a high number of subjects were classified to wrong classes. A rather positive trend, however, is that the model managed to predict approximately 65% of all classes correctly, with an error rate of 44,67%, or 67 misclassifications, suggesting our model’s ability to

predict level of misbehavior is higher than first expected, and that it should be possible to develop a model capable of predicting level of misbehavior.

Table 14
LDA Confusion matrix

		<i>Predicted</i>			<i>(Total)</i>
		<u>Mild (1)</u>	<u>Moderate (2)</u>	<u>Serious (3)</u>	
<i>Actual</i>	<u>Mild (1)</u>	23	11	13	<i>(47)</i>
	<u>Moderate (2)</u>	11	22	10	<i>(43)</i>
	<u>Serious (3)</u>	8	14	38	<i>(60)</i>
	<i>(Total)</i>	<i>(42)</i>	<i>(47)</i>	<i>(61)</i>	<i>(150)</i>

Cross validation: To see how accurate the model may be in actual practice, we used the leave-one-out / holdout method to cross-validate our model (table 15). In theory, the method is repeated for each subject, and uses all but one subject to determine a classification function, and then predicts the class of the omitted subject using this function. As we can see, the cross-validation made our model perform worse, suggesting using the model in practice will be less accurate than in our dataset. The cross-validation error rate is 52,67%, meaning 79 of our subjects were misclassified using the cross validation.

Table 15
LDA Cross-Validation of Predicted Groups: Leave-one-out / holdout

		<i>Predicted</i>			<i>(Total)</i>
		<u>Mild (1)</u>	<u>Moderate (2)</u>	<u>Serious (3)</u>	
<i>Actual</i>	<u>Mild (1)</u>	21	11	15	<i>(47)</i>
	<u>Moderate (2)</u>	13	15	15	<i>(43)</i>
	<u>Serious (3)</u>	10	15	35	<i>(60)</i>
	<i>(Total)</i>	<i>(44)</i>	<i>(41)</i>	<i>(65)</i>	<i>(150)</i>

3.6.3.1 Interpretation

Our model showed clear tendencies to be able to predict level of misbehavior but did not perform well. The results did however give us interesting results. The group means especially gave us valuable information and recovered some clear differences between the classes, further confirming that predicting level of misbehavior should be possible.

Table 16

Coefficients of linear discriminants

	<u>LD1</u>	<u>LD2</u>
Gender	0.4117722	-0.27091585
Age	0.1370921	-0.10754423
Phys.Shape	0.2744972	-0.07232563
Kids	0.6524502	1.29958538
Group_before	0.4380814	-0.83160203
Outfit_business	1.2549454	2.22885747
Outfit_traveler	0.1657696	1.03448042
Before_stressed	1.9533423	-0.93297980
Before_irritated	1.7843073	-1.00838597
Domestic	-0.7999223	0.49010891
Proportion of trace:	<u>LD1</u>	<u>LD2</u>
	0.7715	0.2285

Table 16 shows a summary of the LDA coefficients, which is used to predict a subject’s potential level of misbehavior. LD1 accounts for the most variation between the categories, while LD2 accounts for the second most variance between the categories, and both represents their respective axis’s in the LDA plot (*appendix 2, plot 4*). Looking at the plot (*appendix 2, plot 4*), we can see that the subjects are not easily distinguishable. The members of class *Mild misbehavior (1)* is spread over the whole plot, possibly explaining why this class was the only class underpredicted (table 14), and even further it might explain why our linear regression is overpredicting occurrences of more serious levels of misbehavior. Both *Moderate misbehavior (2)* and *Serious misbehavior (3)* seems to have the same probability of being predicted correctly and shows the clearest signs of the three classes to be distinguishable. They do however overlap a great deal, suggesting possible misclassifications.

3.7 Discussion

3.7.1 Model 1: Is it possible to predict customer misbehavior?

The main aim of this study is to find whether it is possible to predict customer misbehavior before the service encounter takes place. The model we built (model 1) seems to be able to predict customer misbehavior with approximately 83.6%

accuracy, and we therefore conclude that it is possible. Even though the model returned a quite low (pseudo) R squared at approximately 27%, other diagnostic tests showed that our model was highly capable of predicting customer misbehavior. Multiple researchers have argued that R squares often gives misleading results, often leading researchers to reject fully functional models (e.g. Rice & Harris, 2005). Low R squares are common when building models predicting human behavior, as individuals typically are very heterogenous in their behavior and attitudes.

The model is solely built on customer characteristics, which makes the model possible to use before the customer enters the service point. Even though we found that our model would work, we need to consider the time it will take a service provider to observe these characteristics and be able to predict possible misbehavior. An airport is a rather busy and chaotic environment, with long queues, hundreds of people and demanding customers. Spotting the next customer in line might not be that easy for a service provider, nor is having the time to calculate possible misbehavior. However, when we reported the observations, we used an average of approximately 30 seconds to observe the customer characteristics (8 variables), suggesting using this model in practice should be possible. We found some rather interesting and easily detectable factors which influence occurrences of misbehavior significantly.

If the observed customer was in a group before the encounter, (s)he had an increased possibility to misbehave. This finding can have multiple explanations, (1) being in a group can cause peer pressure to behave in a certain way, in which the subject might not have behaved if being alone (Fullerton & Punj, 1993), (2) groups tend to form their own norms, which might influence how a group member behaves, (3) the customer have a responsibility for the group, causing stress single-customers do not face. Affiliation to a group might be difficult to detect, we solved this by observing whether the customer was standing in group or talking to other people.

Customers who were stressed or irritated before the service encounter showed a high probability to misbehave. This is not a surprising finding, being affected by own feelings and emotional state is quite natural. Some people might be better at dealing with their own emotions and may even be able to hide their true emotions. We can argue that this might have led our model to misclassify some customers, our data actually show that some subjects were happy before the

encounter but still conducted misbehavior. Some customers were stressed, irritated or sad before the encounter, and still ended up not misbehaving. These findings are corresponding with those of Fullerton and Punj (1993), who found that emotional state was a continuous similarity between misbehaving customers, and Wirtz and McColl-Kennedy (2010) who found that emotions, real or fake, are a large contributor to why customers misbehave.

Several other factors returned interesting but not significant findings. Traveling with kids increased the probability of misbehavior, this might be because they are stressed, which we just argued is a high contributor to misbehavior. Outfit choices had some influence on the probability of misbehavior; customers dressed in comfortable clothing showed a decreased probability of misbehavior, while customers dressed in business attire or ‘traveler’ outfits (e.g. backpacker) showed an increased probability of misbehavior. This might be because customers in business attire most presumably are on business-trips in comparison with leisure travels, and probably have tight schedules and thus more easily feel stressed or irritated. Or, maybe they feel like they have a higher social status and deserve to be treated thereafter. A ‘traveler’ dressed customer, assuming he/she is a backpacker, only pay short visits to cities and thus make the most of it, maybe being short of time, and therefore feel stressed. Or maybe they are used to being treated poorly at airports, in some way leading to misbehavior. We can make multiple scenarios and assumptions on why outfit matters, but the important finding is that it does influence misbehavior.

The demographic variables we accounted for did not return any significant p-values, but still returned interesting results. The model shows that female customers and those of Norwegian origin have higher probability to misbehave than male customers and those of foreign origin. The effect a customer’s origin has on probability of misbehavior is quite interesting. Do foreign customers misbehave less than Norwegian customers in general? Are Norwegian customers more prone to misbehaving as a result of knowing how things work at Norwegian airports? Is language barrier a decreasing factor of misbehavior? Would foreign customers have a higher probability of misbehaving when at an airport in their home country?

3.7.2 Model 2: *The influence of circumstances during the encounter*

To find whether external factors such as the service provider and servicescape would affect the probability of customer misbehavior, we evolved the last model by adding variables describing the service providers and their tactics, and the customers' types of problems and their mood during the encounter. This model is unfortunately not qualified to *predict* customer misbehavior, as the encounter must already have started before the service provider and the customer's type of problem is known. We do not know whether misbehavior was a cause, or an effect of the variables included in this model. The model did however return interesting results which could have an effect and could be of help to companies and service providers.

The model returned a pseudo R squared of 53.24%, almost double the pseudo R squared of the previous model. This is a rather high predictive power considering we are predicting human behavior. This is, however, not that surprising as we have included more variables describing the encounter (e.g. being irritated during the encounter will probably not lead to a lower probability of the customer misbehaving).

What is interesting to see is that mood before and during the encounter show no signs of multicollinearity, suggesting these cannot be explained by each other. This shows that a customer can change their mood completely from when they are standing in the line to when they are talking with the service provider. Even more interesting to see is that being happy before the encounter actually has a positive effect, meaning it will increase the probability of misbehavior, while being happy during the encounter will decrease the probability greatly. We can argue that the subjects that appeared happy before the encounter might have been disappointed or stressed with a sudden problem that came to light when entering the service encounter. It would have been interesting to ask subjects that were observed happy before the why they misbehaved, or what kind of factors changed their emotional state. The presence of negative moods such as irritation, stress and sadness both before and during the encounter increases the probability of misbehavior, corresponding to how our emotional state influence misbehavior in a service encounter.

A rather uninteresting and unsurprising finding is that all problems increase probability of misbehavior. The model did however return quite interesting findings on what problems were more probable to lead to misbehavior. Problems with

tickets, e.g. ticket showing the wrong number of checked-in items or the wrong name, or problems entering the security control with the ticket, proved to be the most severe problem leading to misbehavior. This might be because customers already possessing a ticket, meaning they have checked in, most presumably believe everything is on plan and experiencing further problems might therefore lead to stress, which we have already argued is a severe cause of misbehavior. Surprisingly, problems with lost baggage proved to be the least significant misbehavior-provoking problem. This might suggest that the airport and airlines have found satisfying solutions to this problem, where the customer does not have to resort to misbehavior to feel like they are heard. The reason might also be that customers do not find lost baggage a big deal. Maybe they know that the problem will be solved, either by insurance companies or the airline they have used. Wirtz and McColl-Kennedy (2010) argued that when a customer experiences a service failure, they are more likely to indulge in emotional-driven language, which we would argue often can be perceived as misbehavior. This supports our finding that all problems we have accounted for have a significant effect on the probability of misbehavior, and that problems caused by clear, or which was perceived as, service failures lead to misbehavior.

Another interesting finding was that service providers calling for help during the service encounter was more exposed to customer misbehavior. We do not know whether the customer misbehaved because the service provider called for help, if the service provider called for help because he/she did not know how to further help the customer by his-/herself, or if it was required of the service provider to call for help to solve the customers problems. During our observations, we noticed that service encounters in which service providers used this type of tactic usually took longer time than normal, often resulting in customer showing signs of impatience like tapping his/her fingers on the desk. We may argue that when the service provider is calling, the focus shifts from the customer to the individual he or she is calling. That can cause misbehavior since the customers may perceive they are ignored.

Interestingly, we found that the higher age of the service provider the lower the probability of misbehavior. This might be because customers perceive older service providers as more experienced and trustworthy, while younger service

providers are perceived as inexperienced and more prone to deliver poorer solutions to their problems.

3.7.3 Model 3 and 4: Predicting severity of misbehavior

To further investigate whether it would be possible to predict customer misbehavior, we tried to find whether it would be possible to predict the potential misbehavior's severity. The first model (model 3) we built returned a very low R squared, suggesting a predictive power of approximately 17%. As we have argued earlier low R squares are common when predicting human behavior, which is the very definition of what we are trying to do, and we therefore decided to run further diagnostic tests, keeping the low R squared in mind. The model passed some of the most significant validation tests, and we therefore believe that it is possible to predict a customer's potential level of misbehavior, even if our model is not the most accurate. It seems like the most important struggle our model is facing is to distinguish between classes, which might be solved by using more specified and distinguishable classes, and maybe even more levels of misbehavior. Further, it seems like our model tends to exaggerate the level of misbehavior, which in a real-world situation might not be that bad, it is better to prepare for the worst. Always preparing for the worst kind of misbehavior might however require the same amount of resources as facing a misbehaving customer unprepared.

Model 3 did nevertheless return quite interesting suggestions. It suggested that customers dressed in business attire and customers feeling stressed or irritated before the encounter has a higher probability of conducting a more serious level of misbehavior. We have previously argued that these exact factors might lead to a higher probability of misbehaving, but how are they correlated with more severe types of misbehavior? Business dressed customers might perceive they have a higher social status than the service provider, feeling like they have the right to put the service provider in place and thus justifying more severe forms of misbehavior. Stressed customers might act before they think, conducting more severe misbehavior without being aware of their misbehavior. Through our study there is unfortunately no way of knowing what the customers thought during the interactions. Solely looking at characteristics to predict misbehavior and level of misbehavior is not enough to find the answer to why a customer chooses to

misbehave. Cole (1989) argued that customer will rationalize the likelihood of success of misbehavior by asking themselves if they could “get away with it”. Maybe stressed and irritated customers indulge in more serious customer misbehavior to let go of frustration at a platform where misbehavior is accepted to some degree.

Even though model 3 returned some interesting findings, we do acknowledge that it is not an accurate model. Our choice of analysis can also be discussed; our dependent variable is constructed after the observations, and originally it cannot be defined as an ordinal variable, making linear regression a weak choice. The mere fact that the DV is made of logical thinking and assumptions might also have had implications on our results. We do however believe that developing a model capable of predicting level of misbehavior should be possible and to further investigate this, we did a linear discriminant analysis.

A linear discriminant analysis uses a categorical variable as DV, making our not-truly ordinal variable usable. This model (model 4) proved to be better suited to our data and was capable of correctly predicting approximately 65% of the subject’s level of misbehavior. A leave-one-out cross-validation to see how accurate the model would be in practice did however set us back, as it returned an error rate of 52,67%, (vs 44,67%,). Model 4 showed clear tendencies to be able to predict level of misbehavior but did not perform well. The results did however give us interesting results. The group means especially gave us valuable information and recovered some clear differences between the classes, further confirming that predicting level of misbehavior should be possible.

Of the most interesting findings of model 4, we found that customers dressed in business attire are seemingly more prone to conduct serious misbehavior, more than double the chance of conducting mild misbehavior. This corresponds with the findings of the linear regression, further confirming customers dressed in business attire will generally misbehave at a more serious level. Further, only a small number of business dressed customers conduct moderate misbehavior, suggesting a business dressed customer will either conduct mild or serious misbehavior. We further found that customers in a stressed or irritated mood have very high chances of conducting serious misbehavior. 50% of those conducting serious misbehavior was in an irritated mood before the service encounter, and 45% was in a stressed mood, meaning only 5% was in another mood before the

encounter. These moods are significantly less present in the moderate and mild misbehaviors. Of this we can argue that to facilitate for customers, preventing them from experiencing moods like stress and irritation will reduce occurrences of serious misbehavior. Of course, all organizations try to facilitate for their customers, wanting to give them the best experience. Maybe misbehavior as a consequence of individual's moods is unavoidable. In addition to this, it seems like customers of Norwegian origin are more likely to conduct mild misbehavior than more serious misbehavior, while foreign customers are more likely to conduct more serious misbehavior. This might be explained by cultural differences; would this kind of misbehavior be looked at as serious in their country of origin? Maybe other factors, such as language barriers, led the foreign customer to become frustrated and thus to conducting (what we perceive as) serious misbehavior.

A possible reason for the poor validation results from model 3 and model 4 is that the classes we have made are not easily distinguishable. We previously stated that a subject could use up to 7 different misbehaviors at a time, meaning a person complaining might be conducting a mild or serious misbehavior, depending on whether he/she used other forms of misbehavior as well. Looking at *plot 4* in *appendix 2*, we can see that the three classes are quite overlapping, confirming that misclassifications is unavoidable.

3.7.4 Creating typologies for possible misbehaving customers

The aim of the study is to find whether it is possible to predict customer behavior. Through our study we discovered several factors seemingly increasing the possibility of misbehavior. Using the same approach as when developing the logistic models, we built 2 different classification trees which predicts the possibility of misbehavior given certain factors (appendix 4). Together with the findings from the different models, we used these to develop the following typology.

The typology consists of 7 different categories, describing the most common misbehavers identified though our study.

(1) *The Stressed Group Member*: This customer category describes customers who are stressed and in a group before the service encounter. The

customer is either in charge of the group or have a need to not lose face in front of friends or family. The probability of a misbehavior in this category is 63,46%. Both being in a group and being stressed are factors which we have found to significantly increase the possibility of customer misbehavior.

(2) *Female Fury*: This customer category describes female customers who dislike service providers calling colleagues for help. The customer is neither stressed nor irritated before the encounter, but if the service provider calls a colleague for help she (the customer) will have 87,5% chance of misbehaving. We can only assume that the female customers believe they are ignored by the service provider, or maybe female customers are more prone to misbehave when waiting for an answer. The service provider should be aware of the possibility of misbehavior if all three factors explained corresponds, maybe there is another tactic he or she can use prior to use the tactic help.

(3) *The Check-in Rager*: This customer category describes irritated customers who are situated in the check-In. If a customer is irritated before the service encounter and is situated in check-in, he or she will have 52,5% chance of misbehaving. The irritation may be caused of a long queue or slow processes. The service provider may focus on being effective to minimize the queue, but still give good service.

(4) *The Impolite Norwegian*: The customer is of Norwegian origin and shows signs of irritation, he or she is not situated at the check-in. A customer like this will have a 93,55% chance of misbehaving. Customers situated at other service points than the check-in, for example at the customer service, are in situations where the service provider needs to use more time on each customer to be able to give a good service or correct a service failure.

(5) *The Sceptic Age Discriminant*: This customer category conduct misbehavior if the service provider is under the age of 35. The customer is irritated and is situated at a service point that is not check-in. If the service provider's age is less than 35 years old, the customer has 87,23% probability of misbehaving.

(6) *The Stressed Bully*: This customer category conduct misbehavior when the service provider is under the age of 35 and above normal physical shape. This customer has a 87,5% probability of misbehaving.

(7) *The Impatient White Collar*: This customer category describes women and men dressed in a business attire. We found that customers dressed in business

attire has a significant and increased possibility of conducting some sort of misbehavior. The *Impatient White Collar* will also have a higher probability of misbehaving in a more serious manner; approximately 69% of business dressed customers conducted a serious form of misbehavior.

4.0 General Discussion

4.1 Overall findings

Through this study we have proven that it is possible to predict customer misbehavior. Model 1 proved to be capable of predicting customer misbehavior with 83,6% accuracy. In addition to this, model 1 made us aware of several factors which significantly increase or decrease the possibility of misbehavior. Among these, we found that customers in a group before the service encounter had a significantly higher probability of misbehaving than those who were alone. In addition, the customer's mood before the interaction proved to be a significant predictor of misbehavior, and we interestingly found that customers of Norwegian origin were more prone to conduct misbehavior.

Model 2 helped us find how circumstances during the encounter would affect the occurrence of misbehavior. Even though this model proved to be better at predicting customer misbehavior, it cannot be used to *predict* customer misbehavior as it requires the service providers to know what type of problem the customers have, and the customers to know what service provider they will interact with in addition to what tactic they will use. We did however find that certain circumstances influenced the probability of misbehavior.

We further found that it should be possible to predict the seriousness of the potential misbehavior. Through model 3 and 4 we tried to find whether this would be possible with our data. None of the models gave us valid results, but we discovered that several factors were more frequently represented in the different classes of misbehavior, which makes us believe that to develop a model predicting seriousness of misbehavior should be possible.

At last we used our findings to develop a typology constructed of 7 different categories.. To further explore the findings of our models we created two classification trees, helping us to extract the most significant values. From this we constructed six categories of misbehaving customers. (1) *The stressed group*

member, (2) Female fury, (3) The Check-in rager, (4) The impolite Norwegian (5) The sceptic age discriminant, (6) The stressed bully, and (7) The impatient white collar. Using these categories makes it easier to predict customer misbehavior.

4.2 Theoretical Implications

This study have proven that it is possible to predict customer misbehavior, and we have identified characteristics of misbehaving customers which can help organizations and service providers identify customer misbehavior before the misbehavior takes place. These findings contradict the findings of Fullerton and Punj (1993), who argue that customers who misbehave cannot be differentiated from other customers. Corresponding with the findings of Gursoy, Cai, and Anaya (2017), we found that mood was an important influencer of misbehavior and that certain characteristics did influence misbehavior.

Our findings further correspond with Nicholl's (2010) study, where he explored the customer-to-customer interaction in a cross-cultural context and found that cultural factors are likely to be a significant feature of the service experience. As our study was conducted at an airport, we had the possibility of classifying customers as foreign or Norwegian. Our findings suggest that Norwegian travelers have a higher probability of misbehaving and we can argue that the reason for this can be explained by Mattila and Patterson's (2004) findings; people of different cultures are likely to have different expectations to service and have different rationale behaviors.

We further found that some of the service provider tactics described by Salomonsen and Felleson (2014) could be transferred to an airport setting as well. The airport service providers did for example often use the *tactic let the customer stand for the talking*. Some of these tactics seemed to reduce occurrences of misbehavior. McColl-Kennedy et al. (2009) argued that service providers would benefit from listening and anger management training Based on the findings of this study we agree with this statement. We further suggest organizations to develop thorough strategies and guidelines, making it easier for service providers to know what to do when interacting with a misbehaving customer.

To summarize, the findings of this study contradicts previous research who state that customers who misbehave cannot be differentiated from other customers.

We do agree that characterizing possible groups as misbehaving customers can be difficult, but we have found several significant factors which can be used to predict potential misbehaving customers. The model we have built is capable of predicting customer misbehavior with 83,6% accuracy.

4.3 Managerial Implications

The main contribution of this study was a model capable of predicting customer misbehavior based on observable characteristics. The model we have constructed (Model 1) is solely built on customer characteristics and is capable of predicting customer misbehavior with 83.6% accuracy. We further found factors which might influence the probability of misbehavior, and the severity of said misbehavior. Through these findings, we have produced a typology featuring 6 different categories of customers, making it even easier to predict customer misbehavior.

This discovery has huge managerial implications. Managers and service providers can use this model and findings to predict customer misbehavior, enabling a service provider time to better prepare for the encounter and initiate preventive measures to avoid misbehavior.

Following socially accepted norms is of human nature and conducting misbehavior thus contradicts normal behavior, customers not feeling like they need resort to misbehavior to be heard might therefore increase customer satisfaction. The ability to predict misbehavior gives the service provider time to better prepare for the encounter and facilitate for the customer to have a good experience, maybe resulting in total avoidance of the potential misbehavior. Further, customer misbehavior has been found to negatively affect observing customers, being able to reduce exposure to misbehavior might therefore lead to increased customer satisfaction at an overall basis.

Naturally, having a problem will usually not lead to satisfaction if it remains unsolved, we did however find that certain problems were more misbehavior-provoking than others. According to model 2, the most misbehavior-provoking problems a customer can experience at an airport is problems with tickets, luggage and directions. This suggests that airports/airlines should invest more resources into preventing these kinds of problems. Better signage in the servicescape might reduce customers reacting at problems with directions. During our observations we

especially noticed that many customers could not find the check-in for special luggage, which resulted in a number of misbehaving customers, this could be solved with better signage or employees directing them.

We further found that the probability of misbehavior decreased the older the service provider was, which suggests that customers are less likely to misbehave if they are facing an older service provider. The service provider's physical shape also had an impact on probability of misbehavior, where bigger service providers seems to provoke more misbehavior. Using older and smaller service providers at service points especially exposed to misbehavior might reduce occurrences of misbehavior. Even though we do not know whether the age and physical shape of the service provider was the cause of the misbehavior, we do know that it had an effect. It also seems like a service provider calling a colleague for help is more exposed to customer misbehavior. A suggestion is to develop techniques to avoid that a service provider has to call for help, if it is not required to deliver the best service.

Another important finding is that it seems to be possible to predict the level of the potential misbehavior. Even though the models we introduced (model 3 and 4) might not be the most accurate, we found that it may be possible to develop one. Our analysis did however return quite interesting results. Being able to predict level of misbehavior have important implications for companies. For instance, if the service provider has found that a customer has a high probability of misbehaving, having the ability to predict the level of misbehavior can help the service provider prepare for the encounter and tailor their service even better to the customer to try to avoid the potential misbehavior, or at least reduce the seriousness of the potential misbehavior.

Most interestingly, we found that customers dressed in business attire are more prone to conduct serious forms of misbehavior than mild or moderate, this suggests that service providers should keep an extra eye on business-dressed customers. We also found that Norwegian customers tend to conduct mild or moderate forms of misbehavior, while foreign customers are more prone to conduct moderate or serious misbehaviors. This might be explained by cultural differences, as foreign customers are not accustomed to Norwegian norms; their behavior might be normal in their country of origin. Understanding and respecting cultural differences might reduce occurrences of more serious misbehavior from foreign customers.

4.4 Limitations and future research

4.4.1 Limitations

Even though we have concluded that we have proved that it is possible to predict customer misbehavior, and that our model is capable of doing so, we do acknowledge several limitations to our study and findings.

A major limitation is that the data for this study was gathered at an airport in Norway and therefore we cannot generalize the results to other countries with different cultural norms and behaviors. Further, whether our findings will apply to other industries is not known. Traveling can be more stressful than shopping for a sweater at the mall, or groceries at the local shop. Previous research on the topic of customer misbehavior has additionally found that customers are more likely to misbehave towards high-profit organizations (Wirtz and McColl-Kennedy, 2010), a limitation here is that we do not know how the subjects would have behaved in another service setting.

Another limitation is that the observations collected are subjective to our perceptions. Even though we constructed a framework to follow during the observations, there are possibilities of subjective perception. For example, the reason for why the age groups are quite large was to minimize errors, but some subjects could have been coded within the wrong age group, e.g. a male subject whose real age is 52 might have been coded into the age group 55-65 based on his looks. We concluded that service employees and customers could alter their behavior if they knew they were observed, and therefore decided not to interact with them. As we never interacted with the customers, we have no way of knowing whether our perceptions were correct. However, as our model to predict customer misbehavior is intended to use based on observing the customer before the interaction, we can presume a service provider would perceive these factors as we did.

Even though we observed the service provider each subject interacted with, we did not account for the possibility of observing the same service provider several times. This is a limitation as the same service provider might have been observed several times, which might have led us to believe that 33 different service providers

were different service providers, while they in reality might have been one. This could have influenced our results.

In addition, a further limitation is that model 3 and 4 are both built based on a DV which we constructed ourselves based on what types of misbehavior the subjects used. The misbehaviors we reported for are however not possible to rank in a sensible order, and the construction of the DV is therefore based on own judgements and assumptions. It does however seem like the most important struggle these models are facing is to distinguish between classes, which might be solved by using more specified and distinguishable classes.

Lastly, all models returned a low R squared. Even though we have argued that a low R squared can be ignored if other diagnostic tests meet assumptions and further validate the model, keeping the low R squared in mind is important.

4.4.2 Future research

We believe our findings provide several directions for future research. Even though we have proved that predicting customer misbehavior is possible, with a model accurately predicting 83,6% of cases, we acknowledge that our model is limited to the airport industry and the Norwegian market. Future research should try to generalize and evolve our model, making it possible to use in other industries and markets. Being able to predict customer misbehavior is of great value to organizations, as it allows the organization or service provider to prepare for the encounter in a better way, possibly avoiding the misbehavior in total.

Future research should also look further into typical customer problems and service provider tactics probable to provoke misbehavior. A more thorough understanding of these can help organizations develop strategies and guidelines on how to deal with certain customers. Customer misbehavior could lead to financial, physical and psychological harm to organizations, employees and observing customers (Fullerton & Punj, 1993), and it has even been found that prolonged exposure to customer misbehavior can decrease quality of life (Rose & Neidermeyer, 1999). Having guidelines and strategies to prevent misbehavior can reduce these risks and might even increase customer satisfaction.

We also suggest future research to construct a method to predict severity of potential misbehavior. This can reduce the risks a service provider is exposed to

when interacting with a misbehaving customer, such as emotional dissonance, or being at risk for violence. as they before the encounter can initiate preventive measures to avoid the misbehavior. We have a theory that decreasing customer misbehavior will create happier employees which will reduce employee turnover and increase customer satisfaction. It would be interesting to see if this theory could be empirically proven.

Studies on customer misbehavior is by now a small sample compared to studies of other marketing sciences. But it is a field of science that is growing and important for organizations in general. We need to understand the importance of how misbehavior influences the organization as a whole, and also how it influences other customers who are witnesses of misbehavior. The ethos of “the customer is king” needs to be investigated, some customer ‘kings’ may behave opportunistically without creating an added value for the company. To clarify, this does not mean that *all* customers who indulges in a service recovery are misbehaving, but it is important to classify the ones who have a hidden purpose.

5.0 Reference list

- Amine, A., & Gicquel, Y. (2011). Rethinking Resistance and anti-Consumption Behaviours in the light of the concept of Deviance. *European Journal of Marketing*. 45. Doi: 1809-1819. 10.1108/030905611111167450.
- Berman, B. R., & Evans, J. R. (2010). *Retail Management: A Strategic Approach*. 11th. Boston, MA: Prentice Hall.
- Berry, L. L., & Seiders, K. (2008). Serving unfair customers. *Business Horizons*, 51(1), 29-37. doi: 10.1016/j.bushor.2007.09.002
DOI: /10.1016/j.bushor.2007.09.002
- Bitner, M.J., Booms, B. H., & Tetreault, M.S. (1990). The Service Encounter: Diagnosing favorable and unfavorable. *Journal of Marketing*. 54(1), 71-84. DOI: 10.1177/002224299005400105
- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(2), 57-71.
DOI: 10.1177/002224299205600205
- Cole, C. A. (1989). Deterrence and consumer fraud. *Journal of Retailing*, 65(1), 107. *European Journal of Marketing*, 49(9/10), 1505-1526.
- Daunt, K. L., & Harris, L. C. (2012). Exploring the forms of dysfunctional customer behaviour: A study of differences in servicescape and customer disaffection with service. *Journal of Marketing Management*, 28(1-2), 129- 153. doi: 10.1108/EJM-01-2014-0061
- Fiske, John (1989), *Understanding Popular Culture*. London: Unwin Hyman.
DOI: 10.4324/9780203837177
- Fullerton, R. A., & Punj, G. (1993). Choosing to misbehave: A structural model of aberrant consumer behavior. *ACR North American Advances*.

-
- Grandey, A. A., Kern, J. H., & Frone, M. R. (2007). Verbal abuse from outsiders versus insiders: Comparing frequency, impact on emotional exhaustion, and the role of emotional labor. *Journal of occupational health psychology, 12*(1), 63. DOI: 10.1037/1076-8998.12.1.63
- Gursoy, D., Cai, R., & Anaya, G. J. (2017). Developing a typology of disruptive customer behaviours: Influence of customer misbehaviour on service experience of by-standing customers. *International Journal of Contemporary Hospitality Management, 29* (9), 2341- 2360. DOI:10.1108/IJCHM-08-2016-0454
- Hallowell, R. (1996) The Relationships of Customer Satisfaction, Customer Loyalty, and Profitability: An Empirical Study. *International Journal of Service Industry Management, 7*, 27-42. Doi: 10.1108/09564239610129931
- Harris, L. C., Fisk, R. P., & Sysalova, H. (2016). Exposing pinocchio customers: investigating exaggerated service stories. *Journal of Service Management, 27*(2), 63-90. DOI: 10.1108/JOSM-06-2015-0193
- Harris, L. C., & Reynolds, K. L. (2003). The consequences of dysfunctional customer behavior. *Journal of service research, 6*(2), 144-161. DOI: 10.1177/1094670503257044
- Harris, L. C., & Reynolds, K. L. (2004). Jaycustomer behavior: an exploration of types and motives in the hospitality industry. *Journal of Services Marketing, 18*(5), 339-357. DOI: 10.1108/08876040410548276
- Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding relationship marketing outcomes: an integration of relational benefits and relationship quality. *Journal of service research, 4*(3), 230-247. DOI: 10.1177/1094670502004003006

-
- Hill, N. & Alexander, J. (2006). *The Handbook of Customer Satisfaction and Loyalty Measurement* (3rd ed.). New York: Gower Publishing.
- James, G., Witten, D., and Tibshirani T. H. R. (2003) *An introduction to Statistical learning with Applications in R. Springer Science Business Media New York*. DOI: 10.1007/978-1-4614-7138-7
- Kotler, P. (1991). *Marketing Management. 7th Edition*. Prentice-Hall: Englewood Cliffs.
- Kotler, P. (1994). *Marketing Management - analysis, planning, implementation, and control*. Eight Edition. Prentice-Hall: New Jersey.
- Kowalski, R. M. (1996). Complaints and complaining: Functions, antecedents, and consequences. *Psychological bulletin*, 119(2), 179.
DOI: 10.1037/0033-2909.119.2.179
- Lovelock, C. (2001), *Services Marketing: People, Technology, Strategy*, 4th ed., Prentice-Hall, Sydney.
- Madupalli, R. K., & Poddar, A. (2014). Problematic customers and customer service employee retaliation. *Journal of Services Marketing*, 28(3), 244-255. DOI: 10.1108/JSM-02-2013-0040
- Mattila, A. & Patterson, P. (2004). The impact of culture on consumers' perceptions of service recovery efforts. *Journal of Retailing*. 80. 196-206.
DOI: 10.1016/j.jretai.2004.08.001.
- McColl-Kennedy, J. R., Patterson, P. G., Smith, A. K., & Brady, M. K. (2009). Customer rage episodes: emotions, expressions and behaviors. *Journal of Retailing*, 85(2), 222-237. DOI: 10.1016/j.jretai.2009.04.002

-
- Miao, L., & Mattila, A. S. (2013). The Impact of Other Customers on Customer Experiences: A Psychological Distance Perspective. *Journal of Hospitality & Tourism Research*, 37(1), 77–99. DOI: 10.1177/1096348011425498
- Milliman, R. E. (1982). Using background music to affect the behavior of supermarket shoppers. *Journal of marketing*, 46(3), 86-91. DOI: 10.1177/002224298204600313
- Nicholls, R. (2011). Customer-to-customer interaction (CCI): a cross-cultural perspective. *International Journal of Contemporary Hospitality Management*, 23(2), 209-223. DOI: 10.1108/09596111111119338
- Pena, E. A., & Slate, E. H. (2019). Package 'gvlma' (Version 1.0.0.3). Retrieved from: <https://cran.r-project.org/web/packages/gvlma/gvlma.pdf>
- Penaloza, L., & Price, L. L. (1993). Consumer resistance: a conceptual overview. *ACR North American Advances*.
- Ray, R. D., Wilhelm, F. H., & Gross, J. J. (2008). All in the mind's eye? Anger rumination and reappraisal. *Journal of personality and social psychology*, 94(1), 133. DOI: 10.1037/0022-3514.94.1.133
- Reynolds, K. L., & Harris, L. C. (2005). When service failure is not service failure: an exploration of the forms and motives of “illegitimate” customer complaining. *Journal of services marketing*, 19(5), 321-335. DOI: 10.1108/08876040510609934
- Reynolds, K. L., & Harris, L. C. (2006). Deviant customer behavior: An exploration of frontline employee tactics. *Journal of Marketing Theory and Practice*, 14(2), 95-111. DOI: 10.2753/MTP1069-6679140201
- Reynolds, K. L., & Harris, L. C. (2009). Dysfunctional Customer Behavior Severity: An Empirical Examination. *Journal of Retailing*, 85(3), 321-335. DOI: 10.1016/j.jretai.2009.05.005
-

-
- Rice, M. E., & Harris, G. T. (2005). Comparing Effect Sizes in Follow-Up Studies: ROC Area, Cohen's *d*, and *r*. *Law and Human Behavior*, 29(5), 615-620. DOI: 10.1007/s10979-005-6832-7
- Rose, R. L., & Neidermeyer, M. (1999). From rudeness to road rage: The antecedents and consequences of consumer aggression. *ACR North American Advances*.
- Rummelhagen, K., & Benkenstein, M. (2017). Whose fault is it? An empirical study on the impact of responsibility attribution for customer misbehavior. *European Journal of Marketing*, 51(11/12), 1856-1875. DOI: 10.1108/EJM-01-2016-0014
- Salomonson, N., & Fellesson, M. (2014). Tricks and tactics used against troublesome travelers—Frontline staff's experiences from Swedish buses and trains. *Research in transportation business & management*, 10, 53-59. DOI: 10.1016/j.rtbm.2014.04.002
- Tombs, A., & McColl-Kennedy, J. R. (2003). Social-servicescape conceptual model. *Marketing theory*, 3(4), 447-475. DOI: 10.1177/1470593103040785
- Turley, L. W., & Milliman, R. E. (2000). Atmospheric effects on shopping behavior: a review of the experimental evidence. *Journal of business research*, 49(2), 193-211. DOI: 10.1016/S0148-2963(99)00010-7
- Wegge, J., Vogt, J., & Wecking, C. (2007). Customer-induced stress in call centre work: a comparison of audio-and videoconference. *Journal of Occupational and Organizational Psychology*, 80(4), 693-712. DOI: 10.1348/096317906X164927
- Wirtz, J., & McColl-Kennedy, J. R. (2010). Opportunistic customer claiming during service recovery. *Journal of the Academy of Marketing Science*, 38(5), 654-675. DOI: 10.1007/s11747-009-0177-6
-

Yagil, D. (2017). There is no dark side of customer aggression– It's all dark.

Journal of Marketing Management, 33(15-16), 1413-1420.

DOI: 10.1080/0267257X.2017.1357332

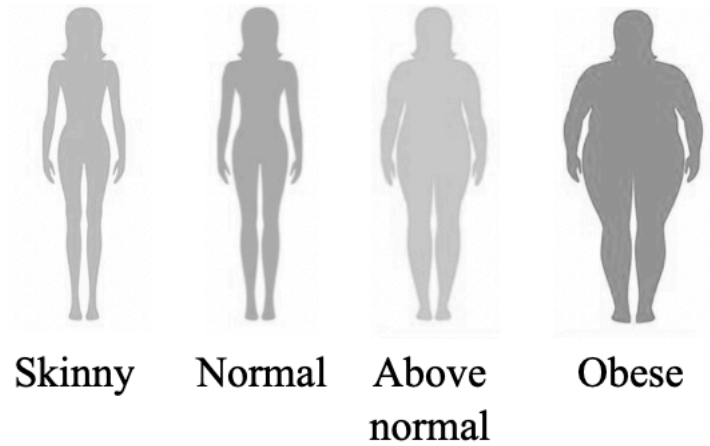
6.0 Appendices

Appendix 1: Coding of variables

Customer characteristics

Characteristic	Description	Code
Gender	Male	0
	Female	1
Age	<20	1
	21-35	2
	36-45	3
	46-55	4
	56-65	5
	>66	6
	Ethnicity	Domestic
White		2
Black		3
Asian		4
Native		5
Mixed		6
Hispanic		7
Physical shape	Skinny (BMI <18,4)	1
	Normal (BMI (18,5-24,9)	2
	Above normal (BMI 25-35)	3
	Obese (BMI >35)	4
Kids	No kids	0
	Kids	1
Outfit	Casual (Jeans, jumpersa, hoodies etc)	1
	Business (Suit, formal wear, business bags)	2
	Traveler (Big bags/bacjpacks, below casual, joggers)	3
	Comfy (Joggers, hoodies, suitcases)	4
Mood	See own table below	

Picture reference to physical shape:



Mood – Before, during, and after

Mood	Description	Code
Happy	Traveler is happy, smiles, speaks friendly in interactions	0
Neutral	Traveler is neutral in its face expression. Behaves naturally in its interactions. Behaves within norms and is polite.	1
Irritated	Traveler is irritated, has a frowning face, taps with his or her fingers, speaks negatively in its interaction	2
Sad	Traveler is sad. Traveler cries. Traveler is on verge of tears.	3
Stressed	Traveler is stressed, paces, looks around, waiting.	4

Misbehaviors

Type of misbehavior	Description
Complaining	The traveler has illegitimate complaining, argues for a long period of time.
Sarcastic	The traveler is sarcastic towards the service provider. Statements such as: “So honestly you can’t help me?” or “Well, thanks a lot for your time” in a sarcastic voice.
Profanity	The traveler use swear words or calls the service provider names. Statements such as “This fucking airline always screws with me” or “Who do you think you are, little twat”.
Raised Voice	The traveler is raising his or her voice substantially when interacting with the service provider.
Ignoring	The traveler is ignoring the service provider in the interaction. The traveler refuses to listen to the service provider.
Excessive hand gestures	The traveler uses excessive hand gestures towards the service provider. For example, pointing at the service provider, or raising hands above their heads. Could be perceived as threatening.
Screaming	The traveler screams at the service provider.

Violence	The traveler is violent towards service provider, other customers, or furniture at the airport. (Eg. Service desk, ticket machines)
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Service provider characteristics

Characteristic	Description	Code
Gender	Male	0
	Female	1
Age	>20	1
	21-35	2
	36-45	3
	46-55	4
	56-65	5
	<66	6
Ethnicity	Domestic	1
	White	2
	Black	3
	Asian	4
	Native	5
	Mixed	6
	Hispanic	7
Physical shape	Skinny (BMI >18,4)	1
	Normal (BMI (18,5-24,9))	2
	Above normal (BMI 25-35)	3
	Obese (BMI <35)	4
Tactics	See own table below	

Tactics used by service provider

Tactic	Description	Code
Let the customer stand for the talking	The service provider will let the traveler speak out properly before addressing the problem, even though the traveler behaves angry or misbehaves.	1
Confidence	The service provider is confident with the solution he or she brings to the traveler.	2
Ignoring	The service provider is ignoring the traveler, refuses to talk back, or avoids eye contact.	3
Exploiting sexual attractiveness	The service provider alters their uniform to be perceived as more attractive. Female service providers may play on looks or speak in a higher tone that would be perceived as attractive or younger than her actual age.	4
Establish trust	The service provider will manage to get the traveler to trust him or her	5
Leaves for help / calls for information	The service provider will ask a co-worker for assistance or call for information	6

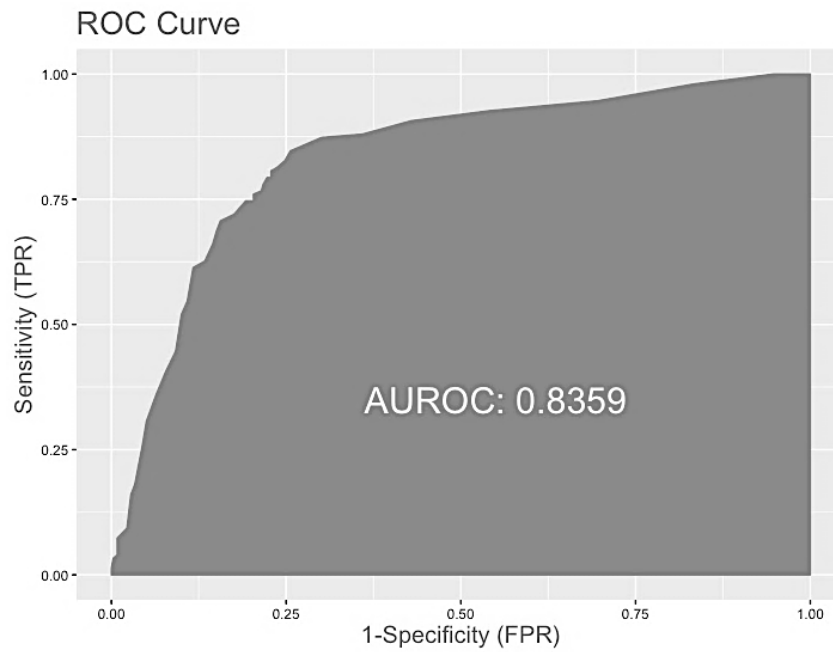
Type of problem

Problem	Description	Code
Delayed flight	The flight is delayed	1
Missing flights/transits	The traveler has lost the flight or a transit because of a delayed flight	2
Losing baggage	The traveler has lost its baggage	3

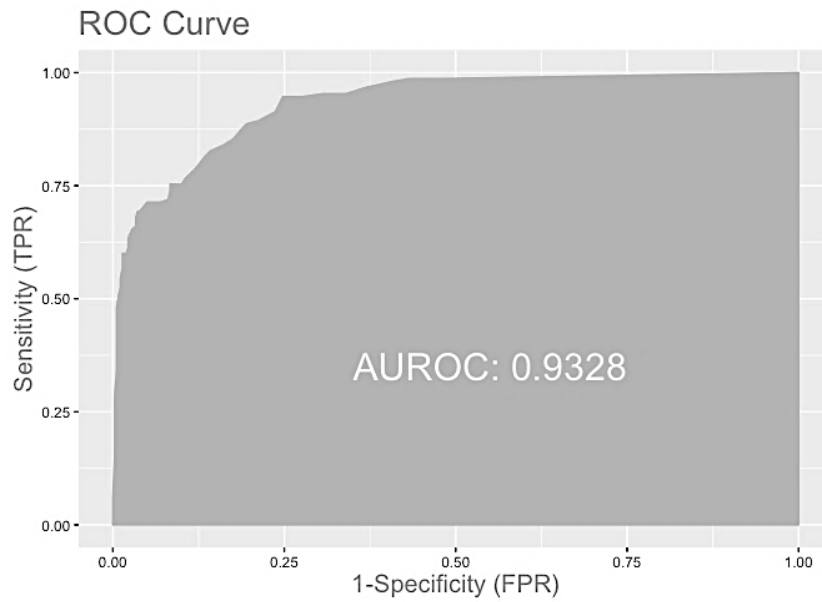
Luggage problems	The traveler has problems with checking in luggage. The traveler has a hand luggage that is too big or too heavy to bring into the cabin and needs to be checked in.	4
Not finding directions	The customer complaints about the servicescape, e.g. the signing	5
Ticket problems	The customer addresses mistakes with the ticket, or the service provider tells the customer that something is wrong with the ticket.	6

Appendix 2: Plots

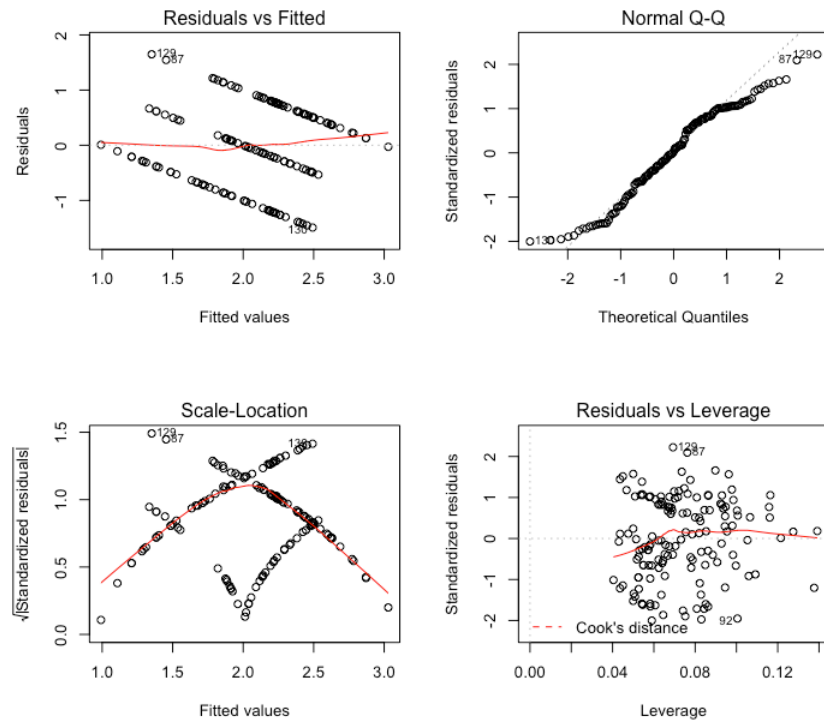
Plot 1: AUROC -LOGISTIC REGRESSION MODEL 1



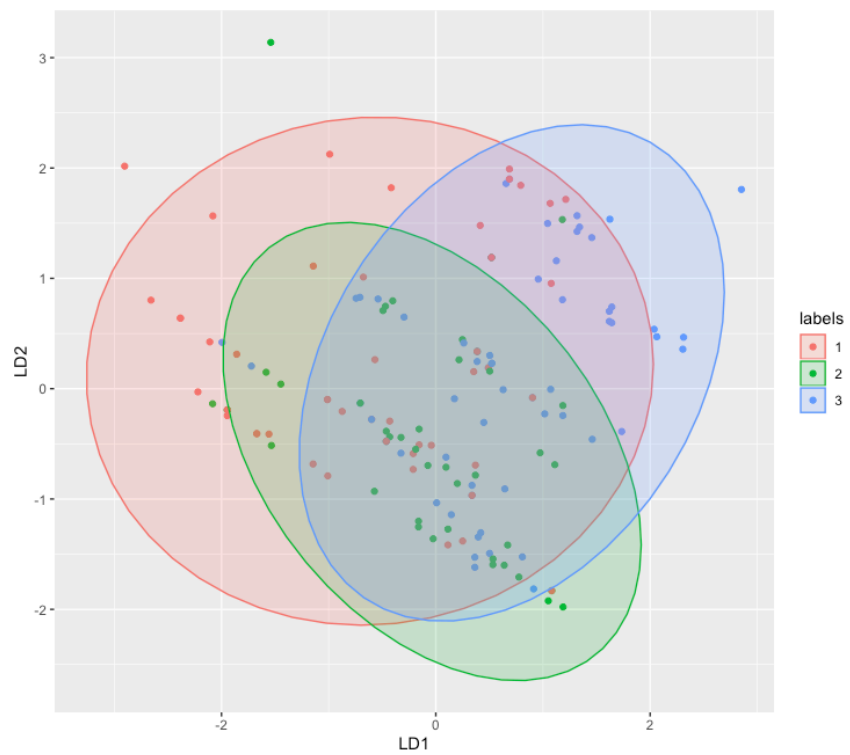
Plot 2: AUROC- LOGISTIC REGRESSION MODEL 2



Plot 3: Diagnostic plot: Linear regression MODEL 3



Plot 4: LDA plot MODEL 4



Appendix 3: Ranking of misbehavior

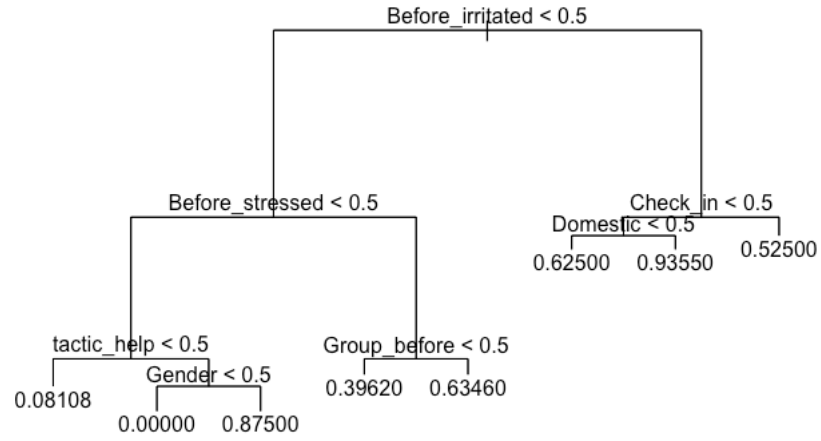
Table 1

How we classified level of misbehavior

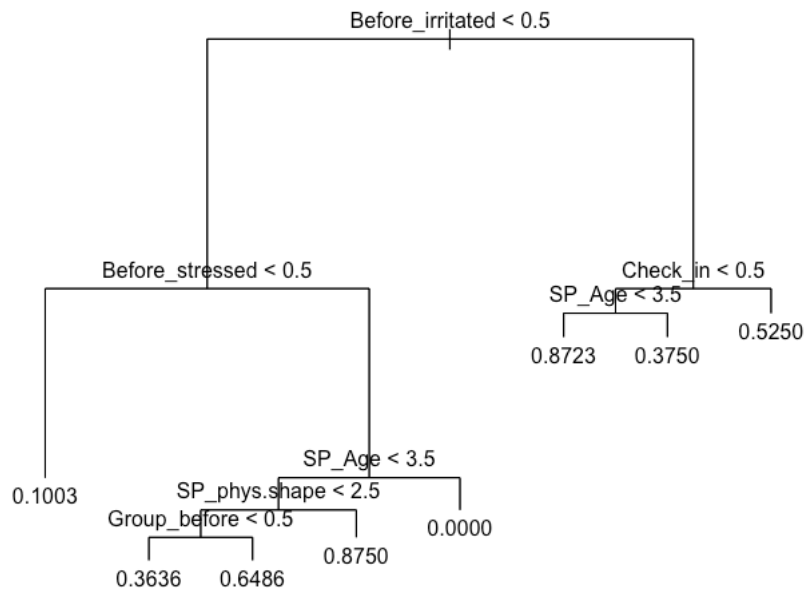
Mild misbehavior	Complaining		
	Sarcasm		
	Profanity		
	Complaining	+ Sarcasm	
	Complaining	+ Profanity	
Moderate misbehavior	Sarcasm		
	Profanity		
	Raised voice		
	Gestures		
	Ignoring		
	Complaining	+ Profanity	
	Complaining	+ Raised voice	
	Complaining	+ Gestures	
	Complaining	+ Ignoring	
	Sarcasm	+ Raised voice	
	Sarcasm	+ Gestures	
	Sarcasm	+ Ignoring	
	Profanity	+ Raised voice	
	Profanity	+ Ignoring	
	Raised voice	+ Ignoring	
	Gestures	+ Ignoring	
	Complaining	+ Sarcasm	+ Profanity
Serious misbehavior	Violence		
	Complaining	+ Violence	
	Profanity	+ Gestures	
	Profanity	+ Violence	
	Raised voice	+ Gestures	
	Raised voice	+ Violence	
	Gestures	+ Violence	
	Ignoring	+ Violence	
<i>All combinations of three or more types misbehaviors other than Complaining + sarcasm + profanity, is considered a serious misbehavior</i>			

Appendix 4: Classification trees

Classification Tree 1:



Classification Tree 2:



Appendix 5: VIF tables

Table 1

VIF values Model 1

<u>Gender</u>	<u>Age</u>	<u>Phys.Shape</u>	<u>Kids</u>	<u>Group_before</u>	<u>Outfit_business</u>
1.052196	1.082167	1.108697	1.339488	1.317529	1.098735
<u>Outfit_comfy</u>	<u>Outfit_tralever</u>	<u>before_happy</u>	<u>Before_stressed</u>	<u>Before_irritated</u>	<u>Domestic</u>
1.025968	1.055019	1.136757	1.406561	1.366854	1.064943

Table 2

VIF values Model 2

<u>Gender</u>	<u>Age</u>	<u>Phys.Shape</u>	<u>Kids</u>	<u>Group_before</u>
1.129077	1.207803	1.200425	1.465058	1.366899
<u>SP_Gender</u>	<u>SP_Age</u>	<u>SP_phys.shape</u>	<u>Outfit_business</u>	<u>Outfit_comfy</u>
1.531936	2.046234	1.852403	1.237029	1.082705
<u>Outfit_tralever</u>	<u>before_happy</u>	<u>Before_stressed</u>	<u>Before_irritated</u>	<u>During_happy</u>
1.186583	1.185753	1.679261	1.475871	1.000001
<u>During_stressed</u>	<u>During_irritated</u>	<u>During_sad</u>	<u>Prob_baggage</u>	<u>Prob_dir</u>
1.384033	1.963799	1.050479	1.482796	2.243309
<u>Prob_luggage</u>	<u>Prob_ticket</u>	<u>tactic_help</u>	<u>tactic_trust</u>	<u>tactic_talk</u>
4.081606	5.047239	1.138532	1.287171	1.148732
<u>Domestic</u>	<u>SPDomestic</u>			
1.259873	3.094688			

Table 3

VIF values Model 3

<u>Gender</u>	<u>Age</u>	<u>Phys.Shape</u>	<u>Kids</u>	<u>Group_before</u>	<u>Outfit_business</u>
1.115409	1.142806	1.095412	1.445469	1.411112	1.142262
<u>Outfit_tralever</u>	<u>Before_stressed</u>	<u>Before_stressed</u>	<u>Before_irritated</u>	<u>Domestic</u>	
1.085276	1.896293	1.896293	1.882132	1.074566	
