ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL

THE IMPACT OF AGGREGATE RATINGS AND INDIVIDUAL REVIEWS ON CONSUMER DECISION-MAKING: A CONSTRUAL LEVEL THEORY PERSPECTIVE

Ph.D. THESIS

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ISTANBUL TEKNİK ÜNİVERSİTESİ ★ LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ

KÜMÜLATİF DEĞERLENDİRMELER VE BİREYSEL YORUMLARIN TÜKETİCİLERİN KARAR VERME SÜREÇLERİNE ETKİSİ: ZİHİNSEL YAPILANDIRMA DÜZEYİ KURAMI PERSPEKTİFİ

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Caner ÇEŞMECİ, a Ph.D. student of İTU Graduate School student ID 403172011 successfully defended the thesis entitled **"**THE IMPACT OF AGGREGATE RATINGS AND INDIVIDUAL REVIEWS ON CONSUMER DECISION-MAKING: A CONSTRUAL LEVEL THEORY PERSPECTIVE", which he prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

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To my family and Deniz,

FOREWORD

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June 2023

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ABBREVIATIONS

AFC : Aggregate Favored Cue
ANCOVA : Analysis of Covariance
ANOVA : Analysis of Variance
ARM : Aggregate Review Metrics
AVE : Average Variance Extracted
BIF : Behavior Identification Form
CA : Cronbach's Alpha
CI : Confidence Interval
CFA : Confirmatory Factor Analyis
CFI : Comparative Fit Index
CR : Composite Reliability
CLT : Construal Level Theory
COVID-19 : Coronavirus Disesase 2019
DV : Dependent Variable
EFA : Exploratory Factor Analyis
ERL : Estimated Risk Likelihood
EWOM : Electronic Word-of-mouth
GFI : Goodness-of-fit Index
IACT : Intention to Adopt Cue Types
IFC : Individual Favored Cue
IR : Individual Reviews
NWOM : Negative Word-of-mouth
OCR : Online Consumer Reviews
PWOM : Positive Word-of-mouth
RMSEA : The Root Mean Square Error of Approximation
UGC : User Generated Content
UI : User Interface
UX : User Experience
WOM : Word-of-mouth
WTP : Willingness-to-pay

SYMBOLS

α	: Cronabch's alpha
β	: Beta coefficient
η2	: Eta-squared
χ2	: Chi-square

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THE IMPACT OF AGGREGATE RATINGS AND INDIVIDUAL REVIEWS ON CONSUMER DECISION-MAKING: A CONSTRUAL LEVEL THEORY PERSPECTIVE

SUMMARY

In certain cases, despite a product's high overall rating, a single negative review has the potential to undermine and alter a consumer's otherwise favorable decision. Conversely, a single positive review can prompt consumers to adopt a positive attitude towards a product or service, even if the product has a low aggregate rating. This phenomenon illustrates a type of cognitive bias known as base-rate neglect, in which consumers in an online review setting may disregard average product ratings in favor of individual reviews. When faced with conflicting cues, consumers attempt to infer which cue types are more diagnostic for their decisions. To this end, the present thesis examines how consumers use aggregate review metrics (ARM) (e.g., average product ratings) and individual reviews (IR) (e.g., a single review text) to estimate the risk likelihood of and make an evaluation about a product.

Drawing on construal level theory (CLT) as a theoretical foundation, the study posits that psychologically distant objects are represented as abstract categories, while psychologically close objects are represented as concrete and contextual. In this framework, conceptualizing eWOM as a communication model in light of numerous contextual factors, the thesis addresses cue types as part of a broader inquiry into the influence of base-rate information (abstract, aggregated, and category-level characteristics within a population) and case information (concrete, individuating, and case-specific instances) on risk assessment and product evaluation. By unpacking base-rate neglect in the eWOM context, this study aims to highlight mental construal as a novel moderator that determines the prominence of specific cues under certain conditions. Additionally, it identifies consumers' risk estimation as an underlying mechanism in the pathway of behavioral outcomes and also a crucial boundary condition, demonstrating that nudging base-rate cues by providing a simple reminder of the base-rate fallacy can significantly eliminate this bias in consumer decision-making.

This thesis consists of eight studies, including six experiments, a survey, and a qualitative study, all of which utilize various stimuli, measures of evaluation (such as persuasion, self-report intention to adopt cue types, willingness to pay, real choice, and behavioral intention), and methods (including a survey, in-depth interviews, lab and online experiments), as well as diverse sample populations (such as students and frequent online shoppers with different demographic characteristics), and cultural context (with the participation of individuals from the US and Turkey). Throughout the thesis, all experimental studies are designed with the presence of conflicting cues (individual favored cue [AFC] vs. aggregate favored cue [IFC]). More specifically, Study 1 attempts to reveal the prevalence of base-rate neglect in online consumer reviews, irrespective of which type of cue is favored (AFC or IFC). Study 2a identifies a list of elements that influence the relative importance of these cue types on consumer

decision-making and compiles them using in-depth interviews, and Study 2b validates the developed scale of intention to adopt cue types (IACT). Studies 3a and 3b are scenario-based experiments examining the impact of mental construal on IACT, manipulating construal level both externally and on the basis of social distance, respectively. Study 4 investigates the role of mental construal on consumers' willingness to pay (WTP) for products with AFC and IFC. Study 5 extends previous findings by incorporating choice as the dependent variable and IACT as the mediating variable, providing more nuanced, process-based evidence. Lastly, Study 6 addresses the underlying mechanisms by exploring 1) whether consumers' estimated risk likelihood underlies the base-rate fallacy in online review platforms, and 2) whether the base-rate fallacy can be mitigated or eliminated through interventions or nudges.

Studies of the thesis collectively demonstrate that when consumers adopt a high-level construal (i.e., an abstract mindset), they tend to rely more on ARM (i.e., average product ratings), whereas a low-level construal (i.e., a concrete mindset) leads consumers to rely more on IR (i.e., individual reviews). In a similar vein, the findings provide evidence that consumers' utilization of IR (ARM) is increased (decreased) when purchasing a product for themselves. Contrarily, consumers' utilization of ARM (IR) is increased (decreased) when purchasing a product for others. These studies jointly demonstrate that the observed effect is consistent, reliable, and robust across different conditions, even accounting for alternative accounts.

The findings of the studies suggest that the bias towards one type of cue over another depends on the consumer's mental construal to a certain extent. Furthermore, the study identifies consumers' estimated risk likelihood as a critical underlying mechanism in the pathway of behavioral outcomes. The results also show that providing a simple reminder of the base-rate fallacy as a nudge can effectively eliminate the base-rate neglect in this domain, resulting in a higher intention to adopt ARM compared to IR, which is otherwise more influential by default. These insights have significant implications for eWOM platforms, managers, and consumers and provide a valuable opportunity for managers to calibrate the salience of cue types in line with customers' mental construals. This thesis also highlights the opportunity to increase satisfaction and awareness among consumers through the utilization of straightforward debiasing strategies, aiming to enhance their decision-making and welfare.

KÜMÜLATİF DEĞERLENDİRMELER VE BİREYSEL YORUMLARIN TÜKETİCİLERİN KARAR VERME SÜREÇLERİNE ETKİSİ: ZİHİNSEL YAPILANDIRMA DÜZEYİ KURAMI PERSPEKTİFİ

ÖZET

Belirli durumlarda, ürünün yüksek ortalama puanına rağmen, tek bir olumsuz tüketici yorumu tüketicinin aslında olumlu olacak kararını sarsma ve değiştirme potansiyeline sahiptir. Tersine, tek bir olumlu inceleme bile, ürünün düşük ortalama puanına rağmen tüketicilerin o ürün veya hizmet hakkında olumlu bir tutum benimsemesini teşvik edebilir. Bu fenomen, tüketicilerin çevrimiçi değerlendirme platformlarında ortalama ürün puanlarını, bireysel incelemeler lehine göz ardı etme eğiliminde oldukları bir tür bilişsel yanılsama olan temel oran yanılgısına (*base rate bias*) işaret etmektedir. Çelişkili ipuçlarıyla karşı karşıya kaldıklarında, tüketiciler kararları için görece daha tanısal olan ipuçlarını benimsemeye niyetlidirler. Bu doğrultuda tez, tüketicilerin bir ürünün risk olasılığını tahmin etmek ve bir değerlendirme yapmak için kümülatif değerlendirme ölçütlerini (örn., ortalama ürün puanı) ve bireysel yorumları (örn., belirli bir kullanıcı yorumu) nasıl kullandığını inceleyerek zihinsel yapılandırma düzeylerinin, bu kullanımı nasıl etkilediğini ve altta yatan mekanizmaları keşfedip bu etkilere nasıl müdahil olunabileceğini göstermeyi amaçlamaktadır.

Bu tez, psikolojik olarak uzak nesnelerin soyut kategoriler, psikolojik olarak yakın nesnelerin ise somut ve bağlamsal nitelikte temsil edildiği zihinsel yapılandırma düzeyi kuramı (*construal level theory*) temelinde, çevrimi tüketici değerlendirmelerindeki ipucu türlerini (*cue types*) (örn., ürün puanı ya da yorumu) bir ağızdan ağıza iletişim (*WOM*) modeli olarak ele almaktadır.

Birçok bağlamsal faktör ışığında, bu tez, ipucu türlerine yönelik bir sorgulamanın parçası olarak temel oran (soyut, toplu ve popülasyon içindeki kategorik özellikler) ve vaka enformasyonunun (somut, ayrıntılı ve vakaya özgü örnekler) risk ve ürün değerlendirmesi üzerindeki etkisini incelemektedir. Bu çalışma ayrıca, elektronik ağızdan ağıza iletişim (eWOM) bağlamında temel oran yanılgısını açığa çıkardığı için, belirli koşullar altında ilgili ipuçlarının önemini belirleyen yeni bir düzenleyici olarak tüketicilerin zihinsel yapılandırma düzeyini vurgulamayı amaçlamaktadır. Ek olarak, tüketicilerin risk tahminlerini, davranışsal sonuçların yolunda altta yatan temel bir mekanizma; temel oran yanılgısına yönlendirici desteği (*nudge*) ise önemli bir sınır koşulu (*boundary condition*) olarak tanımlayan bu çalışma, basit bir hatırlatma ile temel oran yanılgısını azaltmanın, hatta ortadan kaldırmanın mümkün olduğunu göstermektedir.

Bu tez, beş bölümden oluşmaktadır. Giriş niteliğindeki birinci bölümün ardından ikinci bölümde teorik arka plan başlığı altında; ağızdan ağıza iletişim, elektronik ağızdan ağıza iletişim, bilişsel kısa yollar ve yanılgılar ile zihinsel yapılandırma düzeyi kuramı ele alınmaktadır. Bu bölümde, elektronik ağızdan ağıza iletişimin ipucu tiplerine ve bağlamsal bileşenlerine dayanan yeni bir çerçeve sunulmakta ve davranışsal çıktıları etkileyen psikolojik faktörlerin rolü vurgulanmaktadır. Bu kuramsal çerçeve ayrıca bağlam boyutunu da klasik iletişim modeline dahil

etmektedir. Bu bölümde ayrıca eWOM ile ilgili bilişsel kısa yollar ve yanılgılar, özellikle de temel oran yanılgısı ve bu yanılgıyı ortadan kaldıracak yöntemler (*debiasing*) tartışılmakta ve çalışmanın kuramsal zemini zihinsel yapılandırma düzeyi kuramı aracılığıyla incelenmektedir. Tezin üçüncü bölümünde, çalışmanın temel araştırma sorularını ele alan bir dizi araştırma hipotezi sunulmaktadır. Bu bölümde hipotezler, literatürdeki ilgili çalışmalar ve ampirik kanıtların ışığında kapsamlı olarak tartışılmaktadır. Tezin dördüncü bölümü metodoloji ve araştırma sonuçlarını kapsamlı olarak ele almaktadır. Son olarak, beşinci bölümde ise tezin kuramsal ve pratik katkıları önceki bulgularla ilişkilendirilerek tartışılmakta, çalışmanın kısıtları ele alınmakta ve gelecek araştırmalar için öneriler sunulmaktadır.

Dördüncü bölüm, öğrenciler ve farklı demografik özelliklere sahip sık çevrimiçi alışveriş yapan kişiler gibi çeşitli örneklem ana kitlelerini içeren ABD ve Türkiye'den katılımcıların yer aldığı, çeşitli uyaranlar, değerlendirme ölçütleri (ikna, benimseme niyeti, ödeme isteği, davranışsal niyet ve gerçek seçme davranışı) ve yöntemlerin (anket, derinlemesine görüşmeler, laboratuvar ve çevrimiçi deneyler) kullanıldığı altı deney, bir gözlemsel ve bir nitel çalışma olmak üzere toplam sekiz çalışmadan oluşmaktadır. Tez boyunca, tüm deneysel çalışmalar çelişkili ipuçlarının 'vaka olumlu ipucu' ve 'kümülatif olumlu ipucu' olarak iki ayrı düzeyde operasyonelleştirmiştir. Daha spesifik olarak, çalışma 1, hangi ipucu türünün tercih edildiğine bakılmaksızın, çevrimiçi tüketici incelemelerinde temel oranı ihmalinin yaygınlığını ortaya çıkarmayı amaçlamaktadır. Çalışma 2a, bir nitel çalışma kapsamında, tüketici karar verme sürecinde, ilgili ipuçlarının göreceli öneminin hangi unsurlar bağlamında belirlendiğini tespit edip bu unsurlardan oluşan ipucu benimseme niyeti (*intention to adopt cue types, IACT*) kavramını öne sürmektedir. Çalışma 2b ise bu yapıyı ölçmek için geliştirilen ölçeği psikometrik olarak güvenirliğini ve geçerliliğini doğrulamaktadır. Çalışma 3a ve 3b, zihinsel yapılandırmanın (*mental construal*) ipucu benimseme niyeti üzerindeki etkisini, sırasıyla dışsal olarak (bkz., *category vs. exemplar task*) ve psikolojik uzaklığın sosyal boyutu temelinde zihinsel yapılandırma seviyelerini manipüle ederek senaryo bazlı deneylerle incelemektedir. Çalışma 4, tüketicilerin 'vaka olumlu' ve 'kümülatif olumlu' ipucuna sahip ürünler için ödeme istekliliğinde (*willingness to pay, WTP*), soyut ya da somut düşünmenin rolünü incelemektedir. Çalışma 5, farklı uyaranlarla tasarlanmış aynı çelişkili ipuçlarına sahip ürünleri, IACT aracı değişkeniyle, gerçek seçme davranışı üzerindeki etkisini inceleyerek, daha ayrıntılı, süreç kanıtına dayalı sonuçlar sağlamaktadır. Son olarak, Çalışma 6, tüketicilerin çevrimiçi inceleme platformlarında temel oran yanılgısının altında yatan mekanizmaları araştırarak, 1) tüketicilerin ilgili ürün hakkındaki tahmini risk kestirimlerinin söz konusu yanılgının altta yatan nedeni olup olmadığını ve 2) müdahale veya yönlendirici destek (*nudge*) yoluyla bu yanılgının azaltılabilir ya da tamamen ortadan kaldırılabilir olup olmadığını keşfetmektedir.

Bu çalışma, tüketicilerin belirli koşullar altında belirli ipuçlarını daha öne çıkardıklarını ve bunun belirli bir oranda tüketicilerin zihinsel yapılandırmalarına (soyut ya da somut düşünme biçimlerine) bağlı olduğunu göstermektedir. Sonuçlar ayrıca, tüketicilerin ürün hakkındaki tahmini risk kestiriminin, modelin davranışsal çıktıları yolunda önemli bir mekanizma olduğunu ve basit bir hatırlatmanın (*base-rate reminder*) temel oran yanılgısını ortadan kaldırabileceğini ortaya koymaktadır. Diğer bir deyişle normalde bireysel yorumlara verilen görece fazla önemin, bu yönlendirici destek ile altta yatan mekanizmayı ortadan kaldırdığı ve tüm sonuçları ürün puanlarını benimseme niyeti lehinde değiştirdiğini gözler önüne sermektedir. Bu bulgular, elektronik ağızdan ağıza pazarlama ve zihinsel yorumlama düzeyi kuramına katkıda

bulunurken, pazarlama yöneticilerine de tüketicilerin zihin durumlarına göre hangi tip ipuçlarının (ürün puanı ya da bireysel yorumlar) öne çıkarılması gerektiği konusunda içgörü sağlamaktadır.

Ek olarak bu çalışma, soyut ya da somut düşünmeyi dışsal olarak tetikleyen kategori-örnek manipülasyonu (*category vs. exemplar task*) ve kişilerin zihinsel yapılandırma düzeyini ölçen davranışsal kimlikleme formunu (*Behavioral Identification Form, BIF*) Türkçe yazına kazandırarak önemli bir katkıda bulunmuştur.

Bu tez, tüketicilerin çevrimiçi platformlarda temel oran yanılgısına nasıl maruz kaldığını gözler önüne sererek bu fenomenin altında yatan psikolojik sebepleri ortaya çıkarmaktadır. Daha da önemlisi, bu durum, politika yapıcılarına ve bizzat tüketicilerin kendilerine bu yanılgıyı nasıl azaltabileceklerine dair önemli içgörüler sağlamaktadır.

1. INTRODUCTION

With the increasing popularity of online consumer review platforms, consumers have long begun to rely on cues from other consumers rather than information provided by firms. (Bernick, 2015; Fedewa et al., 2021; The Nielsen Company, 2015) Furthermore, with a recent dramatic increase in e-commerce transactions due to the COVID-19 pandemic, the importance of consumer reviews and ratings has become even more prominent for firms and consumers (Power Reviews, 2023). Particularly, insights from industry show that the COVID-19 pandemic has raised the volume and significance of consumer reviews. (Fedewa et al., 2021; Kaemingk, 2020).

Many e-commerce retailers such as Amazon and independent platforms such as Yelp and Tripadvisor provide an opportunity for consumers to review, rate and discuss goods and services. Additionally, these firms allow consumers to retrieve valuable information about these goods and services before making a purchase decision. A bidirectional relationship between consumers and these platforms provides a fruitful research avenue for marketing scholars. On these platforms, several conceptually and practically distinct elements have the potential to be further investigated in the domain. For example, consumers learn about and evaluate products by adopting individual reviews (hereafter IR). Concurrently, product ratings (i.e., aggregate review metrics, hereafter ARM) are also used by consumers as a means of evaluating products. IR mainly refers to specific reviews consumers typically post in a textual format, while ARM refers to aggregated evaluations of consumers, which are typically summarized and presented in a format of star ratings or numeric cues.

In certain cases, despite a product's high overall rating, a single negative review has the potential to undermine and alter a consumer's otherwise favorable decision. Conversely, a single positive review can prompt consumers to adopt a positive attitude towards a product or service, even if the product has a low aggregate rating. This phenomenon illustrates a type of cognitive bias known as base-rate neglect, in which consumers in an online review setting may disregard the ARM in favor of IR. When faced with conflicting cues, consumers attempt to infer which cues (i.e., ARM or IR)

are more diagnostic for their decisions. At this point, they selectively weigh, allocate, and trade off their attention between these types of cues. For instance, consumers may use an ARM to get an overall gist of a product's performance (Park et al., 2007) or evaluate a single review to reduce uncertainty and form a more comprehensive opinion about a product (Park and Lee, 2008). ARM and IR jointly play an important role in consumers' evaluative judgments. Nonetheless, the majority of research focuses on these eWOM cues in isolation. However, in a field setting, both types of cues are salient to consumers (Chatterjee, 2001). Additionally, the conflict between IR and ARM in valence is not unusual (Qiu et al., 2012). In this respect, several questions are noteworthy. First, do conflicting ARM and IR affect the intention to adopt review types? Second, which cue types are more diagnostic for consumers? Third, what are the underlying psychological mechanisms through which ARM and IR exert their respective influences? Fourth, what can firms do to steer the processes to increase customer satisfaction? This thesis is organized in a way to specifically address these research questions.

1.1 The Aim and Importance of the Thesis

The aim of this study is to examine how consumers' bias (base-rate neglect) toward cue types (i.e., ARM and IR) in eWOM platforms, and whether consumers' mental construal influence this bias in favor of either cue. As an extention of this purpose, this thesis also aims to unravel the possible underlying mechanism in the pathway of behavioral outcomes and provide evidence as to how to mitigate or eliminate bias concering aggregrate ratings and individual reviews.

The literature on eWOM is abundant and features diverse perspectives (e.g., De Langhe et al., 2016; Ho- Dac et al., 2013; Hoffart et al., 2019; Ismagilova et al., 2007; Kozinets, 2016; Powell et al., 2017; Ordabayeva et al., 2022; Van Laer et al., 2019; Zheng, 2021). Despite the magnitude of the research outputs in the domain, few studies compare and contrast the ARM and IR (e.g., Qiu et al., 2012, Ledgerwood et al, 2010), two of the most salient cues in the online review environment. Besides, the findings are mixed and lack a theoretical unity (i.e., consilience). On the other hand, a number of studies have examined conflicting eWOM cue types (ARM and IR) and their effects on behavioral outcomes. For example, Hong and Park (2012) noted that negative narrative reviews had a stronger impact on attitudes compared to negative statistical

reviews. However, in the case of positive reviews, the findings showed that the presence of conflicting aggregate ratings negatively impact the perceived credibility and diagnosticity of the review, which appears to be inconsistent with the base-rate fallacy account. Qiu et al. (2012) suggested that consumers might pay more attention to a few negative reviews, even with a positive overall rating. Nettelhorst et al. (2013) underlined the role of case information in shaping perceptions, and Ziegele and Weber (2015) demonstrated the power of a credible review in influencing purchase decisions, regardless of a poor aggregate score. However, existing research has yet to thoroughly investigate the finding in light of broader theoretical lens to reconcile seemingly disparate findings.

Studies also have provided evidence that psychological distance and abstract mindset have an impact on the type of information on which individuals base their judgments and decisions. When engaged in abstract thinking, individuals tend to direct their focus away from specific, individualized details and towards more aggregate information (Bruchmann and Evans, 2012; Burgoon et al., 2013; Yan and Sengupta, 2013). However, studies in the eWOM literature addressing the moderating role of consumers' mental construal on the utilization of the aggregate and individual cues is limited. Only Ledgerwood (2010)[1] addressed the psychological distance on base-rate utilization using customer reviews. However, this brief study reported temporal distance only. To the best of the author's knowledge, no study to date has comprehensively investigated the social dimension of psychological distance, process evidence, and alternate accounts in this domain. Additionally, no study has examined the underlying mechanisms through which ARM and IR influence behavioral outcomes or explored ways to eliminate base-rate neglect in this domain. Thus, this thesis aims to fill this gap in the literature.

This thesis also extends current findings by manipulating construal level externally with a category-exemplar task (Fujita et al., 2006), social distance manipulation (Yan and Sengupta, 2013), with various outcomes (i.e., persuasion, willingness-to-pay, behavioral intention, real choice and a novel self-reported process evidence -IACT-), different product and service types (e.g., electronics, footwear, restaurant, hotel),

[1] Hansen and Melzner (2014) replicated part of their study by manipulating construal level with auditory cues.

ruling out important alternative explanations (processing motivation, risk aversion, perceived similarity), diverse cultural (Americans and Turkish people), and demographic context (bachelors and graduate students, Amazon MTurk panel participants).

Overall, this thesis aims to contribute to a deeper understanding of consumer decision-making processes in online shopping environments and provide insights to enhance the effectiveness of marketing strategies in the digital realm.

1.2 The Content and Scope of the Thesis

This study consists of five chapters. Following first chapter as an introduction, second chapter addresses word-of-mouth (WOM), eWOM, heuristics and cognitive biases, and construal level theory under title of theoretical background. In this chapter, the author introduces a new framework based on cue types and contextual components of eWOM, emphasizing the role of enablers and disablers that influence downstream consequences. The framework expands on the classical five-factor communication model by including the context dimension. This chapter also discusses heuristics and cognitive biases in relation to eWOM, specifically base-rate neglect and debiasing methods, and explores the theoretical ground of the study through construal level theory (CLT). Third chapter presents a set of research hypotheses that aim to address the key research questions of the study. Drawing on an extensive review of the relevant literature, theoretical underpinnings, and empirical evidence, the author outlines the rationale behind each hypothesis and discusses their significance in expanding the existing knowledge of the domain. Next, fourth chapter addresses the methodology and results. In this chapter, the author conduct eight studies, including six experiments, a survey, and a qualitative study, all of which utilize various stimuli, measures of evaluation (such as persuasion, willingness to pay, real choice, and behavioral intention), and methods (including lab experiment, online experiment, survey, and qualitative study), as well as diverse sample populations (such as students and frequent online shoppers with different demographic characteristics) with the participation of American and Turkish individuals. These studies collectively demonstrate that the observed effect is consistent, reliable, and robust across different conditions. Lastly, the fifth chapter discusses the thesis and its theoretical and managerial contributions

in relation to previous findings, addresses the limitations of the study, and provides suggestions for future research.

The scope of this thesis is to investigate the differential utilization of cue types in the eWOM context (i.e., ARM vs. IR) on the basis of construal level and cognitive biases with a particular focus on nudging the base-rate neglect for debiasing consumers. The research also further explores through which underlying mechanisms construal level operate in the absence of nudge.

As an explanatory and predictive basis for the present study, CLT suggests that objects, events, and individuals can be perceived along a continuum of psychological closeness or distance (Trope and Liberman, 2010). A large number of studies have indicated that objects, people, or events that are temporally (Liberman et al., 2002; Trope and Liberman, 2003), spatially (Fujita et al., 2006), socially or hypothetically (Trope et al., 2007) distant are construed at a higher, more abstract level than are proximal ones. People rely more on generalized category-level information than specific details in an abstract mind-set. In contrast, psychologically close objects are represented as concrete and contextual rather than generalized abstract categories (Yan and Sengupta, 2013). Specifically, the author develops a novel conceptualization of ARM as a "base-rate cue" consisting of abstract, aggregated, category-level, and pallid elements; likewise, IR is a "case information cue" consisting of concrete, characteristic and vivid elements.

Upon conceptualizing eWOM as a communication model in a broader framework, this thesis addressed cue types in eWOM (i.e., ARM vs. IR) as part of a broader inquiry into the relative influence of base-rate information (aggregated characteristics within a given population) and case information (i.e., individual instances, events, or cases) on risk assessment on a product and its behavioral consequences. This thesis also reveals base-rate neglect account in the eWOM setting, providing a novel moderator (mental construal) that determines which cues are more prominent under certain conditions by highlighting the importance of estimated risk likelihood as a critical underlying mechanism in the pathway of behavioral outcomes. Furthermore, this thesis identifies a crucial boundary condition, showing that nudging base-rate cues by providing a simple reminder of the base-rate fallacy can significantly eliminate this bias in consumer decision-making. This nudge increases the intention to adopt ARM compared to IR, which are otherwise more influential by default (base-rate neglect).

Considering the important role of eWOM for both consumers and firms, the present study has provided novel insights as to how and why consumers adopt ARM or IR when evaluating products and services encountered in an online setting. These insights deepen our understanding of the factors shaping consumer decision-making within online reviews and paves the way for future research on strategies to minimize biases and enhance consumers' decision-making processes.

2. THEORETICAL BACKGROUND

In this chapter, first traditional word-of-mouth (WOM) is addressed. Second, electronic word-of mouth is discussed and conceptualized based on cue types as well as by synthesizing the relevant literature with a novel framework by adapting the classical communication model perspective. Also, a contextual component highlighting the question "In which context?" is added to the framework. Specifically, the context has emphasized enablers and disablers that shape the setting for electronic word-of-mouth (eWOM) communication, whereby influencing downstream consequences. By reconceptualizing eWOM communication, this chapter also contribute to the literature aimed at expanding the application of the classical five-factor communication model to the eWOM domain by including the context dimension. Third, heuristics and cognitive biases are discussed in light of nudge literature by emphasizing base-rate neglect and debiasing methods and relating all in the context of eWOM. Lastly, construal level theory (CLT), which is theoretical ground of study, is addressed and discussed further.

2.1 Word-of-Mouth (WOM)

Being as old as the history of humanity, WOM communication has served as a core channel of information exchange between individuals (Rui et al., 2010). The phrase "word-of-mouth" has been in use for centuries. The first usage of the term dates back to the 16th century (Oxford English Dictionary, 2021). The expression is defined as 'o*ral communication*", "*oral publicity*", or simply "*speaking*" by the dictionary (Nyilasy, 2005). Since dating back to ancient times, word-of-mouth has been a powerful force in shaping trade, experiences, and cultural exchange. Traders, merchants, travelers, and patrons (e.g., in the Silk Road[2]) shared their knowledge

[2] The Silk Road (2nd century BCE - 15th century CE), a network of trade routes that connected the East and the West, facilitated the exchange of goods, culture, and ideas.

leading to the popularity of goods like silk, spices, and other valuable commodities (Liu, 2010).

Katz and Lazarsfeld (1955) conducted one of the earliest systematic studies which revealed that word of mouth (WOM) was the most influential factor in the buying decisions related to household goods and food products. Following the advent of television as a prominent promotional platform, numerous studies carried out mainly in the 1960s and early 1970s highlighted the enduring significance of interpersonal influence (Brown and Reingen, 1987).

The study revealed that WOM was seven times more effective than newspapers and magazines, four times more effective than personal selling, and twice as effective as radio advertising in terms of persuasion. WOM has been considered one of the most influential marketing tools since its introduction in marketing literature. (Engel et al., 1969; Feldman and Lynch, 1988). It is well-established that WOM has an impact on the consumers' attitude and behaviors (Brown and Reingen, 1987). WOM can be categorized as consumer-generated (i.e., without external influence, occurring directly between consumers) or marketer-generated (i.e., intentionally initiated by marketers). In this regard, consumers perceive consumer-generated WOM as more credible compared to marketer-generated WOM (Arndt, 1967). Scholarly works have addressed these concepts as "organic WOM" and "fertilized WOM," correspondingly (Trusov et al., 2009).

WOM has been addressed as positive WOM (PWOM) and negative WOM (NWOM). PWOM is essentially product-related information shared by satisfied customers (Holmes and Lett, 1977), while NWOM, involves communication among friends and relatives about dissatisfactory product or service experiences (Blodgett et al., 1995). NWOM can severely damage a firm's reputation, image, sales, and market share (Lee and Cranage, 2012). Although some researchers argue that PWOM has a more significant impact on consumers than NWOM (East et al., 2008), others believe that NWOM has more impact on consumers. (Chevalier and Mayzlin, 2006; Mittal et al., 1998, Richins, 1983). Berger et al. (2010), on the other hand, introduced a more nuanced approach. According to the results of their study, a negative review in the *New York Times* negatively impacted sales of books by renowned authors, but it boosted sales for books with previously low awareness. At this juncture, research on word-of-mouth (WOM) has presented inconsistent evidence as to whether consumers

are more inclined to share positive or negative information about products and services (De Angelis et al., 2012).

The literature offer several theoretical justifications for a positive relationship between customer satisfaction and WOM: encompassing (a) altruism (the intention to assist others), (b) instrumentalism (an aspiration to seem knowledgeable or "intelligent"), (c) ego defense, and (d) diminishing cognitive dissonance, (Arndt, 1967; Dichter, 1966), e) the need to present the self in a positive way (Richins, 1984), f) general bias toward positive cognitive processes, and messages (Holmes and Lett, 1977), d) general bias toward transmitting negative news (Tesser and Rosen, 1975) In contrast, it has been suggested that there are also theoretically sound explanations for justifying negative relationship between customer dissatisfaction and WOM, including: a) in order to release hostility (Jung, 1959), as lessen anxiety, warn others, or seek vengeance (Allport and Postman, 1947; Knapp, 1944; Richins, 1984). The evolutionary psychology literature presents compelling evidence indicating that engaging in eWOM could serve as an important function in terms of survival for both individuals and groups (e.g., Allport and Postman, 1947; Rosnow, 1988).

2.1.1 Defining word-of-mouth (WOM) in marketing

In the marketing literature, Arndt (1967a, p. 3) describes WOM as "*oral, person-to-person communication between a receiver and a communicator whom the receiver perceives as non-commercial, concerning a brand, a product or a service*". By definition, WOM has three main elements. First, it refers only to interpersonal communications. Second, the content of WOM should be about commercial entities. Third, WOM is distinct and different from mass communication such as advertising and publicity (Nyilasy, 2005). However, as WOM is a type of communication process, in the first place. Therefore, the present study adapted Lasswell's communication model by combining it with Gerbner's (1957) framework to conceptualize the components of eWOM.

It is important to noting that WOM refers to the message about commercial entities, products, product categories, and brands (Ismagilova et al., 2017). With the latest development of WOM research, Westbrook (1987, p. 261) includes subjects of communication between customers in the definition of WOM as follows: "*informal communications directed at other consumers about ownership, usage, or*

characteristics of particular goods and services and/or their sellers". However, these definitions lack an important element about the source of the communications. In an attempt to address this issue, Bone (1992, p. 579) suggested that WOM is "*an exchange of comments, thoughts, and ideas among two or more individuals in which none of the individuals represent a marketing source*". Based on the previous arguments, Ismagilova et al. (2017, p. 7) proposed more inclusive definition of WOM as follows:

"Oral, person-to-person communication between a receiver and a communicator, whom the receiver perceives as non-commercial, concerning a brand, product, service, or organization."

2.1.2 WOM as a communication

Harold D. Lasswell, a highly cited communication theorist, developed Lasswell's communication model in 1948. Lasswell's communication model, also known as the linear model, one-way model, five-factor framework of communication, is widely regarded as one of the most influential communication models. The model consists of five components at serve as an analysis tool for evaluating the communication process and its components. These components include who (the sender), says what (the message), in which channel (the channel / medium), to whom (the receiver), and with what effect (the outcome / downstream consequences).

One of the key advantages of Lasswell's communication model is its simplicity and parsimony, which allows it to be applied to a wide variety of communication processes. Furthermore, the model has been widely used and has been demonstrated to be an effective communication model in many contexts. However, this model has also been criticized for not addressing feedback, noise and context (Gerbner, 1957) elements.

Feedback is an essential component of communication as it allows the sender to adjust their message based on the receiver's response. Noise refers to any interference that affects the transmission or reception of a message, such as physical noise or psychological noise. Context refers to the situational, social, cultural, or psychological factors that influence the interpretation of a message. In this regard, Lasswell's model has also been criticized to oversimplifies the communication process by ignoring these essential elements and to assume a one-way flow of communication from the sender

to the receiver, neglecting the complex, interactive, and dynamic nature of modern communication. However, Lasswell's communication model, despite its limitations, remains an essential theoretical and conceptual framework for understanding communication processes.

WOM is distinct and different from mass communication such as advertising and publicity (Nyilasy, 2005). However, WOM is ultimately a type of communication process, at its core and shares numerous similarities with communication processes. The present study, thus, adapted Lasswell's communication model by combining it with other communication models (Shannon and Weaver, 1949; Gerbner, 1957) to conceptualize the components of WOM. The rationale for adopting this conceptual framework (i.e., five-factor framework is six-fold: (1) marketing scholars contend that communication and marketing theories share fundamental theoretical underpinnings, which mutually enhance one another (Duncan and Moriarty, 1998). (2) WOM is fundamentally a communication process at its core (Arndt, 1967; Ismagilova et al., 2017). (3) It is suitable for categorizing our systematic analysis. (4) This thematic structure encompasses wide-ranging principles that fulfill the prerequisites for a systematic review and promote enhanced synthesis and integration (Kwok et al., 2017). (5) This organized method has been employed by other scholars in literature analysis research within similar fields (e.g., Montazemi and Qahri-Saremi, 2014). (6) Lastly, this approach has demonstrated its efficacy in deconstructing information on online consumer reviews (OCR) and establishing a well-organized classification of OCR characteristics (Zheng, 2021).

Note that, this framework solely serves as a useful map for dissecting communication processes, enabling scholars and practitioners to identify potential barriers, breakdowns, or areas for improvement in communication efforts. It is criticized that, linear nature of Lasswell's model is purported to assume a one-way flow of communication from the sender to the receiver, neglecting the complex, interactive, and dynamic nature of modern communication. However, Lasswell's question as to "*with what effect*" can also be considered as a *feedback* component in the broader sense. In addition, if we include Gerbners' "*context*" proposition in a way that encompasses "*noise*" in our conceptual framework, we can put forward a comprehensive model of communication that will shed light on WOM (Figure. 2.1).

In another perspective, WOM communications have other important elements such as valence, actors, timing, solicitation, degree of management intervention, and credibility (Buttle, 1998; Cakmak and Isaac, 2012; Chiosa, 2014; Ismagilova et al., 2017; Tabbane and Debabi, 2015).

Valence refers to negativity or positivity of WOM communications. Satisfied consumers are more inclined to spread PWOM (Buttle, 1998), while dissatisfactory experiences lead them to disseminate negative NWOM (Richins, 1984). Timing, on the other hand, refers to whether WOM communications are related to pre- or post-purchase. WOM communications is often used by consumers before making a purchase decision, while it is shared by them after using a product or a service experience (Buttle 1998).

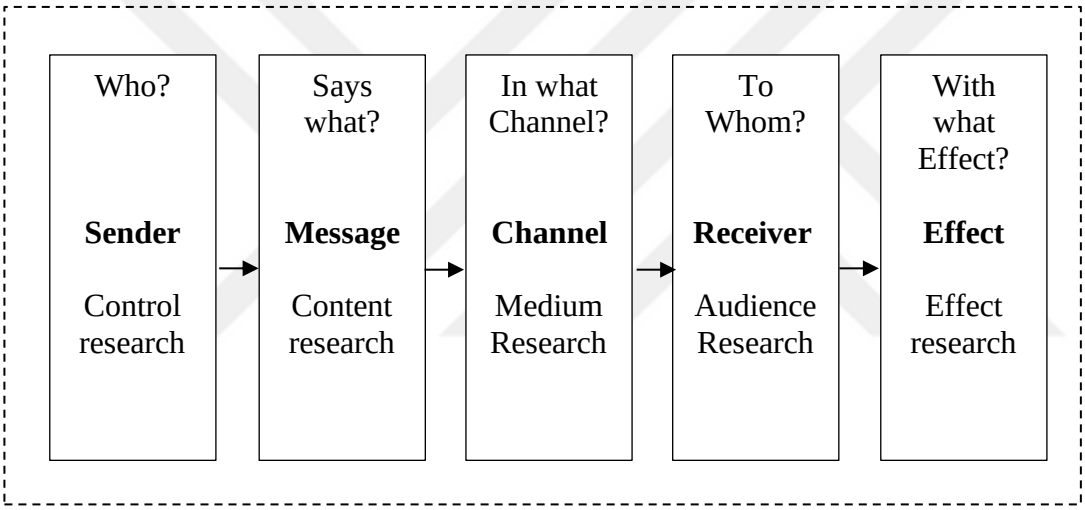

Figure 2.1 : Lasswell's (1948) communication model.

Actors as a characteristic refer to the WOM-related entities on which an organization focus. In other words, not only do consumers constitute all parties of WOM activity, but suppliers, agents, competitors, governments, and other stakeholders can also be included from this perspective.

Solicitation and intervention are closely related but different characteristics of WOM. Solicitation refers to whether WOM communications are initiated by customers or firms in the first place (Buttle, 1998). Intervention, on the other hand, refers to firms' act of intervening in WOM communications through opinion leaders (Ismagilova et al., 2017), marketing strategies that nudges customers to WOM (Haywood, 1989), and complaint handling procedures (Bolfing, 1989; Fornell and Wernerfelt, 1987).

2.1.3 Advances in WOM research

WOM research in the literature can be addressed in three categories. First category is about antecedents of WOM communications. In other words, how, when, and why consumers engage in WOM communications. Motivations behind engaging in WOM communications has long been studied by marketing scholars. These motivations can be summarized as a strategy for cognitive dissonance reduction, public complaint due to dissatisfactory (Richins, 1983), or satisfactory experience (File et al., 1994; Gremler et al., 2001, economic and non-economic incentives (Chevalier and Mayzlin, 2006), altruism (Arndt 1967c; Zhang and Lee, 2012), social identity (Arenas-Gaitán et al., 2018), as an impression management and identity signaling strategy (Ismagilova et al., 2017).

In the marketing and consumer behavior literature, the power of interpersonal influence through WOM communication has been well established (see Arndt 1967b; Herr et al., 1991). As mentioned earlier, previous research has also found that consumers regard WOM as more trustworthy and persuasive than traditional media such as print advertisements, personal selling, and radio and television advertising (Filieri et al., 2015). With the introduction of the Internet, which extended eWOM communication to various additional virtual settings, eWOM become more prominent for both consumers and firms (Zheng, 2021).

An increasing attention to eWOM has been primarily driven by advances in information and communication technologies and the widespread adoption of the internet (Kaplan and Haenlein, 2010). The ubiquity of social media platforms, such as Facebook, Twitter, and Instagram, has facilitated the rapid expressing and dissemination of opinions and experiences among users, enabling eWOM to become a more pervasive and influential phenomenon (Mangold and Faulds, 2009; Hennig-Thurau et al., 2003). Furthermore, the emergence of online consumer reviews (OCR) platforms and e-commerce websites has provided consumers with accessible forums to share their product or service experiences, significantly shaping consumer decision-making processes (Cheung and Thadani, 2012; Zhu and Zhang, 2010). The development of mobile technologies and the growing trend of smartphone usage have also contributed to the increased importance of eWOM by allowing users to access and disseminate information anytime, anywhere (Wang et al., 2012). Thus, these technological advances resulted in increasing scholars attention s WOM into eWOM,

expanding its reach and impact on consumers and businesses alike (Kaplan and Haenlein, 2010; Dellarocas, 2003).

While buying a product or service, consumers have typically obtained information from three sources: professional paid agents (e.g., paid media), nonpaid experts (e.g., opinion leaders), friends and family members (e.g., WOM). Although WOM has traditionally been transmitted through one-on-one, face-to-face conversations, it has evolved to be communicated nontraditionally as well. These stories, today, can be conveyed through one-to-many, written communication using electronic media (Godes et al., 2005). As stated earlier, with the widespread use of Web 2.0 tools, consumers now have a new source of information at their disposal: reviews shared by fellow consumers, with whom they have no prior relationship (Naylor et al., 2012). Consumers has long been prefer online platforms (e.g., online discussion forums, consumer review sites, social media, etc.) to communicate their opinions and exchange product information with their peers. This new form of word-of-mouth (WOM) communication can include positive or negative expressions made by potential, actual, and former customers about a product or a firm via the Internet (Hennig-Thurau et al., 2004). In the following chapter, this novel form of WOM communication, electronic-word-of-mouth (eWOM), is discussed in detail.

2.2 Electronic Word-of-Mouth (EWOM)

The proliferation of internet technologies has resulted in an increasing number of consumers utilizing online environment as a means of seeking information pertaining to products or companies. The development of the internet, the rise in popularity of e-commerce, and the widespread diffusion smartphones and of social media applications have led to a surge of user-generated content (Mukhopadhyay et al., 2022), called as electronic word-of-mouth (eWOM). While eWOM may lack the personal touch of traditional word-of-mouth, it is considered to be a more influential form of communication due to its extensive reach and public accessibility (Hennig-Thurau et al., 2004). Also, consumers, today are increasingly use online platforms to express their thoughts and opinions about companies and their offerings (Huete-Alcocer, 2017; Tobon and Garcia-Madariaga, 2021).

The goal of this section is to improve conceptual clarity on what eWOM (electronic word-of-mouth) is, the characteristics of eWOM communications, and the significant

difference between WOM and eWOM in terms of their unique characteristics. The author also briefly discusses the advances and challenges associated with eWOM. After briefly addressing the conceptual distinction between different types of eWOM, the author focuses on components of eWOM communication and delve deeper into this realm. First, the author classifies the dimensions of eWOM under the concepts of sender, channel, receiver, message, effect, and influenced by, similar to the Laswell's communication model (Lasswell, 1948). However, the author also adds an additional concept, "context" as an extra dimension to our framework (see Figure 2.2), just as proposed in the Gerbner's model of communication (Gerbner, 1957). Each component depending on applicability is discussed further in terms of motivators and typologies, with brief references of its downstream behavioral consequences. More specifically, sender and receiver of eWOM communication are addressed on the basis of individual- and social- dominant factors, whereas messages and channels are addressed predominantly based on their characteristics and typologies. On the other hand, effect component focuses literally the "effect" or downstream consequences of eWOM communications.

Lastly under the context dimension, social and psychological factors that influence the effect is primarily addressed. Next, the focal subject of this study, online consumer reviews, as a type of eWOM communication is provided. It is further conceptualized based on two distinct types of cues of which it consists: (1) aggregated review metrics (e.g., product ratings) and (2) individual reviews (e.g., textual individual reviews and comments posted by users).

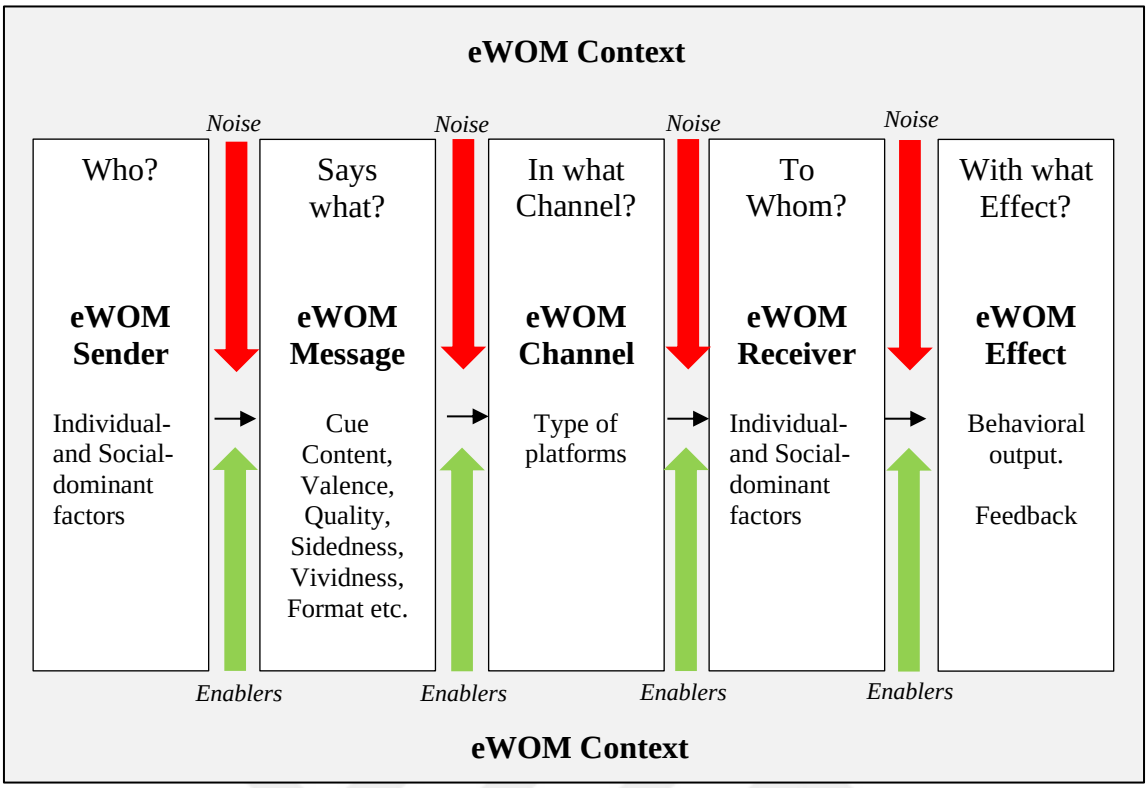

Figure 2.2 : Communication model framework of eWOM research.

Source: Adapted from Lasswell's Communication Model (1948).

2.2.1 Definition of eWOM (electronic word-of-mouth)

The earliest studies about eWOM can be traced back to the paper entitled "Internet Forums as Influential Sources of Consumer Information" (see, Bickart and Schindler, 2001). Then, Dellarocas (2003) conceptualized the phenomenon that would later be referred to as eWOM. However, the first definition of eWOM was introduced by Hennig-Thurau et al. (2004). They defined eWOM as "*any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet*" (p. 39). This definition has since been widely cited and adapted in subsequent research on eWOM (Trenz and Berger, 2013). Because this broad definition encompasses the limits of eWOM, while also pointing out eWOM receivers and providers. Another definition of eWOM, which has been derived from the traditional concept of word-of-mouth (WOM) was stated as follows: "*All informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and services, or their sellers*" (Litvin et al., 2008, p. 461).

"Kietzmann and Canhoto, on the other hand, suggest (2013, p. 39): "any statement based on positive, neutral, or negative experiences made by potential, actual, or former consumers about a product, service, brand, or company, which is made available to a multitude of people and institutions via the Internet (through websites, social networks, instant messengers, news feeds, etc.)". While the definition introduced by Hennig-Thurau et al. (2004) shares similarities with this definition, the latter acknowledges the possibility of neutral content in online communications, as opposed to solely positive or negative content. More recently, Xun and Reynolds (2010) suggest that the definition introduced by Hennig-Thurau et al. (2004) limits eWOM as a static concept, neglecting its dynamic nature of information exchange process. Thus, it is argued that eWOM should instead be viewed as a "ongoing and dynamic" exchange of information.

By synthesizing various definitions proposed by scholars, Ismagilova et al. (2017) propose a new and most recent definition of eWOM, as follows:

"eWOM is the dynamic and ongoing information exchange process between potential, actual, or former consumers regarding a product, service, brand, or company, which is available to a multitude of people and institutions via the Internet" (p. 18).

2.2.2 Characteristics of eWOM communications

EWOM has emerged as a critical factor in shaping consumer perceptions and behaviors in the digital age, with unique characteristics that set it apart from *traditional* word-of-mouth communication. Several scholars have identified these certain distinct characteristics of eWOM communications (e.g., Dellarocas, 2003; Dellarocas and Narayan, 2007; King et al., 2014; Ku et al., 2012).

Dellarocas (2003) emphasized the unprecedented volume and reach of eWOM, which has made it an essential marketing tool for businesses. The rise of social media and online platforms has enabled eWOM to spread rapidly, leading to greater awareness of products and services (Kiecker and Cowles, 2002). However, the nature of the platform on which eWOM is shared can significantly impact its incidence and evolution, with some platforms better suited for fostering meaningful conversations than others. Another key characteristic of eWOM is its persistence, as it stays in public repositories and can be accessed by users over time. This persistence, along with its

observability, means that current eWOM have potential to influence future eWOM communications (Dellarocas and Narayan, 2007).

Community engagement is another significant aspect of eWOM, as online platforms facilitate the formation of specialized, non-geographically bound consumer communities (De Valck et al., 2009). These virtual communities enable individuals with shared interests, preferences, or needs to connect and exchange information, regardless of their physical location. This feature of eWOM platforms further expands the reach and impact of eWOM, as it allows for the rapid dissemination of opinions and experiences within these niche communities. Moreover, the sense of belonging and trust that often develops within these specialized communities can enhance the credibility and influence of eWOM, ultimately shaping consumer behavior and decision-making processes. Relatedly, in contrast to traditional word-of-mouth (WOM), which involves face-to-face communication (King et al., 2014), eWOM takes place in the digital realm, where participants engage with a network of people (Kozinets et al., 2010). This shift in communication mode has significant implications for the nature of the conversations and their visibility. In traditional WOM, conversations are mostly private, occurring between individuals in close proximity. However, in eWOM, the communication occurs within online communities, where conversations are more visible and can be accessed by a wider audience (King et al., 2014). This increased visibility and reach of eWOM have profound effects on consumer behavior, as it exposes a greater number of potential consumers to the opinions and experiences of others, ultimately influencing their decision-making processes. The exception to this is WhatsApp or Instagram Direct Messages or other private messaging applications, which are private forms of communication to share publicly available information. (Ismagilova et al., 2017).

When it comes to the downsides, it is important to note that consumers often face limitations in their "attention budget," leading to under-reporting bias in eWOM (Hu et al., 2009). Anonymity is another factor that can affect eWOM, as it may lead to more honest opinions but also opens the door for deceptive or self-interested behavior from sellers. On the contrary, some argue that consumers identify with anonymous reviewers and are therefore persuaded by them as much as by reviewers who resemble themselves (Naylor et al., 2011).

In the context of eWOM, consumers often face challenges in forming impressions of eWOM senders and their characteristics, as they lack traditional cues that can aid in the interpretation of opinions. In brick-and-mortar settings, consumers rely on cues such as familiarity with the source of information, the source's facial expressions, and other non-verbal signals to assess the credibility of the information being shared (Chatterjee, 2001; Dellarocas, 2003; Lee and Youn, 2009; Willemsen, 2013). In the online environment, the absence of these cues can make it difficult for consumers to form accurate impressions of eWOM senders and evaluate the trustworthiness of their opinions.

Another challenge associated with eWOM is the ease with which online identities can be changed, leading to potential strategic manipulation (Dellarocas, 2003). For example, community members can deceive others and then disappear, only to reappear with new online identities and clean records (Friedman and Resnick, 2001). This anonymity and potential for deception further complicates consumers' ability to assess the credibility and authenticity of eWOM, potentially undermining its overall impact on their decision-making processes.

The mediated nature of eWOM communications presents further challenges related to the trustworthiness of their operators (Dellarocas, 2003). As eWOM platforms and communities often have moderators or administrators, consumers may question the impartiality of these individuals and whether they may be influenced by external factors, such as promotional incentives or relationships with businesses. Additionally, eWOM communications lack a standard format (Lee and Youn, 2009; Metzger, 2007), making the content highly diverse and ranging from simple recommendations with negative or positive statements about a product or service to detailed evaluations. This diversity in eWOM content can make it difficult for consumers to evaluate the helpfulness and relevance of the messages they encounter (Willemsen, 2013), further complicating their ability to make informed decisions based on the information shared through eWOM.

2.2.3 Challenges and opportunities

EWOM offers several opportunities for consumers, such as the ability to receive information from geographically dispersed groups of people (Jalilvand et al., 2011). This expanded access to information enables consumers to make more informed buying decisions, as they can compare prices and non-product attributes across various sources (Varadarajan and Yadav, 2002). Additionally, eWOM has the potential to reduce the influence of companies on consumer decision-making compared to traditional marketing and advertising channels (Jalilvand et al., 2011; Varadarajan and Yadav, 2002), allowing consumers to rely more on the opinions and experiences of other users.

From the perspective of companies, eWOM presents both opportunities and challenges. On the one hand, eWOM can serve as an effective tool for brand building and customer acquisition, complementing traditional advertising methods (Dellarocas, 2003; Mayzlin, 2006). As eWOM can spread quickly and have a wide reach, businesses can leverage it to raise awareness and foster positive perceptions of their products or services. However, eWOM also presents challenges, as companies may struggle to control the narrative and maintain a consistent brand image due to the diverse and decentralized nature of eWOM communications. Additionally, businesses must contend with the credibility and trust issues surrounding eWOM, as well as the potential for deceptive or self-interested behavior by eWOM participants. To capitalize on the opportunities and mitigate the risks posed by eWOM, companies must develop effective strategies for monitoring, engaging with, and responding to eWOM communications in a manner that aligns with their brand values and objectives.

Virality and risk management are essential considerations for businesses when dealing with eWOM. Due to the dynamic and expansive nature of online communication, bad news can spread quickly and potentially harm a business (Dellarocas, 2003). In this context, the Streisand Effect[3] is as a cautionary example. This phenomenon occurs when an attempt to conceal or delete content inadvertently draws more attention to the

[3] The Streisand Effect refers to a situation where efforts to conceal or erase information unintentionally result in increased attention or visibility for that very information. This can happen when attempts to control or hide content spark people's curiosity, leading them to search for and disseminate the information more broadly. The term originated from an incident in 2003 involving Barbra Streisand, who attempted to suppress aerial photographs of her Malibu home, only to generate more publicity and interest in the images (Britannica).

information, leading to negative and viral eWOM. To prevent such outcomes, companies must develop appropriate risk management strategies that address the challenges posed by eWOM and mitigate the potential for reputational damage. Effective risk management strategies may include monitoring eWOM closely, engaging with customers to address concerns or negative feedback proactively, and being transparent in communication (Chaffey and Smith, 2013). By fostering a responsive and open approach to eWOM, businesses can better navigate the complex landscape of online communication and mitigate the risks associated with negative eWOM and potential virality. In doing so, they can leverage the power of eWOM to enhance their brand image, build customer trust, and ultimately drive business growth.

2.2.4 The Communication model framework of eWOM

To better understand eWOM, it is crucial to identify its components and how they interact with each other. In this regard, the main components of eWOM are conceptualized, in this thesis, under six broad categories: the sender, channel, message, receiver, effect, and context. These components are interconnected and can influence each other, shaping the message's meaning, impact, and receptivity. In this section, these dimensions will be delved deeper into, and their roles and implications for firms and consumers is briefly discussed. Also, the interconnectivity of the components as well as how they can influence each other, and ultimately shaping the meaning, impact, and adoption of eWOM messages is examined. In this regard, the main aim of this section is to identify areas of research, link them together into a bigger picture, and further conceptualize the domain in order to improve conceptual clarity of eWOM communication research.

2.2.4.1 Sender

The sender (i.e., reviewer) is first and the major components of eWOM communication, playing a critical role in the creation and dissemination of reviews, comments, and ratings about products or services. As individuals increasingly turn to digital platforms to share their opinions, experiences, and recommendations, understanding senders' characteristics, motivations, and behaviors have become gradually more important factor both for firms and researchers. Numerous factors impact eWOM behavior of senders. For instance, the sender's credibility, expertise, reputation, anonymity, and similarity can influence the message's impact and

information adoption by the receiver, ultimately affecting consumer behavior and decision-making (Cheung and Lee, 2012, Ismagilova et al., 2017).

The motivations behind senders' decision to engage in eWOM have been studied extensively in the academic literature. Hennig-Thurau et al. (2004) identified eight categories of motivations: expressing negative emotions, showing concern for others, gaining social benefits, receiving economic incentives, helping the company, seeking advice, providing platform assistance (problem-solving, convenience, and collective power), and seeking extraversion/positive self-enhancement. However, the study found that only four of these motivations, including social benefits, economic incentives, concern for other consumers, and extraversion/positive self-enhancement had the greatest and most significant influence on the number of reviews posted. According to other studies in this domain (see Cheung and Lee, 2012; Bronner and de Hoog, 2011; Gheorghe and Liao, 2012; Ahrens et al., 2013), the basic motivations for consumers to provide eWOM includes altruism, self-enhancement, venting feelings, social benefits, and economic incentives.

Based on the literature, consumers may provide reviews and rating on the basis of desire to help others make informed decisions (altruism), to enhance their own image (self-enhancement), to express their emotions or dissatisfaction (venting feelings), to gain social recognition or approval (social benefits), or to receive rewards or discounts (economic incentives).

In this section, two main themes were introduced to further address sender side of OCR (e.g., OCR) behavior: individual-dominated and social-dominated factors.

- **Individual-dominated factors**

It is suggested that self enhancement serves as a motivation for individuals to engage in eWOM. Moreover, people share eWOM in order to obtain informal recognition and be perceived as experts (Hennig-Thurau et al., 2004). Also, there are other factors which can be addressed ultimately as a self enhancement motivation. Scholars offer a comprehensive literature review (Plume et al., 2016) and studies (Hu and Kim, 2018) concerning motivations associated with personality and individual differences involved in eWOM. Also, opinion leadership (e.g., aspiration to be an influencer) is another characteristic of eWOM sender that has received the most frequent attention in research on WOM sources (Chaney, 2001; Iyengar et al., 2011; Myers & Robertson,

1972). Leadership can be seen an important motivator for the senders of eWOM messages in this respect.

The literature suggests that consumers engage in eWOM as a regulatory mechanism for their emotions, employing this communication method to penalize a firm for an unsatisfactory experience (Gregoire and Fisher, 2008; Hennig-Thurau et al., 2004; Wang et al., 2013). Alternatively, it has been suggested that individuals may be motivated to engage in eWOM in order to express positive emotions that arise from a positive consumption experience (Sundaram et al., 1998). Such emotions may trigger a psychological tension, stemming from a strong desire to share the pleasure of the experience with others.

Another individual motivation for consumers to engage in eWOM as a sender is the prospect of receiving economic incentives in return for their contributions. These incentives may take the form of web points or coupons offered through opinion platforms, as observed by Amblee and Bui (2008). This motivation can be attributed to the unique feature of eWOM, which differs from traditional WOM by being facilitated through the involvement of a third party. Studies also suggest that when hotels or online platforms offer customers monetary or non-monetary rewards like discounts or reward points, it encourages customers to share their positive experiences through eWOM (Yen and Tang, 2015; Yoo and Gretzel, 2011). For example, Amazon enables customers to evaluate reviews and has developed a ranking system for individuals who contribute online reviews. Highly-rated reviewers are prominently displayed in the listings, awarded an honorary title, and granted membership in a distinguished group. Furthermore, they may occasionally be selected to receive and review new products before they become widely available for purchase. This approach combines various motivational factors, including economic incentives, self-improvement, and social advantages (Matta and Frost, 2011).

- **Social-dominated factors**

People sending messages or share information are often motivated by the desire to gain social benefits. The act of sharing eWOM can lead consumers to feel as if they become a member of a virtual community. Being part of such a community can provide social advantages to an individual, such as the opportunity to identify with others and integrate socially (Plume et al., 2016). As a result, individuals may choose to post

comments on online platforms in order to demonstrate their active participation and presence within a given community. By doing so, they may reap social rewards that come with membership in the community.

Individuals with altruistic motives willingly share eWOM with fellow customers without anticipating any reward. For example, they may share their purchasing experiences simply because others require such information (Allen and Meyer, 1996). Additionally, they may feel empathy towards another person and offer assistance accordingly (Cheung and Lee, 2012). The “concern for other customers” is closely associated with altruism (Hennig-Thurau et al., 2004).

Social context and relationships play a significant role in shaping eWOM behavior. For instance, Sunder et al. (2019) find that as raters gain experience, the influence of the crowd weakens, and the influence of friends amplifies, highlighting the importance of interpersonal relationships in eWOM behavior. Similarly, Lee et al. (2015) demonstrate that the presence of social networking reduces the likelihood of herding on prior ratings, with reviewers' ratings influenced by the number of friends who can potentially observe their rating and the product's popularity. Moe and Trusov (2011) add to this discussion by showing that reviewers tend to increase their online product rating when others' online ratings are at the lower end of the scale, suggesting that social context can affect the behavior of reviewers.

Schlosser (2005) provides insight into the strategic nature of eWOM communication, arguing that reading a negative review can trigger concerns about the social outcomes of public evaluations, leading reviewers to lower their public ratings strategically. This demonstrates the complexities individuals navigate when considering potential social repercussions when engaging in eWOM behavior. Evans et al. (2021) reveal that expressions of doubt signal honesty in product reviews, with the effect being stronger for positive reviews than negative ones, underscoring the subtleties in how reviewers communicate their experiences to convey authenticity.

In addition to these findings, the concept of social framing and community participation becomes crucial in understanding eWOM communication. Consumers may structure their eWOM messages to appeal to the public and demonstrate active involvement in online communities, thereby gaining social rewards and advantages that come with membership (Plume et al., 2016). The act of sharing reviews can lead consumers to feel as if they become a member of a virtual community, providing social

benefits such as the opportunity to identify with others and integrate socially (Ismagilova et al, 2017). As a result, individuals may choose to post comments on online platforms to demonstrate their active participation and presence within a given community.

Furthermore, Goes et al. (2014) investigate the impact of reviewer popularity, revealing that as reviewers become more popular, they produce more reviews and more objective ones. This suggests that motivations for eWOM behavior can also be linked to one's social standing within the online community, emphasizing the importance of social influence in shaping eWOM communication.

Han (2008) argues that understanding the motives behind eWOM can provide insights into why and how consumers share information online, and how businesses can leverage this information to improve their marketing strategies. Furthermore, studying eWOM motivations can help ascertain their influence on how often consumers engage in providing eWOM. Hennig-Thurau and Walsh (2003) emphasize that by identifying underlying motivations for people to engage in eWOM, researchers can understand and influence individual online information assimilation, which can impact consumer purchase decisions, customer loyalty, and consumer commitment to the community.

2.2.4.2 The channel

The Internet has enabled customers to engage in eWOM communication through a diverse range of platforms (Cheung and Thadani, 2012). Consumers, today, have the ability to influence others by creating and posting user-generated content (UGC) on various platforms, including social networking sites (i.e., social media), discussion forums, blogs, microblogs, ecommerce/shopping sites, online review sites. instant messaging apps, and product trial/testing site (see Table 2.1). While each type of platform shares some commonalities, they also have distinct characteristics, pertaining to typologies of sender, receiver, message, and channel, itself. It is well-grounded that the type of platform on which online reviews are posted can affect both perceived helpfulness and credibility of the messages (Jeong and Koo, 2015).

Research has highlighted an increasing trend of consumers utilizing social media as a means to obtain information on unfamiliar brands (Barreda et al., 2015; Naylor et al., 2011; Qin, 2020). In this regard, social media has become a new hybrid component of integrated marketing communication that allows brands to establish a strong

relationship with customers (Selvi and Thomson, 2016). Instead of using nicknames, people often tend to disclose their identity on social media. In this context, social media relatively reduces or eliminates anonymity, enabling an environment that closely resembles offline word-of-mouth (WOM) interactions compared to other platforms. This sense of familiarity and authenticity fosters trust among consumers, making their online experiences more akin to traditional WOM exchanges.

On the other hand, Boyd (2010) suggests that social media, including platforms like Facebook and Twitter, is often utilized by users as a mean for relationship building and maintenance. As a result, social media platforms are significantly different from online consumer review sites in terms of users' identity concerns and primary usage motivations. The act of maintaining a profile on a social media site is viewed as a deliberate act of self-representation (Boyd, 2010), or identity signaling These motivations typically are not salient in consumer review sites. At least in comparison to social media, these are not leading motives in online consumer review sites (Varnali and Cesmeci, 2022). Also, social media platforms allow Internet users to communicate with individuals they already know, whereas other platforms provide users with the option to communicate anonymously (Kozinets et al., 2010; Moran and Muzellec, 2014, Yan et al., 2018). Supportively, several scholars have proposed that status seeking motivation (Berger, 2014; Lampel & Bhalla, 2007; Ismagilova et al., 2017), and identity signaling (Varnali and Cesmeci, 2022) in social media are primary drives for senders to create and share eWOM messages. While the significance of motives may vary depending on the type of eWOM and platform, it is worth noting that the motivations studied in eWOM literature are relevant to some extent for each type of eWOM behavior.

While consumers may use negative WOM (nWOM) to post negative online reviews, including dissatisfactory voicing behavior in social settings, complaint behavior, even in social media or online complaint platforms, is conceptually distinct from nWOM. In other words, complaint behavior is goal-directed, aimed at achieving desirable outcomes, such as obtaining redress, and is typically directed towards the service provider (Kowalski, 1996; Singh and Wilkes, 1996). Dissatisfaction resulting from disconfirmation of expectations is generally considered an antecedent of voicing (Day and Landon, 1977), but it is not necessarily a precursor to online reviews. At this juncture, senders’ motivations are drastically different by types of platforms.

Online discussion forums, for example, have a diverse audience with varying motivations, and their receivers are often more focused on information-seeking. Online forums are often used as a source of information (Arguello et al., 2006; Kozinets et al., 2010) and social support, with users seeking information and advice from other members of the forum. As virtual communities[4] differ from online reviews sites, namely in the interaction and involvement offered, some motivations may be different in each case. However, it is expected that many of the motivations are the same (Bronner and De Hoog, 2011).

Table 2.1 : Types of eWOM platforms.

Types of eWOM	General Example(s)	Studie(s)
Online discussion boards / forums	Quora etc.	Bickart and Schindler, 2001; Huang and Chen, 2006
Blogs	blogger.com, Medium	Chu and Kamal, 2008; Lee and Youn, 2009
Online reviews sites	Yelp, TripAdvisor,	Changchit el al., 2022; Ho-Dac et al., 2013; Park and Lee, 2009; Ye et al., 2013
E-commerce sites	Amazon, eBay	Ho-Dac et al., 2013; Ye et al., 2013
Virtual communities	Subgroups of Reddit, Stack Overflow	Hung and Li, 2007; Kozinets et al., 2010
Social media	YouTube, Twitter, Instagram	Erkan and Evans, 2016; Ma et al., 2015
Complaint sites	sikayetvar.com	Yilmaz et al., 2016
Instant messaging apps	WhatsApp, Telegram	Mishra et al., 2018; Vasquez et al., 2017
Product trial and testing sites	Bzzagent.com, denebunu.com	To date, no specific study was published.

Source: The author.

In the light of attribution theory, Jeong and Koo (2015) suggested that negative reviews, both objective and subjective, posted on a consumer-generated website are more likely to be perceived as helpful than those posted on a marketer-generated website. This could be due to the perception that consumer-generated reviews are more authentic and unbiased, as they are written by actual consumers rather than marketers.

To further examine all eWOM types is beyond the scope of the present study. Thus, present study only includes online consumer reviews and its cue types. In the

[4] "*Virtual communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace*" (Rheingold, 1993, p. 5).
Virtual communities are a network of people connecting via specific online platforms, potentially exceeding geographical and political boundaries to pursue similar interests or goals, sharing a common online culture, rituals, and motivations (Kozinets et al., 2010).

subsequent title online consumer reviews and its typologies in terms of cue types will be addressed.

2.2.4.3 The message

Message (i.e., also referred to as *cue* in the terminology of this study) serve as influential components in the eWOM communication. For instance, the credibility of electronic word-of-mouth (eWOM) messages addressed under various classifications, such as the content of the message (Cheung et al., 2009; Doh and Hwang, 2009), its quality (Guo et al., 2009; Tsao and Hsieh, 2015), the consistency of recommendations (Moran and Muzellec, 2014), the rating scores assigned by users (Lis, 2013), and the overall volume of messages (Fan et al., 2013). Also, Huang et al. (2012) mentioned structure, content attributes, information orientation, word count, lexical richness, personal pronoun usage, and paralinguistic features of message characteristics. While other scholars used more abstract and broader categorization by addressing eWOM message under intrinsic, contextual, and representational characteristics (Akdim, 2021).

Message format is another important element that influence information adoption and downstream behavioral consequence. Online reviews and social media posts may consist of textual content and/or auditory/visual elements. In this respect suggested that visual information encourages information processing and enhances the likelihood of recalling the information in memory tasks (Kisielius and Sternthal, 1984). Furthermore, scholars have proposed that visual data significantly influences users' acceptance of online information and their intentions to utilize online reviews (Then and DeLong, 1999; Lin et al., 2012). Consequently, it is not unexpected to see an increasing number of online reviews featuring images as a means to share personal experiences and emotions in electronic word-of-mouth (eWOM) communication (Lin and Huang, 2006).

Online reviews concerning a product or service are often posted by many reviewers and displayed collectively for readers in a certain order. This enables readers to conveniently access various perspectives and assess the consistency among these digital communications (Cheung et al., 2009). When a message consistent with other consumers' recommendations, the receiver is likely to perceive this cue as more credible. Conversely, if a recommendation deviates from or conflicts with the opinions

of others on the same product or service, the receiver may experience confusion and perceive the current eWOM recommendation as less credible (Cheung et al., 2009; Moran and Muzellec, 2014). Similarly, product rating and reviewers rating inconsistency also affect review helpfulness (Baek et al., 2012).

The quantity (volume) of eWOM messages makes the information more salient (Cheung and Thadani, 2010). The volume of eWOM serves as an indicator of the product or service's popularity and can be serve as a social proof heuristic in this respect. Empirical research has revealed that the number of eWOM communications positively affects the credibility of eWOM messages (Park et al., 2007; Sher and Lee, 2009). For instance, Fan et al. (2013) suggested that a larger volume of eWOM has positive impact on consumers' perception of eWOM credibility. However, other studies suggested that an excessive number of eWOM messages can lead to information overload, potentially causing confusion and reduced purchase intentions (Furner and Zinko, 2016; Singh et al., 2016).

To fully address what dimension (i.e., message) in our conceptual model, the type of product being reviewed or discussed is also an important factor. Because eWOM message, by definition, targets a product, service, brand, or company (Ismagilova et al., 2017).

Cue types in eWOM is particularly important element fort his study and refer to presentation format of information in online review platforms. For example, consumers can gather information and develop opinions about products by examining individual reviews (IR), which are specific evaluations posted by consumers, and by paying attention to aggregated review metrics (ARM), which compile customer ratings, often presented as star rating, product score or numerical cues in different framework. These two eWOM categories are commonly found in online review sites. For instance, many online retail platforms, such as Amazon, offer ARM in addition to IR, summarizing all consumer feedback for a product by displaying the product's average rating and the total number of ratings.

As can be seen, message and cue types have numerous dimensions and classification levels depending on the perspective the authors adopt. A vast number of conceptualizations can be discussed in this realm. However, such discussion would be beyond the scope of this study. In this study, message/cue types are simply classified under two broad categories: Aggregated Review Metrics (ARM) (e.g., product ratings,

total number of helpfulness vote, volume of the reviews) and individual reviews (IR) (i.e., individual textual or visual posts, comments etc.). This will be discussed in the subsequent sections.

2.2.4.4 The receiver

The receiver is another essential party of eWOM, representing the individuals who receive, interpret, and process the information conveyed by the sender. More specifically, eWOM receivers are individuals who seek others' opinions to evaluate products or services (Watts and Dodds, 2007) or who respond to such communications (Cheung and Thadani 2012; Ismagilova et al., 2017). In the context of eWOM, the receiver is typically a consumer who is seeking information, advice, or opinions about a product or service. As more consumers turn to digital platforms to make purchase decisions, understanding the receiver's characteristics, motivations, and behaviors has become increasingly important. The receiver's attitudes, beliefs, values, and knowledge can significantly influence how they perceive and evaluate eWOM messages, ultimately shaping their subsequent behaviors and decisions. To fully comprehend the impact of eWOM on consumer decision-making, it is imperative to identify the motives that drive consumers to seek eWOM information.

Research has identified several primary motivations that drive consumers to seek eWOM when making purchase decisions. These motivations include risk reduction, social approval, reduction of search time and effort, obtaining product (usage) information, and social interaction benefits (see Akyuz, 2013; Burton and Khammash, 2010; Huang et al., 2013; Hennig-Thurau and Walsh, 2003; Ismagilova et al., 2017; Reichelt et al., 2014; Song and Sun, 2011). Majority of the motivations reflect the desire for consumers to mitigate risks associated with purchasing products or services, seek social validation, and obtain relevant and reliable information about products or services. These motivations and behaviors can also be classified under two main themes of individual- and social-dominated factors.

- **Individual-dominated factors**

One of the primary motivations that drive consumers to seek eWOM is risk reduction. Consumers often use eWOM to decrease the perceived risk associated with making purchase decisions (Goldsmith and Horowitz, 2006). When the perceived risk of making a purchase is high, individuals tend to rely on interpersonal information

sources (Bansal and Voyer, 2000). Therefore, consumers turn to eWOM information to gain clarification and feedback opportunities and to decrease the uncertainty they experience before making a purchase decision. This need for risk reduction can be seen across a wide range of products and services, from expensive purchases such as cars and homes to smaller purchases such as personal care products and household items. In this thesis, by introducing estimated risk likelihood as an underlying mechanism pertaining to purchase intention further contribute to the literature in this respect.

Consumer's search for product-related information is another primary driver behind the seeking of eWOM information (Saridakis et al., 2016). Goldsmith and Horowitz (2006) and Hennig-Thurau and Walsh (2003) suggest that eWOM provides consumers with a valuable source of information on new products and services, usage guidance, and problem-solving related to their consumption. This information can be particularly beneficial for consumers who are making a purchase decision for the first time or for those who are considering unfamiliar products or services. By offering reliable and informative eWOM, businesses can enhance their reputation, establish consumer trust, and drive sales and customer loyalty. Thus, companies need to understand the significance of product-related information in the eWOM communication process and tailor their strategies accordingly to meet the needs of their target consumers.

One of the reasons why consumers resort to eWOM is to reduce the time and effort involved in making purchase decisions. With an overwhelming amount of information and a wide variety of products available, it can be challenging for consumers to fully comprehend all their options (Goldsmith and Horowitz, 2006; Han, 2008). Seeking out eWOM is seen as a convenient way to obtain relevant buying-related information while minimizing the amount of time spent on searching activities. The studies conducted by Hennig-Thurau and Walsh's (2003) supports this notion, highlighting that consumers primarily use online eWOM to streamline decision-making and achieve better purchasing outcomes.

- **Social-dominated factors**

Research has also shown that social approval is a significant motivation that drives consumers to seek information from others when making purchase decisions (Hennig-Thurau and Walsh, 2003). More specifically, a study conducted by Huang et al. (2013) used focus groups to investigate consumers' motives for reading book reviews on the

Internet and found that social approval was one of the key motivations for engaging in this type of information seeking. Similarly, Kim et al. (2011) found that social approval was one of the primary reasons why consumers read online hotel reviews. The reason of this, as noted, social approval is closely tied to the social function of consumption and the information search process. Consumers often seek eWOM to purchase products or services that are accepted by others, to be aware of a product's social image, to compare their opinions with those of others, or to seek approval for their purchase decisions (Hennig-Thurau and Walsh, 2003). This motivation is particularly relevant for products or services that are highly visible or have identity-signaling components.

Due to its facilitative role in interpersonal communications and activities, digital platforms enable individuals to participate in fellow consumers' shopping experiences and foster a sense of community by exploring others' postings on online eWOM platforms (Hennig-Thurau and Walsh, 2003). In a study conducted by Burton and Khammash (2010), the researchers used in-depth interviews to examine the motivations behind reading customer reviews. Their findings suggest that the perceived benefits of social interaction serve as an important driving force for consumers to seek eWOM. As mentioned earlier, eWOM communication enables participants to engage with a network of individuals (Ismagilova, et al., 2017; Kozinets et al., 2010) within online communities where conversations are more visible (King et al., 2014). This very nature of eWOM communication further serve the motivation of social interaction benefits of eWOM receivers in such contexts.

2.2.4.5 The effect

The "effect" refers to the impact or outcome of communication (i.e., downstream consequences). It involves the effects on the attitudes, opinions, beliefs, behaviors, or other characteristics of the target. In other words, the "effect" aspect of the conceptualization focuses on the downstream consumer related consequences of the eWOM communication process.

The adoption of eWOM can be described as the degree to which people accept and utilize eWOM communications in their decision-making process (Cheung and Thadani, 2012; Lis, 2013). A range of factors impacting the adoption of eWOM

communications have been recognized by scholars (Chang and Wu, 2014; Lis, 2013; Shuang, 2013, for a detailed review see Ismagilova et al., 2017).

Based on the provided research results, eWOM studies can be classified in terms of dependent variables used. Rosario et al. (2016) conducted a meta-analysis of 1532 effect sizes across 96 studies covering 40 platforms and 26 product categories. They found that eWOM is positively correlated with sales, but its effectiveness differs across platform, product, and the type of eWOM metrics. It was found that there is a positive correlation between electronic word-of-mouth (eWOM) and sales, but the effectiveness of eWOM varies depending on the platform, product, and eWOM metrics.

The effectiveness of eWOM communication is widely studied in the consumer behavior literature. Previous research has demonstrated that consumers tend to view eWOM as more credible and persuasive compared to traditional media such as advertising and personal selling (Cheung and Thadani, 2012; Nielsen, 2009). Studies have investigated the impact of eWOM on information adoption (Lis, 2013; Luo et al., 2014; Yu and Natalia, 2013), attitude change (Bartikowski and Walsh, 2014; Huang and Korfiatis, 2015; Kim et al., 2015), brand image (Abubakar et al., 2016), customer satisfaction (Pizzi et al., 2015), and purchase intention (Jeong and Koo, 2015; Ladhari and Michaud, 2015; Ziegele and Weber, 2015), which ultimately influence sales performance (Floyd et al., 2014; You et al., 2015; Zhou and Duan, 2015). These findings provide compelling evidence for companies to recognize the power of eWOM and develop effective strategies for managing online consumer conversations.

The present thesis also seeks to contribute to the existing literature by examining the drivers and outcomes of eWOM communication in novel perspective. Therefore "context" has been included in the eWOM communication model in order to broader capture broader picture of the literature.

2.2.4.6 The contextual factors

This study conceptualizes "*context*" as a component of eWOM communication process. In the scope of this study, the context refers to the social, psychological, cultural, and even physical factors or circumstances (including enablers, or noises) that form the setting for eWOM communication and their direct, indirect, bi- or multi-directional impact on eWOM components. With this additional "*context*" component,

present study aimed to emphasize dynamic and complex nature of the eWOM communication process.

Cultural differences can lead to variations in consumers' values and cognition, which in turn affect their attitudes towards eWOM antecedents. For example, when an eWOM recevier exhibits a high level of individualism-collectivism orientation, the effect of recommendation sidedness on eWOM credibility is increased, whereas the impact of recommendation consistency and recommendation rating on eWOM credibility is diminished (Luo et al., 2014).,

Naylor et al., (2012), specifically, addressed anchoring bias in online consumer review setting which can be labelled as noise factor in this communication process. Information overload may serve another noise in eWOM communication. Individuals often encounter excessive amounts of information from eWOM communications, which can result in information overload. This overload occurs when the amount of information provided surpasses an individual's ability to process it (Park and Lee, 2008).

Upon examining regulator focus in eWOM communication, Zhang et al. (2010) suggested that consumers who evaluate products related to promotion goals perceive positive reviews to be more persuasive than negative ones (i.e., a positivity bias). On the contrary, consumers who evaluate products related to prevention goals perceive negative reviews to be more persuasive than positive ones (i.e., a negativity bias).

In support of these arguments, a recent study also suggested that eWOM communication can be influenced by a variety of social and psychological factors (Verma and Dewani, 2021). Also, literature is abundant about contextual factors of eWOM communication and their effect on consumers including of self-construal (Lee et al., 2012, Varnali and Cesmeci, 2022), construal level (Zhang et al., 2021), sunk-cost fallacy (Golmohammadi et al., 2020), emotions (Yin et al., 2014) and regulatory focus (Zhang et al., 2010).

Interaction effects. Based on five-factor eWOM communication model, it is widely ignored that communication does not occur in a vacuum, but it operates in a context. Our framework attempts to explain, interaction effects between other five components under the category of concept. Because combined impact of two or more communication factors can differ significantly from the effects each factor would have

on its own. In this regard, context dimension also highlights the chaotic nature of eWOM communication processes.

On the other hand, the research concerning sender, message, and receiver characteristics has exhibited some inconsistencies (Zheng, 2021).

The proximate and ultimate causation distinction[5] can also be applied to eWOM communication research. These terms can help explain the interplay between immediate factors and broader contextual elements in shaping communication processes and outcomes. More specifically, if the proximate causes are considered to be the outcomes of factors in the five-factor communication model, we can draw an analogy to the addition of the context factor as representing ultimate causation, which explains the same outcomes from a broader perspective. In other words, proximate causes correspond to the five factors in the five-factor communication model, while the new sixth factor "context" represents ultimate causational link, providing a more comprehensive explanation of the same outcomes. By adopting broader framework can help reconcile the mixed findings in the literature.

To examine all contextual factors is beyond the scope of this research. However, this study aims to contribute contextual dimension of the eWOM by adopting construal level theory as an explanatory base (as a broader -*ultimate*- causation) to address the effect of cue types on downstream behavioral consequences.

2.2.5 Online consumer reviews

Online consumer reviews (OCR) are a type of eWOM communication that can be defined as "peer-generated product evaluations posted on the company's or a third party's websites" (Mudambi and Schuff, 2010). OCR is mainly present in either online reviews sites or e-commerce platforms and a popular form of eWOM communication (Chatterjee, 2001). Recently, with a dramatic increase in e-commerce transactions due to the COVID-19 pandemic, the importance of OCR has become even more prominent for firms and consumers (Fedewa et al., 2021). In parallel with this argument, a recent

[5] Proximate and ultimate causation are concepts that provide different levels of explanation for a phenomenon, often used in the fields of biology and ethology. These explanations complement each other by addressing the 'how' and the 'why' of a phenomenon. Proximate causation refers to the immediate, mechanistic, or causal factors that explain how a phenomenon occurs. Ultimate causation, on the other hand, refers to the broader, more distal factors that explain why a phenomenon exists in the first place (Tinbergen, 2010).

survey found that 99.9% of shoppers consult reviews when shopping online, while 98% consider reviews to be crucial when making purchase decisions (Power Review, 2021).

OCR is addressed in the literature based on various classification schemes, such as similar to the five-factor communication process framework discussed in the theoretical part of this study (Zheng, 2021). Other addressed based on message-oriented categorization focusing instead on the elements such as volume, valence, and product rating scores i.e., an average rating given to a product; Hoffart et al., 2019). While some studies categorized receivers (i.e., consumers) based on their selective processing of cue types in OCR (see Gottschalk and Mafael, 2017). On the other hand, the literature also highlights OCR as an important predictor of consumer behavior, including information adoption decisions, purchase intentions, and sales (e.g., Chevalier and Mayzlin, 2006; Chintagunta et al., 2010; Hofmann et al., 2017; Kaleta and Aasheim, 2022; Lee and Choeh, 2020; Li et al., 2019).

One of the latest industry reports[6] revealed that the primary reasons for submitting ratings and reviews for consumers was having a good experience (92%), getting free product samples (i.e., an economic incentive) (86%), having a bad experience (i.e., venting feelings) (78%), being offered incentives (i.e., an economic incentive) (76%), and wanting to assist others (i.e., altruism and/or platform assistance) (72%) (Power Reviews, 2023). These motivations are also in line with the eWOM literature discussed here. Although OCR is addressed in the subsection of eWOM in this thesis, we believe that it warrants particular focus as well.

The majority of studies in this domain have treated online reviews as an exogenous factor and its managerial consequences as an endogenous factor. For instance, Zhang et al. (2013) discovered that the average and number of online reviews significantly impacted digital camera sales. Contrarily, Duan et al. (2008) consider online reviews as both influencing and being influenced by sales. This consideration of the endogenous nature of reviews leads to substantially different results. Their findings reveal that box office sales are considerably affected by review volume. Having been

[6] The *What Motivates Shoppers to Write Reviews* report is based on a survey of 9,286 US adults fielded in November 2022. Here's a preview of our key findings (Power Reviews, 2023).

accounted for, the impact of endogeneity of online reviews and ratings on the movie's box office revenue was no longer significant (Zheng, 2021).

Previous studies have concentrated mostly on receivers' perception including review usefulness/helpfulness, credibility, information adoption, perceived information diagnosticity, product attitude, and reviewer/review trustworthiness, as well as purchase intention. Some research has also examined downstream managerial consequences of it. However, there is a significant emphasis on consumer perceptions of online reviews, with less attention paid to consumer decision-making (Zheng, 2021).

The perceived credibility of eWOM communication is significantly impacted by the characteristics inherent to the information source (i.e., sender). (Cheung et al., 2009; Lis, 2013). An array of factors contributes to the perception of the source, including their expertise (Cheng and Zhou, 2010; Fan and Sun ,2012), trustworthiness (Ho and Chien, 2010; Levy and Gvili, 2015), reputation (Chih et al., 2013; Guo et al., 2009), physical attractiveness (Lim and Van Der Heide, 2015; Shuang, 2013), the perceived social affiliations between the source and the recipient (Fan and Sun, 2012; Pan, 2014).

2.2.6 Types of cues in online consumer reviews

There are numerous cue formats present in online review settings (see Table 2.2, and Figure 2.4). The majority of online retail websites display customer feedback in two distinct formats: as an aggregate review metrics (ARM) and as individual reviews (IR) in full wording (e.g., Chatterjee, 2001; Chevalier and Mayzlin, 2006; Qiu et al., 2012; Ziegele and Weber, 2015).

Consumers can learn about and form an attitude toward products by reading IR, which are specific reviews that consumers post, and by focusing on ARM, which is an aggregation of customer assessments typically presented in the form of star ratings or numeric cues in various formats. These two typologies regarding eWOM are frequently available in online settings (see Figure 2.3). For example, in addition to IR, various online retail platforms, such as Amazon, provide the ARM which summarizes all consumer evaluations of a product, usually by providing the product's mean rating and a total number of ratings.

Even though it is beyond of the scope of this study, there are cue types signals *qualitative information* about review or reviewer. These types of cues labelled as the

qualitative cues (i.e., expertise, verified purchase cue, user profile information, badges). Review summaries, and sorting and filtering cues is labelled as *navigation components*. These cue types are included in Table X, for the sake of conceptual integrity of the categorization.

2.2.6.1 Aggregated review metrics versus individual reviews

Aggregated Review Metrics (ARM) represent computer-generated summary statistics showcased on the platforms, which reflect the aggregation of user interactions such as ratings, votes, volume, or other site-related activities. ARM may be presented in different forms, including but not limited to the total number of reviews, answered questions, and followers. ARM, by definition, include all types of cues signaling aggregated, decontextualized, base-rate and central information about a target (Yan and Sengupta, 2013; Ziegele and Weber, 2015). They are often displayed either as a count format or ratio format. These cues can be visually represented through elements (e.g., star ratings) or mere count metric, respectively (e.g., volume - the total count of users who have provided a specific rating for the content), (Walther and Jang, 2012). As can be seen in these instances, ARM, in itself, can be classified into two distinct types: count-based ARM (i.e., frequency format), which is primarily presented as integer numbers (i.e., total number of 150 reviews), and ratio-based ARM (i.e., probability format), which can be represented by any number, including non-integer values (e.g., average product rating: 4.7 out of 5.0). The latter is mostly represented with statistical terms (e.g., mean, average, or probability) Because ARM constitute focal subject of this study, when "ARM" is used, it refers to only ratio-based ARM unless otherwise specified in this study. Additionally, star ratings, product ratings, and ARM are used interchangeably.

ARM pertains to the overall score assigned by users to an eWOM communication (Cheung et al., 2009). Individuals can rate a product or service with a high or low score based on their perception. Consequently, an ARM represent the average evaluation and perception of the recommendation by senders in eWOM communication. On the other hand, ARM summarize the review content and conveys the message faster than other review components. In this regard, ARM serve as component of peripheral cues in online reviews context (Baek et al., 2012; Filieri et al., 2018).

Numerous research has focused on ARM and its downstream behavioral consequences. However, the findings of these studies have been inconsistent and contradictory (the direct effect of rating or review extremity on review helpfulness, e.g., Baek et al., 2012; Forman et al., 2008; Ghose and Ipeirotis, 2011; Mudambi and Schuff, 2010; Pan and Zhang 2011; Yin et al., 2014).

Research has shown that rating scores influence how consumers perceive message credibility (Cheung et al., 2009; Lis, 2013). For instance, if a product has a low ARM, but a single review gives the product a high score, a reader might doubt the credibility of that particular message, which, in turn, reduces its credibility. In another study involving interviews and a follow-up survey with 136 participants, Robinson et al. (2012) discovered that the overall star rating has impact on the perceived helpfulness of eWOM communications. Mudambi and Schuff (2010) explored how review ratings affect review helpfulness for various types of products The results indicate that review helpfulness increases for search goods when ratings are low or high, and for experience goods when ratings are moderate. Interestingly, extremely high and low ARM are considered as less helpful than those reviews with moderate star ratings. Relatedly, others argue that ARM are more important cue for experience goods than search goods, and helpfulness of a review is improved by the star ratings (Singh et al., 2016). Alternatively, Baek et al. (2012) conducted research to examine the relationship between rating inconsistency and perceived review helpfulness, concluding that a larger discrepancy between the review star rating and the product's average rating leads to a decrease in review helpfulness.

Several studies provide evidence that ARM have a positive impact on product liking (Moe and Trusov, 2011), purchase intention (Wang et al., 2015), sales (Chiu et al., 2019; Arbelles et al., 2020) and even post-purchase behavior (Chua and Banerjee, 2016), while others suggest ARM are not associated with more product sales (Kim et al., 2013)

Studies comparing volume of reviews and rating have also suggested mixed results. Floyd et al. (2014) provide evidence supporting the notion that ARM have a stronger influence than the number of reviews. Conversely, You et al. (2015) suggest that the number of reviews holds greater importance.

Lastly, recent industry reports revealed that positive written review is the first factor (69%) that influence consumers feeling toward a business in a positive way. However,

a high star rating would make 58% of consumers feel positive about a business (Bright Local, 2023). This pattern also in line with our theoretical prediction (see base-rate neglect in the section 2.3).

Individual reviews (IR) comprised of textual (e.g., written text or emotion icons) or visual elements (e.g., photos or videos), represent the subjective evaluations or perspectives of an individual, typically a consumer, in relation to a product, service, or experience. Thus, IR, in itself, can be categorized as textual and visual (Lin et al., 2012; Yu and Natalia, 2013).

IR are distinct form ARM in two ways: (1) Contrary to ARM's abstract, category-level, pallid, aggregated, statistical and nature, IR consists of concrete, characteristic, individuating, and vivid elements. (2) Distinct from quantitative measures (i.e., ARM), IR focus on qualitative, visual, or textual depictions of customer experience. To reiterate, IR refer to specific reviews and comments submitted by individuals, highlighting specific, unique, peripheral, contextual, illustrative, and individuating details about a target (Qiu et al., 2012). By definition, these reviews can be viewed as case information, in line with the conceptualization of Daschmann (2008) and Yan and Sengupta (2013).

IR encompass various dimensions, including but not limited to argument quality (Cheung and Thadani, 2012), emotion-ladenness Jensen et al. (2013), narrativeness (Hamby et al., 2015), length (Ismagilova et al., 2017), sidedness (Cheung et al., 2012), valence (Purnawirawan et al., 2015). As a critical source of feedback, individual reviews hold substantial influence on consumer behavior and contribute to the decision-making processes of potential customers through online review sites or ecommerce platforms. It is beyond the scope of this study to address all aspects of IR. However, studies on textual reviews are already discussed throughout the thesis.

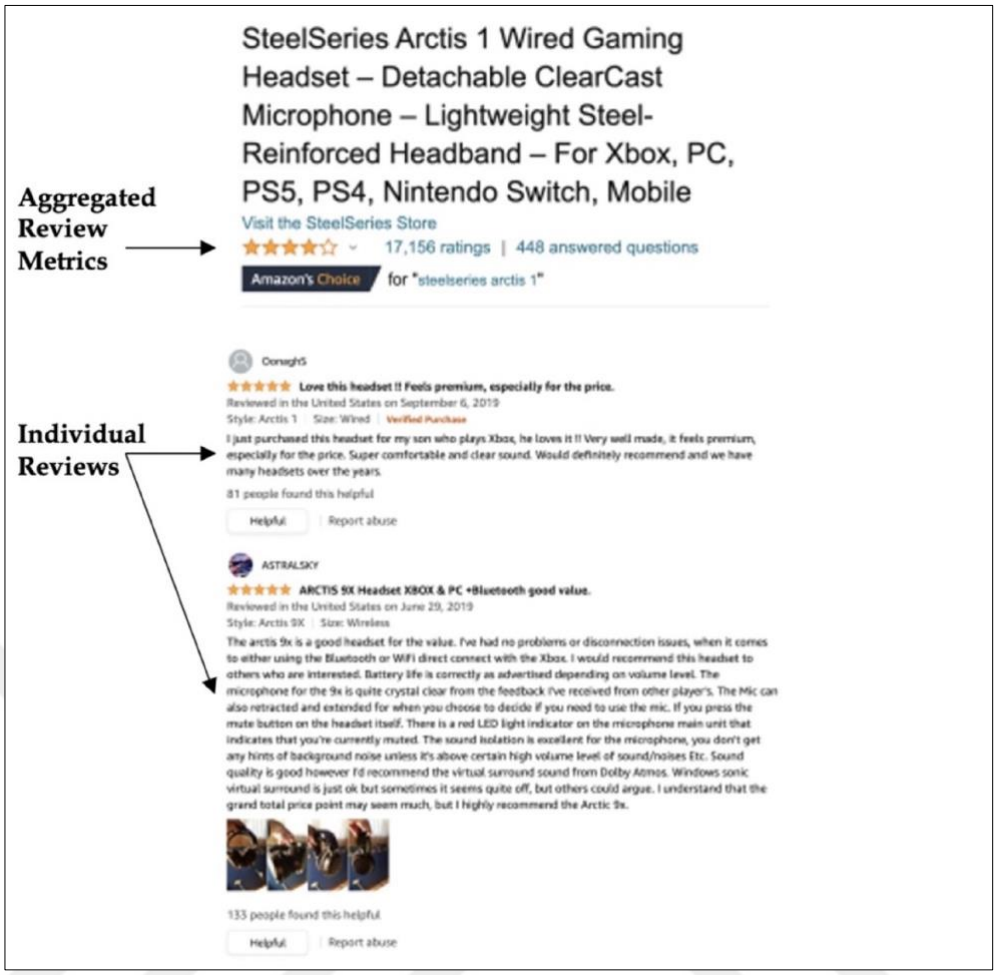

Figure 2.3 : An example of ARM and IR on Amazon.com.

Table 2.2 : Common cue formats in online consumer reviews.

Cue Format	Cue Types	Explanation	Example / Platform	Example of Studie(s)
Text-based reviews	Textual IR	Written descriptions and opinions about a product or service.	Amazon, TripAdvisor	Cheung et al. (2009); Doh and Hwang (2009)
Star ratings	Ratio-based ARM	Quick, visual representation of the reviewer's sentiment.	Yelp, Google Reviews	Powell et al. (2017); Robinson et al. (2012)
Feature-based ratings	Ratio-based ARM	Ratings for specific aspects or features of a product or service.	Booking.com (location, cleanliness, etc.)	Gao et al. (2018); Xia et al. (2019)
Helpfulness votes	Count-based ARM	Users vote on the helpfulness or usefulness of individual reviews.	Amazon, TripAdvisor	Cao et al. (2011); Singh et al. (2017)
Review volume	Count-based ARM	Total number of reviews for a product or service.	Amazon, Yelp	Park et al. (2007); Fan et al. (2013)
Review title	Textual IR	A brief, attention-grabbing headline summarizing the reviewer's opinion.	Amazon, Yelp, TripAdvisor	Akbarabadi and Hosseini (2020); Zhou et al. (2020)
Review summaries	Navigation Components	Highlight recurring themes or key points from multiple reviews.	Amazon (Read reviews that mention specific keywords)	To date, no studies have addressed the topic at this conceptualization level.
Review sorting and filtering	Navigation Components	Sort and filter reviews based on criteria such as recency, rating, or helpfulness.	Yelp, TripAdvisor, the website of pharmacy chain Boots	Pang and Qiu (2016); Vermeulen and Seegers (2009)

Source: The author.

Table 2.2 (continued): Common Cue Formats in Online Consumer Reviews.

Cue Format	Cue Types	Explanation	Example / Platform	Example of Studie(s)
Expertise, Reputation	Qualitative Info	Reviews or analyses written by professionals with relevant expertise (e.g., first membership date)	Consumer Reports, CNET	Cheng and Zhou (2010); Fan and Sun (2012)
User profile information	Qualitative Info	Information about the reviewer's demographics, location etc.	Yelp (Elite status), Amazon (Top Reviewer)	Karimi and Wang (2017); Naylor et al. (2011)
Visual and multimedia content	Visual IR	Images or videos included with reviews.	Amazon, Yelp, Google Reviews	Lin et al. (2012); Yu and Natalia (2013)
Badges	Qualitative Info	Visual indicators given to reviewers based on their achievements or contributions on the platform.	Yelp (Elite badge), TripAdvisor (Top Contributor)	Ma et al. (2022); Schuckert et al. (2016)
Verified Purchase Cue	Qualitative Info	Markers displayed alongside reviews to indicate a verified purchase of the product or service.	Amazon ("Verified Purchase" label)	Ren and Hong (2019); He et al. (2020)
Response to comments	Textual IR	Reviewer responds to comments from other users or the company.	TripAdvisor (management responses)	Park and Allen (2013); Sparks et al., (2016)

Source: The author.

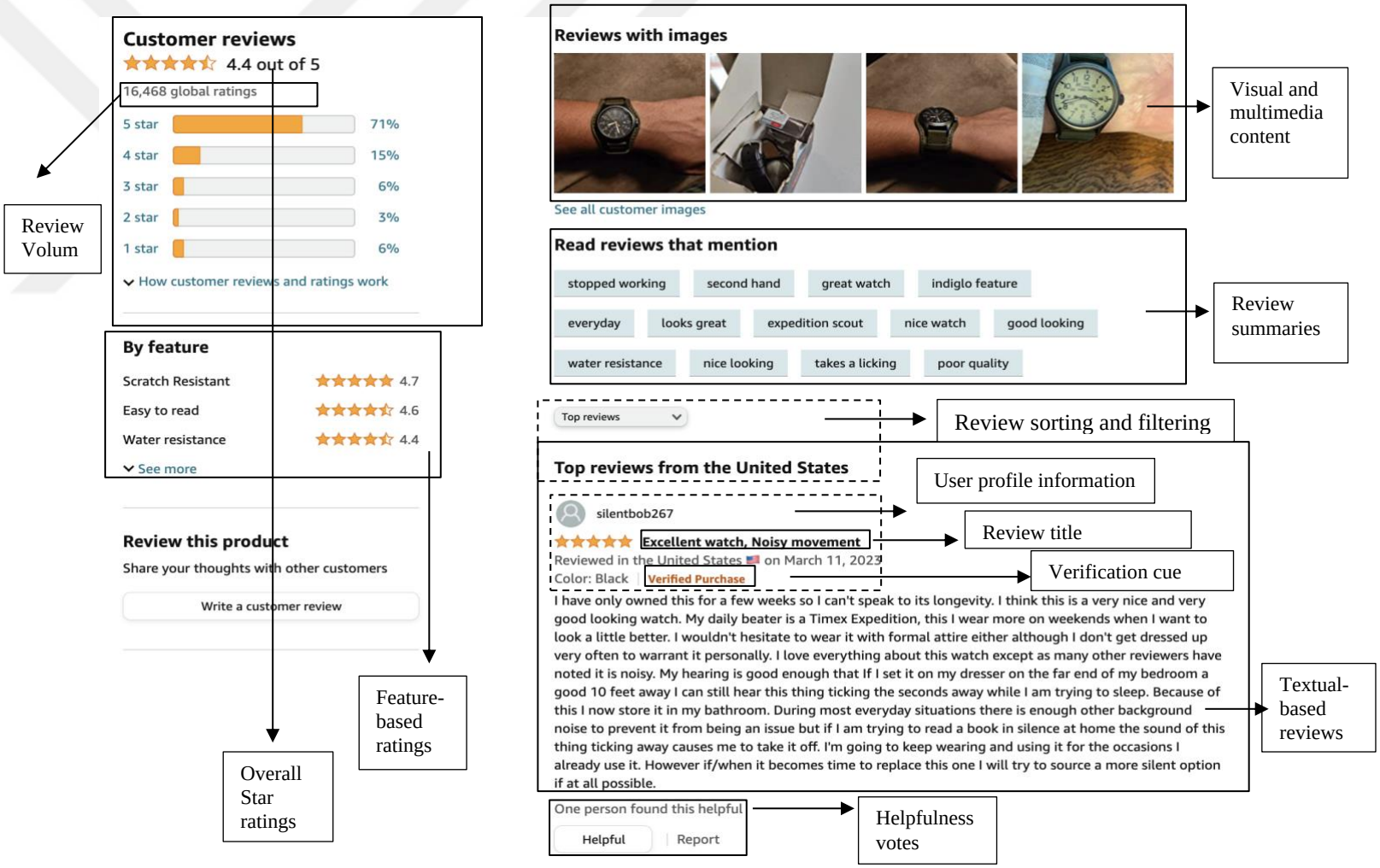

Figure 2.4 : A visual example of cue formats in online review platforms.

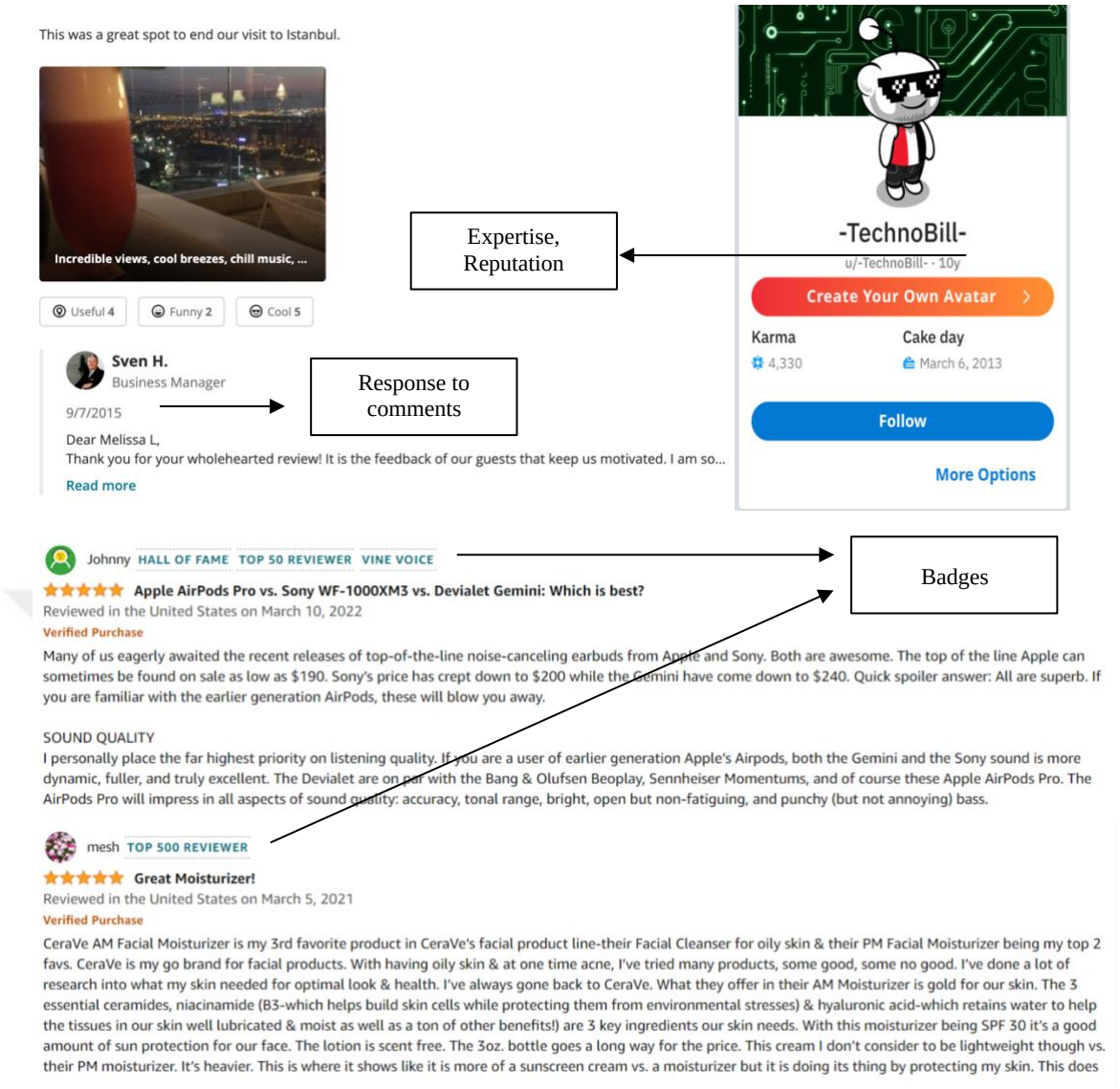

Figure 2.4 (continued): A visual example of cue formats in online review platforms.

In this study, cue types frequently encountered on online review platforms are redefined in a distinct manner. ARM cues are conceptualized as a base-rate cue, consisting of aggregated, category-level, and pallid elements. Contrarily, IR are conceptualized as a case information cue, consisting of concrete, idiosyncratic, and vivid elements. This conceptualization offers us a ground for the generation of novel testable hypotheses. In the next section, base-rate and case information will be discussed further.

2.3 Heuristics and Cognitive Bias in Decision-making

Human rationality and bias are two key concepts in understanding the cognitive processes in decision-making (Kahneman, 2011). Rationality refers to the ability to

make decisions or judgments based on logic, reason, and consistency, adhering to normative rules and standards (Stanovich and West, 2000). In contrast, biases represent systematic deviations from rationality, often leading to suboptimal decisions and judgments (Tversky and Kahneman, 1974).

The *homo economicus* model often assumes perfect rationality. This means that individuals consistently act to maximize their utility as consumers and their profits as producers. Furthermore, they are presumed to possess the ability to perform highly complex calculations to evaluate all potential outcomes and select the most beneficial course of action (Camerer and Fehr, 2006). However, this model has long been criticized for its inability to fully explain consumer behavior. Contrary to this classical model in economics, empirical evidence and findings from behavioral economics have demonstrated that human decision-making is often influenced by cognitive biases, emotions, and social factors that deviate from the perfect rationality assumption (Thaler and Sunstein, 2008; Kahneman, 2011).

One of the earliest attempts to challenge the idea of human rationality was Herbert Simon's seminal book *"Administrative Behavior (1947)"*, which was based on his doctoral thesis in political science at the University of Chicago, which he had begun planning in 1937 (Simon, 1991). In his books and articles, Simon (1955) sought to achieve a better understanding of how individuals make decisions, taking into account their limited cognitive capabilities and available information, through the concept of bounded rationality. The acknowledgment of the limitations of human rationality and the emergence of the concept of *bounded rationality* and *satisficing*[7] challenges the *rational choice theory*. Simon would describe the idea behind his revision attempts about the concept "economic man" with following words (1955, p. 99): "… *the task is to replace the global rationality of economic man with a kind of rational behavior that is compatible with the access to information and the computational capacities that are actually possessed by organisms, including man, in the kinds of environments in which such organisms exist."* According to Simon's studies, in a decision-making process

[7] The term is a Northumbrian word for ''satisfying'' (Gigerenzer and Brighton, 2009). It has also connotations of the combinations of the words "*satisfactory"* and "*sufficiency"*.

people seek information until they find a satisfactory and adequate (i.e., satisficing) results rather than the optimal solution.

Simon's work on bounded rationality laid the foundation for the development of behavioral economics, which integrates insights from psychology to provide a more nuanced understanding of human decision-making. Building on Simon's concept of bounded rationality, Amos Tversky and Kahneman (1974) developed the heuristics and biases research program, which identified specific cognitive shortcuts that people use to simplify complex decision-making tasks.

2.3.1 Heuristic cues

The term “heuristics” etymologically comes from Greek word “*heuriskein”*, and it literally means “which serves to find out, reveal, or discover" (Online Etymology Dictionary, 2023). The concept has been the focus of interest among the psychology community ever since its introduction by Newell and Simon (1972).

Heuristic cues, by definition, are cognitive strategies used to simplify decision-making processes and make quick judgments with minimal cognitive effort (i.e., fast and frugal). In other words, they refer to cognitive shortcuts or rules-of-thumbs that individuals use to simplify decision-making processes. On one hand, these shortcuts can be useful in allowing individuals to make quick judgments when faced with complex and uncertain information (Gigerenzer and Brighton, 2009). On the other hand, they can also lead to biased decision-making (Tversky and Kahneman, 1974). For instance, individuals may rely on the availability heuristic, which involves making judgments based on the ease with which examples come to mind, even if those examples are not representative of the actual population. This can lead to overestimation or underestimation of probabilities and therefore, biased, and suboptimal decision-making.

Tversky and Kahneman (1974), in their seminal book, basically labelled three main heuristics: representativeness, availability, and anchoring /adjustment. Representativeness heuristics refers to judging the probability of an event based on its similarity to a prototypical example or stereotype, while availability heuristics, refers to estimating the frequency or likelihood of an event based on the ease with which instances come to mind. Anchoring and adjustment, on the other hand, suggests the

making estimates by starting from an initial value (the anchor) and adjusting new values based on the initial value.

The application of heuristic cues in decision-making is shaped by a multitude of factors, such as cognitive limitations, task sophistication, emotional influences, and prevailing social norms. Furthermore, a recent study highlights the importance of individual differences in the utilization of heuristic cues. For example, a study conducted by Oechssler et al. (2008) revealed that higher test scores in cognitive abilities are indeed associated with reduced occurrences of certain fallacies. However, it was also discovered that despite the decrease in biases among individuals with higher cognitive abilities, these biases continue to be significant.

2.3.2 Cognitive biases

Heuristics and biases are related concepts in the study of human decision-making, but they refer to distinct phenomena (Tversky and Kahneman, 1974). Bias, in a broad sense, can be described as the systematic deviations from rational, optimal, or normative decision-making process. More specifically, the term cognitive bias is addressed as a systemic error of simple judgmental evaluations, while people are handling with probabilities and making predictions (Kahneman et al., 1982).

Biases occur when heuristics lead to errors or suboptimal judgments due to their simplifying nature (Tversky and Kahneman, 1974). While heuristics can be helpful in certain contexts, they can also result in biases when they lead individuals to make decisions that do not align with objective criteria or statistical probabilities (Gilovich et al., 2002).

Cognitive biases are systemic errors of judgmental evaluations when individuals are dealing with probabilities and making predictions (Kahneman et al., 1982). These biases can result in decisions that are influenced by emotions, social pressures, or cognitive biases, rather than being based on rationality or optimality. Examples of cognitive biases include the anchoring effect, which refers to the tendency to rely too heavily on the first piece of information given when making subsequent judgments. Another example the framing effect, which involves making different decisions based on how information is presented. Some other examples of biases include but not limited to hindsight bias, confirmation bias, and base-rate bias. (Bar-Hillel, 1980; Fischhoff, 1975; Nickerson, 1998).

The impact of heuristics and biases on decision-making has been extensively studied across various domains. For instance, in the field of finance, research has highlighted the role of cognitive biases in leading to suboptimal investment decisions (e.g., Barber and Odean, 2001). Similarly, in marketing, research has shown how the use of heuristics and consumers decisions (e.g., Cialdini, 2011; Griskevicius, 2009; Kahneman, 2011). In healthcare, research has highlighted how cognitive biases can lead to diagnostic errors and suboptimal treatment decisions (e.g., Croskerry, 2009; Graber et al., 2005). Ultimately, it is beyond the scope of this thesis to provide an exhaustive list of all cognitive biases, as there are numerous biases documented in the literature. Nonetheless, a brief list of selected bias can be seen in Table 2.3.

Table 2.3 : Classification of common cognitive biases.

Category	Cognitive Bias	Definition	Example	Source
Decision-Making Biases	Anchoring Bias	Relying too heavily on the first piece of information encountered.	A car salesman setting a high initial price for a vehicle.	Tversky and Kahneman (1974)
Decision-Making Biases	Availability Bias	Overestimating the likelihood of events based on their availability in memory.	Believing that air travel is more dangerous after hearing about a recent plane crash.	Tversky and Kahneman (1973)
Decision-Making Biases	Sunk Cost Fallacy	Continuing a decision based on the number of resources already invested, rather than evaluating the current and future value.	Continuing to invest in a failing project because of the amount of money already spent.	Arkes and Blumer (1985)
Belief Biases	Confirmation Bias	Favoring information that confirms pre-existing beliefs while disregarding disconfirming evidence.	Only reading news articles that align with one's political views.	Nickerson (1998)
Belief Biases	Representative Bias / Stereotyping Bias	Overestimating the likelihood of an event occurring based on how well it matches a stereotype or prototype.	Believing that a quiet, introverted person is more likely to be a librarian than an outgoing, social person.	Tversky and Kahneman (1973)
Belief Biases	Hindsight Bias	Believing, after an event has occurred, that one would have predicted or expected the outcome.	Thinking that a stock market crash was predictable after it has already happened.	Fischhoff (1975)
Belief Biases	Optimism Bias	Overestimating the likelihood of positive events and underestimating the likelihood of negative events.	Believing that one is less likely to get in a car accident than the average person.	Sharot (2011)
Social Biases	Ingroup Bias	Favoring members of one's own group over those from different groups.	Rooting for a sports team solely because it is from one's hometown.	Tajfel (1970)

Table 2.3 (continued): Classification of common cognitive biases.

Category	Cognitive Bias	Definition	Example	Source
Social Biases	Fundamental Attribution Error	Overemphasizing personal characteristics and underemphasizing situational factors when explaining others' behavior.	Blaming a person's laziness for their unemployment rather than acknowledging the difficulty.	Ross (1977)
Social Biases	Self-Serving Bias	Taking credit for success and blaming external factors for failure.	Claiming responsibility for a team's win and blaming the referee for a loss.	Miller and Ross (1975)
Memory Biases	Consistency Bias	Remembering past attitudes and behaviors as more consistent with current attitudes and behaviors than they actually were.	Believing that one has always been environmentally conscious, despite having previously engaged in environmentally harmful behaviors.	Sadler and Woody, 2003
Memory Biases	Rosy Retrospection	Remembering past events more positively than they actually were.	Remembering a vacation as perfect, despite encountering problems during the trip.	Mitchell and Thompson (1994)
Probability and Statistical Biases	Base-rate Bias	Ignoring general probabilities or base-rates in favor of specific information.	Believing that a rare disease is more common after reading about it in the news, despite it being statistically unlikely.	Bar-Hillel (1980)
Probability and Statistical Biases	Gambler's Fallacy	Believing that a future probability is influenced by past events, when in reality each event is independent	Believing that a coin is more likely to land on heads after a string of tails.	Croson and Sundali (2005)
Probability and Statistical Biases	Regression to the Mean	Expecting extreme results to regress toward the average over time.	Believing that a sports team will perform worse in the next game after an exceptional performance.	Kahneman (2011)

2.3.3 Ecological rationality

Human mind is evolved to operate in the environmental structure of hunter-gatherer societies to solve various challenging issues, such as self-protection, finding food, make friends, child upbringing, finding a mate (Tooby and Cosmides, 2005). Yet, they are subject to biological, spatial, temporal, and cognitive limitations in solving these adaptive problems. When it comes to modern era, these limitations are even more salient for modern man. For instance, time has even become more scarce resource than ever before. Every day, people are confronted with more sophisticated version of problems, that they must efficiently and quickly address. In one hand, information generated by human being has long been increasing exponentially. On the other hand, human mind, (still) basically, is constrained by time, available information, and cognitive limitations Consequently, individuals can rarely process all pieces of information deeply (Griskevicius et al., 2009). To compensate for the limitations, individuals resort to mental shortcuts in decision-making, which are called heuristic cues. These cues have a significant impact on people's attitudes and behaviors, as highlighted by Kahneman et al. (1982).

Ecological rationality is a concept that has gained considerable attention in the fields of psychology, cognitive science, and decision-making (Gigerenzer et al., 2011; Todd et al., 2012). It offers a perspective on human reasoning and decision-making that takes into account the adaptiveness of cognition to the specific environmental context in which it occurs (Simon, 1956; Gigerenzer and Gaissmaier, 2011).

The building blocks of ecological rationality date back to Simon's work (1956), in which the idea of bounded rationality introduced to challenge the traditional assumption that humans are fully rational agents capable of making optimal decisions. Building on this work, Gigerenzer et al., (1999) developed the framework of ecological rationality, which emphasizes the importance of understanding the environment in which decisions are made and the cognitive processes that have evolved to facilitate adaptive decision-making (Gigerenzer and Selten, 2001).

Gerd Gigerenzer and his colleagues (Gigerenzer and Goldstein, 1996; Gigerenzer and Selten, 2001) contributed to the heuristics and biases literature by emphasizing the adaptive nature of heuristics. They argued that heuristics could be fast, frugal, and accurate in certain contexts, and that the effectiveness of a heuristic depends on its fit

with the environment. This *ecological rationality* perspective provided a more nuanced understanding of the role of heuristics in decision-making by highlighting their adaptive success in certain circumstances and environmental conditions. In this approach, using heuristic cues to solve a problem cannot be entitled as a "*irrationality*". Because as it is the case for biased algorithms in statistics, biased minds similarly reduce over-fitting of the cognitive system to make accurate predictions In line with this argument, a mind can be more efficient with "adaptive toolbox of biased and specialized heuristics" (Gigerenzer and Brighton, 2009). The rationale behind this is that heuristics or biases can be viewed as a environment-oriented, domain-specific (i.e., context-sensitive) system that serves as an "*adaptive toolbox*" influenced by individual differences, the interplay between nature and nurture, and most significantly, evolutionary pressures (Gigerenzer and Selten, 2001).

2.3.4 Base-rate neglect

Base-rate neglect, also called a base-rate fallacy or *bias*, is a type of cognitive bias in which people tend to ignore or underutilize the base-rate in favors of case information. In order to grasp this bias, base-rate and case information, should first be addressed.

Base-rate and Case information: The base-rate is a fundamental concept in probability, statistics, and decision-making, which refers to the underlying prevalence of a specific event or characteristic within a given population. This is a particularly important concept in Bayesian statistical inference. It is often used in decision-making and inference, particularly when analyzing the likelihood of events or the accuracy of predictions. Case information, on the other hand, refers to specific, detailed data or evidence about individual instances, events, or cases. In decision-making and statistical inference, case information is often addressed alongside base-rate information to estimate the likelihood of outcomes or characteristics.

Numerous studies over the years have shown that individuals tend to give more weight to diagnostic, case information than base-rates, resulting in a phenomenon known as base-rate neglect (Kahneman and Tversky, 1973; Tversky and Kahneman, 1974). In other words, base-rate neglect, also called a base-rate fallacy or *bias*, is a type of cognitive bias in which people tend to ignore or underutilize the base-rate in favors of case information (Kahneman and Tversky, 1973; Yan and Sengupta, 2013). Base-rate neglect originates from the representativeness heuristic, which posits that individuals

often rely on the similarity of a particular instance to a general category (e.g., stereotypical judgment) to make probability judgments (Tversky and Kahneman, 1974). This leads to a systematic underestimation of the importance of base-rates in probability assessments.

An instantiation will further clarify the concept. In a sample involving 1,000 participants, consisting of 995 nurses and five doctors. Jake is a random participant selected from a study. He is at 34 years old; Jake resides in an elegant house situated in an upscale neighborhood. He is well spoken and has a keen interest in politics, devoting considerable time to his profession. Which option is more likely be true? (a) Jake is a nurse or (b) Jake is a doctor. Despite the fact that a randomly selected person in this sample is more likely to be a nurse, most people, however, tend to assume that this person is more likely a doctor.

This a typical example of conflicting base-rate and case information (De Neys and Glumicic, 2008, Kahneman and Tversky, 1973) provide evidence that people intuitively tend to favor a case information over base-rate (Pennycook et al., 2014). Likewise, Kahneman and Tversky (1973), in their seminal paper, introduced this concept and provided several examples, including the well-known "cab problem." More specifically, when people are told that a person is “short, slim and likes to read poetry,” they are more likely to guess that the person is a professor of classics than a truck driver, ignoring the much higher base-rate of truck drivers than classics professors in the population (Nisbett and Ross, 1980). This indicates that people base their judgments of a target on base-rate information when both base-rate and case information is available to them (Kahneman and Tversky, 1973; Welsch and Navarro, 2012).

The “Heuristic and biases” school of thought repeatedly argues that base-rate neglect is robust (Kahneman and Tversky, 1996). They demonstrated that participants failed to consider base-rate information adequately when making probability judgments, leading to erroneous conclusions. In support of these research, Bar-Hillel (1980) conducted a series of experiments to explore the base-rate fallacy in more detail. The experiments varied the presentation of base-rate information, and the results showed that participants are inclined to rely more on individuating information than base-rate information when it conflicted with other, more specific information.

Numerous research examining the base-rate fallacy have been carried out across a wide range of fields, and many consistently replicated base-rate neglect (e.g., Bar-Hillel, 1980; Lyon and Slovic, 1976). The phenomenon was investigated in the domain of legal judgments, where jurors and judges are swayed by specific case details rather than base-rate statistics (Koehler, 1996); and financial decision-making, where investors often overlook base-rates in favor of anecdotal evidence (Rabin, 2000) and cultural context (Wu and Emery 2021), neuroscience of individual differences (Vartanian et al., 2018). Moreover, base-rate neglect was investigated in a medical context by presenting physicians with a diagnostic problem (Eddy, 1982). Specifically, the physicians were asked to estimate the probability of a patient having a particular disease, given a positive test result and the base-rate of the disease. The majority of physicians made incorrect judgments, underestimating the importance of the base-rate information, indicating the practical implications of base-rate neglect, even among highly educated professionals (Casscells et al., 1978; Eddy, 1982).

The degree of base-rate neglect varies, and the proportion of accurate responses rarely exceeds 20% (McDowell and Jacobs, 2017; Stengard et al., 2022). In support of this argument, researchers have investigated numerous factors that can enhance the utilization of base-rates in Bayesian inference tasks, such as underscoring the relevance of base-rates by emphasizing their causal connections to the task at hand Bar-Hillel, 1980; Fishbein, 2015), by increasing the salience and diagnosticity of base-rate information (Bar-Hillel and Fischhoff 1981; Lynch and Ofir 1989), offering explicit feedback and training (Case et al., 1999). These interventions share the commonality of increasing decision-makers' sensitivity to base-rates.

On the other hand, there are more subtle interventions that influence the base-rate neglect addressed in the literature. Scholars have suggested that base-rate neglect may be attenuated or even disappear under different experimental conditions (Cosmides and Tooby, 1996; Gigerenzer, 1996) or depending on people’s mental construal (Yan and Sengupta, 2013). Further studies have explored other mitigating factors, such as problem framing, which can influence the extent of base-rate neglect (Fischhoff and Bar-Hillel, 1984; Gigerenzer and Hoffrage, 1995), In particular, Yan and Sengupta (2013) explored how psychological distance affects the extent to which people considered base-rate risk and case risk information in their health risk assessment. Their study indicated that when individuals were in a low-level construal mindset

(when assessing a health risk about themselves), they tend to focus more on case risk information, often neglecting the base-rate information. Conversely, when individuals were in a high-level construal mindset (when assessing a health risk about others), they were more likely to estimate their health risk on the basis of base-rate information. This research highlights the potential impact of construal level on the utilization of base-rate information.

Aiming to provide evidence of the underlying psychological mechanism by which base-rates operate in consumers' minds, the present study also contributes to the literature on the base-rate neglect.

2.3.5 Cognitive Biases in online consumer reviews

Previous studies have indicated that online consumer reviews are not always reliable due to the potential for biases, as they are susceptible to both random errors and systematic biases (Kordzadeh, 2019). Biases can be caused by a variety of factors, including the reviewer's personal experiences, motivations, and the design of the review platform. Some of cognitive biases and heuristics that can influence online consumer reviews are presented below (Table 2.4).

Confirmation Bias: When information about a product or service aligns with a consumer's pre-existing beliefs or expectations, confirmation bias can cause them to feel more confident in the information. The credibility of the received information is influenced by whether it confirms or contradicts the consumer's prior beliefs (Cheung et al., 2009; Fogg et al., 2001). In the context of online forums, Cheung et al. (2009) found that eWOM review credibility is positively affected when the information confirms the receiver's existing beliefs.

Selection Bias: Individuals choosing to post online reviews often have certain characteristics or motivations that distinguish them from those who do not write reviews (Moe and Trusov, 2011, see eWOM sender in the eWOM section). This self-selection can result in a biased sample of reviewers, making it difficult to generalize their opinions to the wider population.

Temporal Bias: This issue can be addressed from two perspectives: the sender and the receiver. From the sender's perspective, the time interval between consumption and writing a review is influenced by various factors. When individuals post a review immediately after consumption, they tend to focus on concrete, subordinate, and

feasibility-related features of a product or service. However, when they post a review after a certain period of time, their focus shifts to abstract, superordinate, and desirability-related aspects of the product or service (Pizzi et al., 2015). As for the receiver's perspective, consumers generally prefer more recent reviews over older ones.

Social Proof Bias: When shopping online, consumers are often presented with a summary of review information for a product, revealing its performance (indicated by the average rating) and popularity (measured by the number of reviews). In such situations, people may gravitate towards products with a larger number of reviews, as they see the product's popularity as a significant social marker of its quality.

Negativity Bias: Previous studies have demonstrated that consumers are inclined to seek out negative word-of-mouth feedback when they are faced with a lack of information and experience (Herr et al., 1991). Park and Lee (2009) discovered that the negativity effect is more pronounced for eWOM concerning experience goods compared to search goods. The empirical findings of their study highlight that experience goods suffer greater adverse impacts from eWOM due to the negative nature of the eWOM information.

Analysis Paralysis: Consumers can face choice paralysis when they struggle to identify all pertinent options and efficiently assess available feedback, such as reviews (Basuroy et al., 2003). Research also indicates that information overload can result in reduced satisfaction, diminished confidence, and increased confusion regarding product selection (Luo et al., 2013; Park et al., 2006).

Positive Emotion Bias: Previous research has not only shown that customers are emotionally driven to create emotional content in their online reviews (Hennig-Thurau et al., 2004), but also highlighted that the sentiments expressed in these reviews impact customers' evaluation of the product (Hu et al., 2014). Parallelly, Guo et al. (2020) have identified a positive emotion bias in online customer reviews, signifying that favorable reviews have a positive influence on customers' purchasing decisions.

Expertise Bias: Source characteristics, including factors like reviewer ranking, number of followers, and expertise, play a significant role in shaping the perceived helpfulness of electronic word-of-mouth (eWOM) communications.

Source Attractiveness: Research indicates a connection between source attractiveness and eWOM source credibility (Ho and Chien, 2010; Teng et al., 2014; Yu and Natalia, 2013). Source attractiveness encompasses aspects such as similarity, familiarity, and likability of the information provider, as perceived by the recipient.

Anchoring Bias: Naylor et al. (2011) showed that in the absence of information about a reviewer (i.e., an anonymous reviewer), consumers use an accessibility-based egocentric anchoring mechanism to assume that ambiguous reviewers share similar preferences to their own. Consequently, this leads consumers to be equally influenced by reviews authored by ambiguous and similar reviewers, and more influenced by reviews written by ambiguous reviewers compared to those posted by dissimilar reviewers.

Availability Heuristics: The availability heuristic is a cognitive shortcut utilized by individuals to simplify complex information processing by relying on the ease with which relevant information comes to mind. In the context of online consumer reviews, this heuristic can have significant impact on how individuals evaluate the message in eWOM. When certain information is more easily accessible or readily available, individuals may be more likely to give it greater weight in their decision-making process. Nazlan et al. (2018) have investigated the effects of availability cues in restaurant reviews on dining intentions and menu item choice, and the findings indicate that the availability heuristic bias can influence consumers' decision-making processes.

Sunk cost fallacy: Individuals who have spent time and effort on searching a service provider may experience sunk costs fallacy. If these behavioral commitments occur before encountering eWOM message, it might change the way eWOM affects consumers (Golmohammedi et al., 2020).

Table 2.4 : Bias in online consumer reviews.

Bias	Finding(s)	Reference(s)
Confirmation Bias	When information about a product aligns with a consumer's pre-existing beliefs or expectations, confirmation bias can cause them to feel more confident in the information.	Cheung et al. 2009; Fogg et al. 2001.
Selection Bias	Individuals choosing to post online reviews often have certain characteristics or motivations that distinguish them from those who do not write reviews. This self-selection can result in a biased sample of reviewers.	Moe and Trusov, 2011.
Temporal Bias	The time interval between consumption and writing a review is influenced by various factors, which can affect the focus and content of the review. Consumers generally prefer more recent reviews over older ones.	Pizzi et al., 2015.
Social Proof Bias	Consumers may gravitate towards products with a larger number of reviews, as they see the product's popularity as a significant social marker of its quality.	Park et al. 2007; Sher and Lee, 2009.
Negativity Bias	Consumers are inclined to seek out negative feedback when faced with a lack of information and experience.	Herr, Kardes, and Kim, 1991; Park and Lee, 2009.
Analysis Paralysis	Consumers can face choice paralysis when they struggle to identify all pertinent options and efficiently assess available feedback, such as reviews. Information overload can result in reduced satisfaction, diminished confidence, and increased confusion regarding product selection.	Basuroy et al. 2003; Luo et al. 2013.
Positive Emotion Bias	Customers are emotionally driven to create emotional content in their online reviews, and favorable reviews have a positive influence on customers' purchasing decisions.	Hennig-Thurau et al., 2004; Hu et al., 2014; Guo, Wang, and Wu, 2020.
Expertise Bias	Source characteristics, including factors like reviewer ranking, number of followers, and expertise, play a significant role in shaping the perceived helpfulness of eWOM.	Cheng and Ho 2015; Weathers et al. 2015.
Source Attractiveness	Source attractiveness encompasses aspects such as similarity, familiarity, and likability of the information provider, as perceived by the recipient, and is connected to eWOM source credibility.	Ho and Chien, 2010; Teng et al., 2014; Yu and Natalia, 2013.
Anchoring Bias	In the absence of information about a reviewer, consumers use an accessibility-based egocentric anchoring mechanism to assume that ambiguous reviewers share similar preferences to their own, which can lead to biased decision-making.	Naylor et al., 2011.
Availability Heuristics	Availability cues in restaurant reviews affect dining intentions and menu choices, showing that the availability heuristic bias can sway consumer decisions.	Nazlan, Tanford, and Montgomery, 2018.
Sunk Cost Fallacy	When individuals invest time and effort researching a service provider, they may face sunk cost fallacy, which, in turn, it alters eWOM messages' impact on consumers.	Golmohammedi et al., 2020

2.3.6 Base-rate neglect in online consumer reviews

Overall product rating as an aggregated review metric (ARM) is a common method used in ecommerce and online review platforms to provide a summary of consumers' opinions and experiences with a product. Specific reviews as an individual review, on the other hand, represent individual consumers' detailed experiences and feedback on a product. By definition, base-rate information refers to the general, statistical data or probabilities associated with a certain category or population, providing a broader context for decision-making and judgment (Tversky and Kahneman, 1974). Based on these arguments, it is clear that ARM fit perfectly to this concept. Because ARM are composite measures that summarize multiple individual evaluations of a product with a statistical measurement (e.g., mean score). These metrics provide an overview of the general sentiment, consensus, or perception of a target item, making it easier for potential consumers or users to form an initial opinion or compare alternatives (Hu et al., 2009). By conceptualizing ARM and IR as base-rate and case information, a fruitful avenue is provided for generating novel hypotheses about consumers' intention to adopt ARM or IR when making a judgment about a product or service.

Several research focused have found that base-rate information generally exerts a stronger influence than case history information (Allen and Preiss, 1997; Krupat et al., 1997). However, the literature addressing the concept of base-rate neglect within the context of eWOM studies is limited. One of the few studies in this domain suggest that the “base-rate fallacy” occurring in previous studies on social cognition does not seem to apply to eWOM contexts and underutilization of product ratings is due to the reduced reliability of overall ranking scores, which many consumers perceive as becoming increasingly biased due to the prevalence of promotional and fake reviews on online consumer review sites Filieri et al. (2018). While other studies provides early signs, suggesting that this could be the case (Nettelhorst et al., 2013; Ledgerwood et al., 2010; Qiu et al., 2012; Ziegele and Weber, 2015) In support of these studies, Vana and Lembrecht (2021) recently provide similar evidence and suggesting that individual reviews have a more significant influence on purchase decisions when they conflict with consumers' evaluations based on other cues and help consumers resolve uncertainty. This conflict and uncertainty might be the case when a product has a low overall rating, typically used as a quality signal (e.g., Zhao et al. 2013; Wu et al. 2015), but an individual review of that product has a high star-rating.

A number of studies have been conceptualized and documented various type of heuristic cues and cognitive bias in the literature (e.g., Tversky and Kahneman, 1974; Slovic et al., 2002; Kahneman and Frederick, 2002; Tversky and Kahneman, 1981; Ariely, 2008; Thaler and Sunstein, 2008; Gilovich et al., 2002). However, addressing all of these is beyond the scope of this study. Thus, base-rate bias (i.e., base-rate fallacy or neglect) will be our focal subject in this thesis.

2.3.7 Debiasing

While heuristics and biases can be adaptive and ecologically rational in certain contexts, they can also lead to systematic errors and suboptimal decision-making in other situations (Gigerenzer and Gaissmaier, 2011; Kahneman et al., 1982). As addressed earlier, not all heuristics are useful in all instances. For example, tallying heuristic is ecologically rational only if cue validities vary little (Hogarth and Karelaia, 2005). Another example, imitate the majority (i.e., social proof) is ecologically rational only if environment is stable or changes slowly, while information search is costly (Gigerenzer and Brighton, 2009). Likewise, the same heuristic with different label (i.e., social proof) is effective when fear induced (i.e., when self-protection motive is salient) but ineffective, even, disadvantageous when romantic desire induced (i.e., when mate selection motive is activated), (Griskevicius et al., 2009).

Debiasing interventions are important because they help individuals recognize and overcome these biases, thereby improving the quality of their decision-making in contexts where biases may be harmful or less adaptive. The goal of debiasing is not to eliminate the use of heuristics and biases entirely, as they can be beneficial in specific circumstances, but rather to promote a more flexible and context-sensitive approach to decision-making. By enhancing individuals' awareness of cognitive biases and providing them with tools and strategies to counteract these biases when appropriate, debiasing interventions can help individuals make more informed and accurate choices across a range of domains, such as economics, medicine, public policy, and education (Larrick, 2004; Lilienfeld et al., 2009). Ultimately, the effectiveness of debiasing depends on striking the right balance between leveraging the adaptive advantages of heuristics and biases and mitigating their potential negative consequences when they are less suited to the decision-making context at hand.

As pointed earlier, debiasing techniques and interventions aim to improve the quality of decision-making by mitigating the influence of these biases on individuals' judgments and choices. To mitigate the impact of biases on decision-making, researchers have proposed various interventions. These include providing decision-makers with more information, encouraging reflection, and providing training on how to recognize and avoid common biases (Thaler and Sunstein, 2008). Such interventions can help decision-makers to make more informed and rational decisions.

Debiasing methods in the literature can be conceptualized and classified into two broad categories: nudges and interventions. Nudges are subtle changes in the presentation or framing of information that guide individuals towards making better decisions without restricting their choices or using economic incentives (Thaler and Sunstein, 2008). They often rely on insights from behavioral economics and cognitive psychology to influence decision-making.

2.3.8 Nudging

Some interventions present in the form of mandates and bans, such as the criminal law that outlaws theft and assault. While others involve economic incentives or disincentives, including support (i.e., incentivize) for renewable energy sources, charges (i.e., disincentivize) for participating in particular activities, or taxes on items like gasoline and tobacco products. Furthermore, some interventions employ *nudges*—subtle and liberal methods that guide individuals towards specific directions while still allowing them to make their own choices.

Introduced by Thaler and Sunstein (2008), *nudge theory* has emerged as a prominent debiasing tool for influencing decision-making while maintaining individual autonomy. The core principle of nudging is to subtly change the choice architecture without eliminating options or significantly altering financial incentives. Furthermore, nudges are intentionally designed to serve the best interests of the individual being influenced, and often produce predictable results. More specifically, *nudge* is as defined and exemplified as follows:

> "…any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting the fruit at eye level

counts as a nudge. Banning junk food does not" (Thaler and Sunstein, 2008, p. 6).

Nudges were first used in the policy domain to support better decision-making, and they have since been employed in a broad array of areas pertaining to human behavior. They have proven effective in altering behavior predictably across various domains, such as, promoting stair use by displaying health information in hospitals; (Dorresteijn et al. 2013), lowering speeding by offering real-time feedback on driving signs (Mejía, 2021), default enrollment in pension plans (Thaler and Benartzi 2004), and promoting towel reuse in hotels (Goldstein et al. 2008), adoption of opt-out systems to increase organ donation rates (Thaler and Sunstein 2008).

Examples of nudges include providing individuals with additional information or re-framing the existing information to help them better understand and evaluate the problem at hand (Gardner and Stern, 2002; McKenzie-Mohr, 2000), presenting information in different formats (e.g., absolute numbers, percentages, or visualizations). On the other hand, the presentation of options or the decision-making environment in a way that influences individuals' choices, often by leveraging cognitive biases in a positive way (Johnson et al., 2012), setting default options that encourage more desirable behaviors (Madrian and Shea, 2001) or using social comparison to motivate individuals to adopt better practices (Schultz et al., 2007) are well-established methods in the literature. These methods help practitioners mitigate or even reverse the effect of cognitive bias and fallacies.

Nudging as a Debiasing Tool: Nudging people with a piece of information prior to decisions can help them overcome cognitive biases and fallacies to a certain extent (Loewenstein et al., 2014). Information nudges (e.g., reminders or warnings) aim to provide individuals with relevant, clear, and timely information to help them make better decisions. They can be used to counteract various cognitive biases and fallacies, such as the availability heuristic, anchoring, confirmation bias, the representativeness heuristic, the base-rate fallacy (Loewenstein et al., 2014).

The effectiveness of such interventions in mitigating biases depends on various factors, including the nature of the decision, the individual's cognitive abilities, and the context in which the nudge is applied. One factor is the complexity of the decision. Information nudges may be less effective when decisions are complex, as individuals may struggle to process and integrate the provided information (Beshears et al., 2013). Another

factor is individual differences in cognitive abilities, such as numeracy, literacy, and cognitive reflection (Frederick, 2005; Peters et al., 2006).

Nudges have used in various domains as a debiasing tool. In the realm of health and well-being, for instance, research has shown that strategic placement of healthier foods at eye level can promote healthier eating habits (Wansink, 2004), while using prompts or reminders can effectively enhance adherence to exercise routines or medication intake (Milkman et al., 2011). Environmental conservation efforts have also benefited from the implementation of nudges, such as harnessing social norms to encourage energy conservation by providing comparative information on neighbors' energy usage (Allcott, 2011), and incorporating environmental impact information in product packaging to nudge consumers towards eco-friendly choices (Koenigstorfer et al., 2014). Furthermore, nudges have made a notable impact in the personal finance sector, as demonstrated by the success of automatic enrollment in retirement savings plans with opt-out options, which has led to increased participation rates (Madrian and Shea, 2001), and the effectiveness of loss-framed financial choices in fostering prudent financial behavior (Tversky and Kahneman, 1981). Finally, public policy has witnessed a proliferation of nudges, such as the adoption of opt-out systems for organ donation, resulting in higher donation rates (Johnson and Goldstein, 2003), and disclosure of calorie on chain restaurants (Bollinger et al., 2011), nudging customers to make healthier food choices (Thorndike et al., 2012).

These approaches involve providing individuals with additional information or re-framing the existing information to help them better understand and evaluate the problem at hand. Examples include presenting information in different formats (e.g., absolute numbers, percentages, or visualizations) and using "nudges" to encourage individuals to make more rational decisions (Thaler and Sunstein, 2008).

Numerous studies examined effect of information-based nudging strategies. For instance, in the field of environmental conservation, research has shown that presenting information about energy consumption in clear and easily understandable units (e.g., kilowatt-hours) or using visual representations (e.g., graphs) can improve individuals' awareness and promote more sustainable behaviors (Gardner and Stern, 2002; McKenzie-Mohr, 2000). Similarly, Larrick and Soll (2008) demonstrated that presenting fuel information in terms of "gallons per 100 miles" instead of the traditional "miles per gallon" metric led to better understanding and decision-making

regarding vehicle purchases. The alternative way of presentation of information provided a clearer picture of the fuel consumption differences between vehicles. Gigerenzer and Hoffrage (1995) also suggest that participants who were given base-rate information in a natural frequency format demonstrated a better understanding of the information and improved decision-making compared to those who received the information in a probability format.

Nudging Base-rate: Several factors are highlighted in the literature that influence utilization of base-rate. First, the degree of similarity between an observer and an actor plays a crucial role in how base-rate information is utilized. Research indicates that when evaluating the actions of in-group peers who are similar to the observers, people tend to depend less on the base-rate information provided by the experimenter. Observers often create their own base-rate information based on themselves when examining actors who resemble them. Consequently, this self-generated base-rate information makes the given data less essential, resulting in a minimal influence on attributions (Kassin, 1979; Kelley and Michela, 1980). To account for this effect, similarity was strictly controlled in this study.

Second, the utilization of base-rate information is also contingent upon how observers perceive an actor's behavior, based on their pre-existing knowledge of the actor. The behavior can be seen as either normal (i.e., typical) or unexpected (i.e., atypical). When the observed behavior aligns with what is considered normal or typical, base-rate information is considered less informative and, thus, less likely to have an impact on attributions. In contrast, when the behavior is perceived as atypical, the base-rate information becomes more relevant and influential (see Jackson et al., 1993).

On the other hand, research has also shown that changing presentation format of base-rate information can help individuals overcome the base-rate fallacy. For instance, Gigerenzer and Hoffrage (1995) suggested that participants who were given base-rate information in a natural frequency format demonstrated a better understanding of the information and improved decision-making compared to those who received the information in a probability format.

Lastly, according to literature, to bolster the utilization of base-rate in decision-making, two key strategies can be employed. Firstly, the relevance and prominence of the base-rate itself should be increased, making it more significant for informed decisions. Secondly, the attention given to the case information in question should be

reduced, allowing the base-rate to have a more substantial impact (Lynch and Ofir, 1989). In line with these arguments.

Nudges cover an extensive array of applications, and their number and types continue to increase consistently. However, Sunstein (2014) identifies ten important types of nudges, which are presented in Table 2.5, along with their explanations, relevant studies, and findings. The base-rate nudge used in the present study can be classified under use of simply reminder type of nudge. This study is the first to make a significant contribution by employing a simple reminder as a base-rate nudge within the domain of eWOM.

Table 2.5 : Ten most important nudges.

Nudge	Explanation	Study	Finding
Default Rules	Default rules, such as automatic enrollment in programs, significantly increase participation in retirement and health care plans and can promote environmental protection. They are effective because they minimize burden and decision-making.	Madrial and Shea (2001)	Automatic enrollment in a company's 401 (k) retirement plan. Participation rates for newly eligible workers increased from 49 percent to 86 percent.
Simplification	Reducing complexity in programs and forms makes them easier to understand and navigate, increasing participation and the success of programs related to education, health, finance, poverty, and employment.	Fonseca and Grimshaw (2017)	Streamlining the tax filing process with pre-filled forms. Prepopulating tax returns is a worthwhile policy only if it is done with highly reliable information.
Use of Social Norms	Informing people that others engage in specific behaviors, such as paying taxes or reusing towels, can influence them to follow suit, reducing undesirable behaviors like crime, alcohol abuse, smoking, and discrimination.	Goldstein, Cialdini, and Griskevicius (2008).	A hotel sign stating that the majority of guests in this room reuse their towels is the most effective cue at increasing consumers reuse behavior.
Increasing Ease and Convenience	Making desired choices easy and convenient, such as by making low-cost options or healthy foods visible, encourages people to choose those options. Making choices fun can also increase engagement.	Thorndike et al. (2012)	Using a straightforward color-coded labeling system led to an increase in sales of healthy items and a decrease in sales of unhealthy items and accessibility of healthy options through a choice architecture intervention further boosted the effectiveness of the labeling approach.
Disclosure	Providing clear and accessible information about costs, risks, or other relevant factors can improve consumer choices and promote transparency in both markets and governments. Simplicity in disclosure is important.	Bollinger, Leslie, and Sorensen, A. (2011).	Mandatory calorie posting in Starbucks leads to an average 6% decrease in calories per transaction while, interestingly, boosting revenue.

Table 2.5: (continued) Ten Most Important Nudges.

Nudge	Explanation	Study	Finding
Warnings	Using warnings to highlight risks can counteract unrealistic optimism and increase attention to long-term consequences. However, positive messages and concrete steps to reduce risk can be more effective if warnings are discounted.	Hammond et al. (2007).	Graphic warnings on cigarette packages in the UK, US, Canada, and Australia
Precommitment Strategies	When people commit to a certain course of action, such as a smoking cessation program, they are more likely to achieve their goals. Committing to a specific action at a precise future moment reduces procrastination.	Gine, Karlan, and Zinman (2010).	The product (CARES) provided smokers with a savings account where they could deposit money for six months. After this period, they would undergo a urine test for nicotine and cotinine. If they passed the test, their funds would be returned; otherwise, the money would be donated.
Simply Reminders	Timely reminders can help people overcome inertia, procrastination, and forgetfulness, leading to increased compliance with tasks such as paying bills, taking medication, or attending appointments.	Vervloet et al. (2012)	Findings provides evidence for the short- term effectiveness of electronic reminders, especially SMS reminders.
Eliciting Implementation Intentions	Asking about people's plans to engage in certain behaviors, such as voting or vaccinating their children, increases the likelihood that they will follow through. Emphasizing people's identity can also be effective.	Nickerson, and Rogers (2010).	Facilitating the formation of a voting plan (i.e., implementation intentions) can increase turnout by 4.1 percentage points among those contacted
Informing People about Their Past Choices	Providing people with information about their past choices, such as expenditures on health care or electric bills, can influence their future behavior and improve market efficiency.	Allcott and Rogers (2014).	The Opower reports, which are sent to households, include personalized energy consumption feedback / usage history, comparisons with neighbors' energy usage, and information on conserving energy.

2.3.8.1 EWOM and nudging

A significant number of research have provided evidence about nudges in offline settings. However, online settings offer numerous possibilities to utilize from the potential of nudging. Online environments enable immediate monitoring and evaluation of user behavior and customization of the user interface accordingly. Furthermore, mobile applications can retrieve extensive information about the context, such as location and movement, in which a decision is made. Despite its potential, however, literature in this domain is still limited (Weinmann et al., 2016). However, user interface (UI) manipulations (e.g., design elements of platforms where users engage in eWOM) in online environments can be considered as nudging, by definition (Thaler and Sunstein, 2008). In this regard, to date, several studies have addressed the design of digital choice environments through which consumers' choices are often shaped.

Esposito et al. (2017), have investigated the effectiveness of three types of digital nudges (i.e., warning messages, style, and information placement) to prevent participants from purchasing incompatible digital products online. The study revealed that emotive warning messages and positioning compatibility information on the checkout page were successful in achieving the desired outcome. Other studies focused on digital nudging for online food choices (Jesse et al., 2021), nudging social online referrals (Zeng, 2022), privacy nudges for disclosure of personal information (see Ioannou, et al., 2021 for a detailed systematic literature review and meta-analysis).

When it comes to the realm of eWOM, Huang et al., (2018) have demonstrated that the readability of fonts in online review contexts influences their credibility (Huang et al., 2018). It is also suggested that manipulating the order of attribute-oriented/usage-oriented OCR impact consumer decision-making performance (Li et al., 2017). Chen et al. (2018), on the other hand, discovered that the format of scores (multidimensional vs. single-dimensional ratings) enhances review informativeness. Additionally, Xu (2021) explored how closed-form evaluations (i.e., rating, votes) and open-ended evaluations (i.e., online textual comments) options have an impact on customer review providing behavior and satisfaction.

Huang et al. (2018) examined the efficacy of digital nudging in promoting social contagion on online platform content through website pop-ups. The study incorporated

social capital theory and motivational mechanisms to evaluate four types of nudging messages. Another study investigates the *evaluation nudge* that influences consumers' preferences for tourism products based on the presentation of online reviews about alternative options, either collectively (joint evaluation mode) or individually (separate evaluation mode) (Tan et al., 2018; Jesse et al., 2021)

To reiterate, the literature on the role of nudges in online review platforms is relatively limited. However, the study by Qu and Chau (2022) is a noteworthy contribution to this area. This study has suggested that various factors, such as the organization of reviews, default display order, and the sequence of top positioned reviews, can significantly influence consumers' purchase intentions.

Despite the abundance of substantial evidence suggesting that eWOM significantly influences consumers and the high potential of nudging to contribute to the domain, this area of research still remains underexplored. In this respect, this study also aimed at contributing this underexplored domain of knowledge.

Drawing upon the comprehensive theoretical background presented in the present chapter, next chapter aims to develop well-grounded hypotheses that directly address the research questions. The theoretical foundations laid out thus far have provided insights into the relevant constructs, key variables, and the relationships between them. By synthesizing the diverse perspectives and insights gleaned from the literature, we will formulate specific, testable hypotheses that can guide the empirical analysis in subsequent chapters.

2.4 Construal Level Theory

Scholars have long been interested in the psychological states of human beings that transcend the “here-and-now’. Transcendence of the “here-and-now’ implies that beyond physical limits; the self and experiences here and now, human beings are able to contemplate themselves in the past, future, put themselves into others’ shoes, cognize spatially distant places and consider counterfactual alternatives to reality. Considering these instances, a psychological distance from the self in the present is traversed (Trope, 2012). A vast number of studies in social psychology, evolutionary psychology, and neuroscience are also supportive to the argument that humans have evolved with a capacity to broaden their spatial, temporal, and social horizons (Gilead

et al., 2014; Saad, 2017; Stillman et al., 2017; Trope, 2012). For instances, we are able to plan our career, try to predict the future events, contemplate the hypothetical scenarios what would happen if we did behave in a particular way. Putting ourselves into others' shoes is an indication that we are able to anticipate and contemplate others' opinion about themselves (i.e, the metaperception concept; a detailed review of metaperception see Varnali and Cesmeci, 2022).

Construal level theory (CLT) is a theory developed in the social psychology field, explaining the relation between psychological distance and the extent to which individual's thinking of objects and events is abstract and concrete (Trope and Liberman, 2010; Trope, 2012). The basic tenets of construal level theory of psychological distance lean on the assumption that only the here and now can be directly experienced; the future, distant places and other people are thought to be represented in a more abstract manner such as imaginations, memories, plans or hopes (Raue et al., 2015). In other words, the more distant a phenomenon from an individual is, in a more abstract way the phenomenon is processed. Contrarily, the more proximate a phenomenon from an individual, in a more concrete way it is processed.

Psychological distance itself, varies along different dimensions such as temporal, spatial, social and hypotheticality (Trope and Liberman, 2010). Liberman and Trope (2014, p. 365) also asserts that "it is ever important whether an object is real or imagined, certain or probable, present, future or past, mine or somebody else's." People adopts higher construal level when psychological distance increases, whereas they operate at lower construal level when psychological distance decreases. Psychological distance in each dimension denotes that how far the distance is from present (temporal), here (spatial), self (social) and probability (hypotheticality). Although other dimensions are suggested by researchers, when the term "distance" is used, it refers to these four dimensions specifically (Liberman et al., 2007).

According to CLT people mentally represent distant future events more abstractly and focus on desirability and central features of that event. Specifically, when the event is near, people construe it more concretely, focus on feasibility and consider secondary features of that event. For example, planning a vacation for the next summer is construed at a high level of abstraction, in terms of "having fun", "relaxing" and "beauty of nature". However, the day before going to the vacation, however, the very same event is construed at a low level of abstraction, such as ''where can I stop by

during the journey'' and "selecting the appropriate clothes for packing". The same abstraction level can be applied to different dimensions in question. For example, people are more prone to construe remote places in an abstract way than their immediate surroundings.

Although the relationship between psychological distance and construal levels are well-established, a conceptual distinction between these two mechanisms is noteworthy. While psychological distance refers to the perception of when an event occurs, where it occurs, to whom it occurs, and whether it occurs, construal levels are on the other hand, related to the processes that give rise to the representation of the event itself (Liberman et al., 2007).

Assumptions on which construal level theory constructed are as follows: First, psychological distance is an egocentric concept, positioned relative to the self, here, and now. Second, the causal link between psychological distance and level of construal is bidirectional. In other words, psychological distance affects the mental representation of objects, while the mental representation of objects (i.e., either abstract or concrete) affects the perceived psychological distance. Third, the effect of psychological distance on one dimension (e.g., temporal) have an impact on other psychological dimensions (e.g., spatial, social, hypotheticality). These assumptions can be used to unconfound effects of psychological distance from other variables (i.e., alternative explanations) (Liberman et al., 2007; Trope, 2012).

A growing body of research examined the main or joint effect (e.g., along with different theoretical constructs) of construal level on advertisement effectiveness, product appealing (Spassova and Lee, 2013); subjective probability estimates (Wakslak and Trope, 2009), risk perceptions (Lermer et al., 2015; Sagristano et al., 2002; Trope, 2012), price perception in the advance selling of experience services (Wakefield and Wakefield, 2018), service satisfaction (Pizzi et al., 2015), health-risk perception (Yan and Sengupta, 2013), and consumers' wait duration judgment (Wang et al., 2018). However, to date, studies addressing online consumer reviews in light of CLT are very scarce. Specifically, research on the effects of ARM versus IR are inconclusive. However, as a broad theory, CLT has a potential to explain and reconcile the mixed finding in the literature. Thus, we adopt CLT as a theoretical base to develop our focal hypothesis.

2.4.1 Abstraction and traversing psychological distance

The concept of transcendence of here-and-now constitutes the basic tenets of the CLT. Traversing psychological distance is also essential in adaptive human functioning. Both history of human evolution and developmental phases of humans are related to traversing progressively greater distances. Human beings are able to contemplate themselves in the past and future, cognize spatially distant place, empathize with others, evaluate others based on similarity and familiarity, grasp the concept of probability, and consider counterfactual alternatives to reality. Liberman and Trope (2014) argues that abstraction underlies the processes. For example, the evolution of language is a form of abstract symbols that enable people to communicate about hypothetical, counterfactual and future events. To reiterate, mental abstraction has paved the way for people to form social groups, institutions based on ideologies; to consider events in both the distal past and future (e.g., creation of the universe, utopian salvation).

It can be said that the skill "object permanence" is the developmental starting point of all these cognitive capacities. Object permanence is a skill that infants typically acquire in the first year of life. A child is deemed to form the skill object permanence, if they continue to believe that the object still exists even though this object is covered. The infants developed this skill try to uncover the object (Piaget, 1954). It is a good indicator that they fully developed the object permanence. This skill reflects one of the processes of abstraction ability of human beings. In other words, developing object permanence is an indication of forming a higher-level construal. Although the process of abstractions can be present in many forms and levels, they all serve as a function to support traversing psychological distance.

2.4.2 Psychological distance

As a human being, we are constantly deal with the objects, events, and actions that are not present here-and-now. They are mostly related to the past or the future, or things that are not here, or experiences of others, or possibilities that would (never) be materialized or alternative realities (Trope and Liberman, 2010; Liberman and Trope, 2014).

The reference point of all psychological distances is the self and here-and-now. People traverse psychological distances by using mental construal. The studies suggest that

the causal link between psychological distance and mental construal is bidirectional (Trope and Liberman, 2010). To put it differently, traversing psychological distances affect mental construal and mental construal also affect the psychological distances in question. More specifically, psychological distances (i.e., either distal or proximal) affect the mental representation of objects, while the mental representation of objects (i.e., either abstract or concrete) affects the perceived psychological distance.

Psychological distances are addressed in four dimensions including temporal, spatial, social, and hypothetical dimensions (Trope and Liberman, 2010). The studies in the CLT suggest that all dimensions have a common meaning. Traversing one of the dimensions spill over into other dimensions. For example, traversing temporal distance (i.e., near vs. distant past or future) is the same for traversing all other dimensions (i.e., spatial, social, hypothetical). They all have a common meaning, which is psychological distance (Liberman and Trope 2014).

The assessment of psychological distance is automatic. However, the concept "psychological distance" is not inherent in the semantic meaning of objects, as is the case with the concept "valence". Instead, it is a function of a differential relation between the perceiver and the object (Liberman and Trope 2014).

For example, spatial distance (e.g., preferred sitting distance) is used as an implicit measure of social closeness (Aron et al., 1992; Macrae et al., 1994). People also expect improbable events to occur in situations that are relatively distant in term of space, time, and social closeness (Wakslak and Trope, 2009, for detailed examination of the relationship of the dimensions of psychological distances see Fiedler et al., 2012).

In an attempt to reveal the transitive nature of the dimensions of psychological distances, Liberman and Trope (2014) briefly stated the phenomenon as follows: "*Activities that were distal on one dimension were judged as more distal on other dimensions*".

2.4.3 Dimensions of psychological distance

To date, scholar has long been investigated the dimension of psychological distance (Maglio, 2020). Although some scholars assert several novel dimensions (e.g., Alexander et al. (2008), Van Boven et al., 2010), CLT put forward four dimensions of psychological distance (i.e., temporal, spatial, social, and hypothetical distance; see Figure 2.5), which have same meanings in terms of mental construal of objects, events,

or actions. The same meaning pertaining to psychological distance refers to that similar effects are observed if outcomes are in the distant future or the distant past, if they are physically distant, if they relate to socially distant others, or if they are seen subjectively low probable (Trope et al., 2007; Trope and Liberman, 2010). As noted, another premise of CLT is that the association between psychological distance and level of construal is bidirectional.

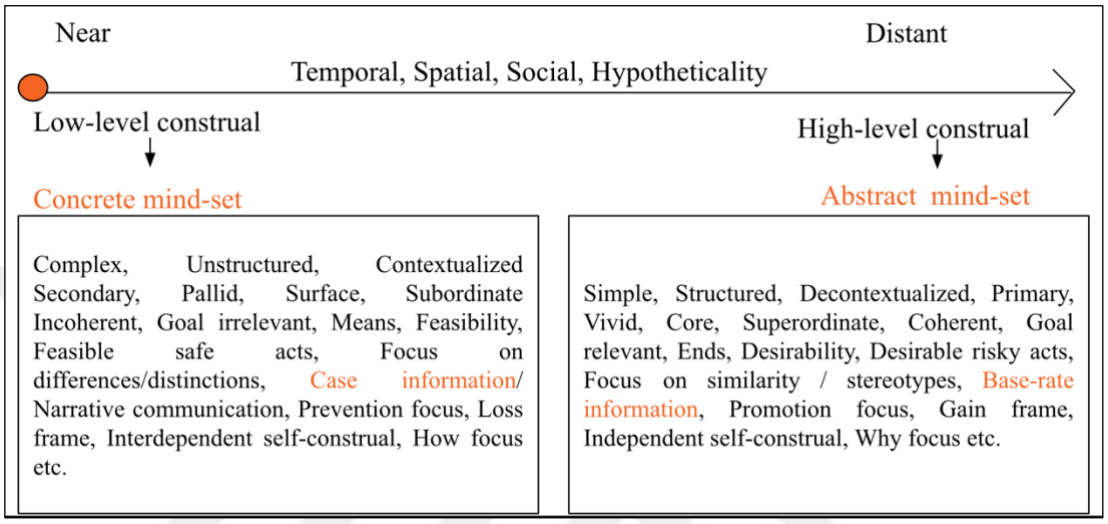

Figure 2.5 : Dimensions of psychological distance.

Source: The Author.

According to CLT, people use low-level, concrete mental construal, to represent near events, and high-level, abstract mental construal to represent distant events. In other words, the more distant an object, event, or action, the more abstract they are processed in consumers' mind (see Table 2.6 for the dimensions of psychological distance and related concepts). In line with these arguments, an object, event, or action construed in a more abstract way, when they are temporally, spatially, socially, and hypothetically distal than when they are proximal on the same dimensions in question. Likewise, an object, event, or action construed in a more concrete way, when they are proximal on the dimensions of psychological distance than when they are distal on the same dimensions in question.

Table 2.6 : Keywords concerning the level of construal.

High-Level, Abstract Construal	Low-Level, Concrete Construal
Simple	Complex
Structured, Decontextualized	Unstructured, Contextualized
Primary, Core, Superordinate	Secondary, Surface, Subordinate
Coherent	Incoherent
Goal relevant	Goal irrelevant
Ends	Means
Desirability	Feasibility
Desirable risky acts	Feasible safe acts
Focus on similarity / stereotypes	Focus on differences / distinctions
Base-rate information	Case information / Narrative communication
Promotion focus	Prevention focus
Gain frame	Loss frame
Independent self-construal	Interdependent self-construal
Why focus	How focus

Source: The Author.

As noted, regardless of a specific dimension, a distantness (proximity) in any of the dimensions of psychological distance is associated with a high (low) level of mental construal. Despite the fact that each dimension of psychological distance has common meanings in terms of mental processing, Lynch and Zauberman (2007) have addressed their unique characteristics and distinctiveness. Put it differently, temporal, spatial, social, and hypothetical distances may be distinct from each other in some aspect, while they share same characteristics in others. This conceptualization also has potential downstream consequences in the consumer psychology and behavior realm. For example, between-individual differences tend to be more likely for social and spatial distance and they may generate interpersonal conflict. However, there is relatively more within-person variation for time and uncertainty that generates preference inconsistency, reversal, and dissatisfaction when a decision taken from a distant perspective is reassessed from a more proximal perspective. On the other hand, time has a unidimensional nature, namely, we continually travel from the past to the future and have no control over time (Lynch and Zauberman, 2007; Trope and Liberman, 2010), but physical distance (space) has three dimensions. Lastly, a further important difference between distances is their relationship to valence. While social distance decreases positivity, temporal distance generally tends to increase positivity. More specifically, people in the same group (i.e., ingroup

members) tend to evaluate each other more positively, while people in different groups (i.e., outgroup members) tend to evaluate each other more negatively. Likewise, people have a more positive outlook about the distant future and past as compared to near future and recent past. The dimensions of psychological distance and its implications in consumer and behavior will be addressed in detail under the following subheadings.

A recent study published by Yan et al. (2016) address an important question as to why psychological distance affect construal level. It has been shown that people use visual processing more when construing proximal events, and verbal processing more when construing distal targets; however, visual processing produces concrete (low-level) representations, while verbal processing produces abstract (high-level) representations. This study is an important step towards unpacking the black box approach taken by the extant literature and provide process evidence revealing the role of the processing modes (i.e., visual versus verbal) in psychological distance. However, more research is needed to fully elucidate underlying mechanism at play.

Next; temporal, spatial, social, and hypotheticality as dimensions of psychological distance are addressed respectively.

2.4.3.1 Temporal distance

Temporal distance basically refers to the temporal distance between the now and the time of occurrence of the target event (Liberman and Trope, 1998). More specifically, it is the perceived closeness of an individual to the time of occurrence of an event. According to CLT, distant future or past events are represented in a more abstract, structured, decontextualized manner than near future or past events (Trope et al., 2007; Yan and Sengupta, 2013).

In a study conducted by Liberman and Trope (1998), participants were asked to evaluate an event and in one condition participants were told that it would take place in the near future, while in other condition they were told the event would take place in the distant future. The results showed that participants who were told the event would take place in the distant future were more likely to evaluate it in terms of its abstract, high-level features, whereas those who were told it would take place in the near future were more likely to evaluate it in terms of its concrete, low-level features.

In an experimental setting, participants were asked to imagine events (e.g., a camping trip or a friend's visit to New York) which were to occur in either distant or near future.

Then they are also asked to group a set of the objects related to the event into as many categories as they want. The results are consistent with the idea that people who imagine the events in the distant future construe the objects in broader (i.e., fewer) categories and more abstract terms. On the contrary, people who imagine the events in the near future construe the objects in narrower (i.e., many) categories and more concrete terms (Liberman et al., 2002, for a similar study see Nussbaum et al., 2003).

Another study investigated temporal shifts in the representations of self (see Wakslak et al., 2008). The results of the study indicated that people construed their distant self in a more integrated and structured manner. Contrarily, people construed their near self as more fluid and contextualized.

Liberman and Trope (1998), on the other hand, measured construal by inspecting shifts in *identification* rather than focusing on *structure*. In this study, participants were asked open-ended descriptions of series of events either for near or distant future. Then, they are requested to identify these events either based on high-level or low-level. In order to identify the activities provided, Behavioral Identification Form (Vallacher and Wegner, 1987; 1989) was used. As noted, the events having been identified high-level (low-level) refers to that the superordinate purpose, the “why” of the event (vs. subordinate means, the “how” of the event) are salient. Consistent with theorizing, the events described in the distant future were identified in a more abstract (i.e., high-level) manner (e.g., doing well in the school) as compared to the activities described in the near future. Likewise, the activities described in the near future were identified in a more concrete (i.e., low-level) manner (e.g., reading a textbook) as compared to the activities described in the distant future.

Considering at high-level or in a more abstract way, the event "going to the dentist" was similar to the event "joining a health club". Because both are related to improving one's health. On the other hand, “going to the dentist" was similar to the activity "getting a tattoo" when considering at low-level or in a more concrete way. Since, both are related to sitting in a chair for a painful procedure). Day and Bartels (2004) investigated how these similarity judgments were affected by temporal shifts. They suggested that when events provided in a far future, people see event pairs with high-level (i.e., abstract) commonalities more similar than event pairs with low-level (i.e., concrete) commonalities.

Förster et al. (2004) suggests that temporal distance promotes abstraction. In other words, when imagined working on the task occurring in the distant future, people tend to perform better in the completion of several task required the abstraction. On the other hand, with increasing temporal distance, it is suggested that people are more likely to attribute behavior to dispositional traits, while they underutilize the effect of situational factors on behavior (Nussbaum et al., 2003).

Trope and Liberman (2000) argue that individuals focus on the feasibility of target in their preferences for the near future, whereas they focus on the desirability of target in their preferences for the relatively more distant future. Desirability refers to the value obtained by the end of the goal or the possession of an object, while feasibility is a concept related to the ease or difficulty in the pursuit of goal (Liberman et al., 2007).

Handerson et al. (2006) suggest that individuals focus on primary and goal-oriented features and components of the products in the distant future, while they focus on the secondary and peripheral features of the products the near future. In another study, researchers investigate the effects of temporal distance on predicting future outcomes and suggests that people adopt more positive, optimistic views and less negative views when the action is in the distant future (Eyal et al., 2004; Lynch and Zauberman, 2007).

Despite the fact that the majority of studies in temporal distance mostly focus on the representation of future events. Studies addressing the representation of past events are scarce. One of the exceptional studies in question demonstrates that an event portrayed more concretely are perceived by people as being subjectively more recent than when portrayed more abstractly (Kyung et al., 2010). Contrary to this study, another research examines how a low- versus a high-level description of a past event affects the perceived temporal distance from the event, another study focuses on how a near past versus a distant past temporal distance influence the representation of the event (see Pizzi et al., 2015). For instance, when evaluating consumers' satisfaction with a distant past event (e.g., a party organization), they attach more importance to more abstract attributes (e.g., entertainment, getting together with friends) as compared to concrete attributes (e.g., buying food and drinks, creating a playlist). Contrarily, when evaluating their satisfaction with a near past event, they attach more importance to more concrete attributes as compared to abstract ones.

Temporal distance is inherently unidimensional. In other words, one inevitably travels from the past to the future which also refers to uncontrollable nature of time. When it

comes to its valence, the more distant perspective people adopt, the more positive they process and evaluate events. Lastly, intrapersonal variation is higher for temporal distance. Because judgments made from a distal perspective are more likely to vary when they are reevaluated in a proximal perspective, which, in turn, may lead to intrapersonal dissatisfaction, preference inconsistency, and regret (Liberman et al., 2007; Lynch and Zauberman, 2007; Trope and Liberman, 2010).

Based on aforementioned extensive research, events in the distant future or past are construed in an abstract and structured way that emphasizes superordinate and central characteristics. In contrast, events in the near future or past are construed in a concrete, contextualized manner that highlights subordinate and peripheral features.

2.4.3.2 Spatial distance

Spatial dimension is considered another element of psychological distance. Spatial distance refers to the perceived distance between a target and an event (Bar-Anan et al., 2006). The relationship between spatial distance and mental construal has been established in a vast number of studies. According to CLT, spatially distant events are represented in a more abstract, structured, decontextualized manner than spatially near events (Trope et al., 2007).

The relationship between spatial distance and mental construal has been established in a vast number of studies. For instance, a study conducted at New York University is quite remarkable. Students at this university constitutes the participants of the study. Upon having been shown a video, students were asked to provide details about the video in the format of a written description. Depending on the conditions, participants were told that the people in the video were either in a spatially close or a distant location. Findings indicated that, in the spatially close condition, participants used more concrete language in describing the event in the video than those who are in the spatially distant condition. Likewise, participants in the spatially distant condition used more abstract language as compared to the those in the spatially near condition (Fujita et al., 2006). Participants' written descriptions were examined using coding protocol developed by Semin and Fiedler (1988) (i.e., Linguistic Categorization Model).

In a similar study, participants watched an animated film setting up in a summer camp. Depending on the conditions, the summer camp depicted in the film are said to be located either in a spatially near or distant location. Then participants are asked to

divide an ongoing behavioral sequence into as many sections as they thought to be appropriate (see Trope et al., 2007). Findings show that participants in the spatially distant (near) condition provide fewer (many) and broader (narrower) sections as compared to those who are in the spatially near (distant) condition (Henderson et al., 2006).

It is suggested that people have weaker emotional reactions to spatially distant situations. More specifically, these reactions lack concreteness and details. Similarly, another study conducted by Williams and Bargh (2008) suggested that people's affect and judgments are influenced by perceived spatial distance. Spatial distance increases the feeling of emotional distance, in other words, lowers the intensity of emotions as compared to spatial closeness (e.g., the principle of "distance equals safety").

As it is well known, space, physically, consists of three dimensions. One can control the distance as moving farther and closer and going up and down. Based on the tenets of CLT, spatial distance can be said to have same meaning, regardless of whether a distance is pertaining to a horizontal (distance) or a vertical distance (e.g., height or altitude). However, Van Kerckhove et al., (2014) suggest that looking up or down also affect the induction of abstract or concrete mindset, respectively. More research is needed for further insights and the domain awaits novel testable hypotheses. On the other hand, intrapersonal variation is higher, but interpersonal variation is higher for spatial distance. Because the variation of judgments made from a distal perspective are rarer when they are reevaluated in a proximal perspective. However, individual differences and roles are more likely to affect downstream behavioral consequences in the spatial dimension (Lynch and Zauberman, 2007; Trope and Liberman, 2010).

Based on extensive research in the literature, events in the spatially distant location construed in an abstract and structured way that emphasizes superordinate and central characteristics. In contrast, events in the spatially near location construed in a concrete, contextualized manner with salience of subordinate and peripheral characteristics.

2.4.3.3 Social distance

One of the most studied aspects of psychological distance is social distance. It refers to the perceived social distance between the self and the social target (Bar-Anan et al., 2006). "Self" is a reference point in forming perceived distance with a social target. Since one can only experience the self directly, the feelings, thoughts and experiences

of others are construed in a continuum of psychological distance. In other words, people see themselves as closest as possible in terms of social distance, while others are placed in a continuum based on perceived psychological distance. Relatedly, it is suggested that the more distant a person to oneself, the more a behavior performed by that person is construed in an abstract manner (Bar-Anan et al., 2006). Thus, in line with other dimensions of psychological distance, CLT suggests that socially distant targets and their actions are represented in a more abstract, structured, decontextualized manner as compared to socially close targets and their actions (Trope et al., 2007).

Perceived similarity plays an important role in construal level of social distance (Bar-Anan et al., 2006). Similarity related studies in the CLT literature are abundant. For example, Liviatan, et al. (2006) studied downstream behavioral consequences of similarity, a form of social distance, in light of CLT. The less similar someone is to oneself, the more socially distant they typically perceive. In parallel with this argument, they suggested that behaviors of dissimilar other is represented at a higher level of construal and in a more abstract manner compared to behavior performed by a similar other. On the other hand, Trope and Liberman (2012) suggest that high-level construals expand our social horizons enabling us to relate to socially dissimilar people, while low-level construals guide our response to people who are similar to us.

As an important social psychological concept "power" is another form of social distance (Trope et al., 2007). Based on the argument that the psychological distance one feels from others are increased by elevated power, it is suggested that high power activation leads people to think more abstractly as compared to low-power priming (Smith and Trope, 2006), (for details that measure abstraction via a categorization task see Rosch, 1975[8]). Findings of this study also highlight that distal perspective primed by the possession of social power leads people to go beyond the information given, detecting the underlying structure, and abstracting from it superordinate, central features (Trope and Liberman, 2012).

[8] Upon completion of a writing task that prime low or high power (Galinsky, Gruenfeld, and Magee, 2003), participants completed a measure of inclusiveness of categorization (Rosch, 1975), representing to what degree atypical exemplars (e.g., purse) were good members of a given category (e.g., clothing). This task serves as a proxy of abstraction based on the breadth of categorization.

Politeness is another concept closely linked to social distance. The theory of politeness suggests that politeness both reflect and signify social distance (Brown and Levinson, 1987). Studies also suggest that greater politeness is associated with higher-level construals and with greater temporal and spatial distance (Stephan et al., 2010; Trope and Liberman, 2012). Findings in the literature also suggest that socially distant people are treated with more polite language (Liberman et al., 2007; Stephan et al., 2010) and politeness serves as a proxy of social distance and lead people to form higher level of mental representation (Boven et al., 2010; Liberman et al., 2007; Trope et al., 2007; Trope and Liberman, 2012).

In the negotiation process, studies on the role of construal levels suggests that negotiators who construed issues in a more abstract manner are more likely to find integrative agreements (Henderson and Trope, 2009). Henderson et al. (2006), on the other hand, show that individuals are more likely to reach a fully logrolling[9] agreement in a temporally distant perspective. Additionally, the enhanced reciprocal concessions made by parties with the temporally distant perspective reach a more efficient conclusion in terms of individual and joint outcomes.

Social belonging is another closely related phenomenon to social distance. It has been suggested that compared to in-group members, out-group members are described in more abstract terms, are perceived more homogeneous, and seemed to be more predictable and organized characteristics (Liberman et al., 2007; Liberman and Trope, 2008).

In the domain of health-risk perception, Yan and Sengupta (2013) suggest that people adopt case information when forming health risk perception for themselves (i.e., low-level construal), while they adopt base-rate when forming health risk perception for distant others (i.e., high-level construal).

As pointed in Table 2.7, social distance has commonalities and differences with other dimensions of psychological distance. Contrary to temporal distance, social distance has somewhat controllable, if not completely. When it comes its valence, people perceived to be distant (e.g., out-group members) are considered more negative than those who are seen distant. Additionally, because of its very nature, social distance has

[9] The process of giving in on secondary issues in exchange for getting what they want on high-priority issues is called as "*logrolling*"

higher interpersonal variation. It is also in line with the concept of "endowment effect", proposed by Kahneman et al. (1990), which clearly explains interpersonal variation in behaviors and judgments due to individual differences or the roles. For example, people in the role of sellers of an object are said to require a higher reservation price to sell than those who are in the role of buyers were willing to pay.

In summary, socially distant targets and their actions are represented in higher level of mental representations, more structured, decontextualized, with central and superordinate characteristics compared to socially close targets and their actions (Trope et al., 2007).

2.4.3.4 Hypothetical distance

Hypothetical distance refers to how likely or unlikely a target event is to occur (Bar-Anan et al., 2006). An event is not directly experienced by someone when it is possible but not certain or when it could have happened but has not actually happened. Therefore, an improbable event would be perceived more distant than a probable event. In other words, if the probability of the event is lower, the event is construed more abstract, unstructured, and in a higher level of mental representations. On the contrary, if the probability of the event is higher, the event is construed more concrete, structured, and in a lower level of mental representations (Trope et al., 2007; Wakslak et al., 2006).

The findings of an experimental study show that participants' performance on both visual noise[10] and fragmented objects[11] task was more accurate when participants are in the low probability than those who are in the high probability condition (see Wechsler, 1991).

Todorov et al. (2007) suggest that when the probability of an event is high, people tend to attach more weight to the means and feasibility-related features, and "how" aspect of the events. However, when the probability of an event is low or improbable, people tend to attach more weight to the ends, desirability related features, and "why" aspect of the events.

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[10] Snowy Pictures Test, in which subjects are asked to detect a picture hidden beneath visual noise.
[11] Gestalt Completion Test, in which subjects must detect an object presented in fragments (Ekstrom et al., 1976).

When an event is described in a more detailed manner, individuals tend to perceive that event as more likely (Gollwitzer, 1999). In parallel with this argument, another study suggests that ease or difficulty of imagination is related to the judgments of the likelihood of contracting the disease. More specifically, people who perceive the disease as easy-to-imagine perceive the disease as more likely to occur, whereas those who perceive the disease as difficult in imagining perceive the disease as less likely to occur (Sherman et al., 1985).

As pointed in Table 2.7, hypothetical distance has commonalities and differences with other dimensions of psychological distance. Similar to temporal distance, hypothetical distance also has higher intrapersonal variation, while it has relatively lower interpersonal variation (Lynch and Zauberman, 2007; Trope and Liberman, 2010).

Table 2.7 : Differences between the dimensions of psychological distance.

Distance	Controllability	Dimensionality	Valence	Intrapersonal Variation	Interpersonal Variation
Temporal	No	Unidimensional	Positive	Higher	Lower
Spatial	Yes	Tridimensional	N/A	Lower	Higher
Social	Somewhat	N/A	Negative	Lower	Higher
Hypothetical	Somewhat	N/A	N/A	Higher	Lower

Source: The Author.

In summary, events that are less likely to occur are represented in higher level of mental representations, in a more abstract, structured, decontextualized way, and with central and superordinate characteristics compared to events that are more likely to occur (Trope et al., 2007).

2.4.4 The caveats and misconceptions

Construal level theory (CLT) is a psychological theory that explains how people mentally represent and interpret events and objects. According to CLT, people can have different levels of construal, or mental representations, of the same object or event, depending on their current goals and context. However, there are some misconceptions about CLT that should be addressed.

First, it is essential to note that CLT is not a theory of decision making. While decision making may be influenced by construal level, CLT specifically focuses on how people represent and interpret events and objects in their minds. Second, CLT should not be conflated with other psychological mechanisms such as framing, perspective taking,

involvement, relevancy, and processing mode. While these mechanisms and concepts may be related to construal level to some degree, they operate at different levels of analysis, underlying mechanisms and have distinct effects on cognition. For example, framing refers to the way in which information is presented and can influence people's decisions (Tversky and Kahneman, 1981). In contrast, construal level refers to the mental representation of an object or event, which can be influenced by factors such as spatial, temporal, social, and hypotheticality distance (Trope and Liberman, 2010).

Involvement, relevancy, and processing mode (i.e., motivation) are another most salient constructs that are frequently addressed as confounding factors with psychological distance. That is, the relationship between psychological distance and construal level could be due to less involvement, relevance, or motivation to evaluate psychologically distant objects or events (Trope and Liberman, 2010). Parallelly, one can assert that people disregard specifics and think more abstractly, due to low involvement in thinking about distant future objects. However, the effects of distance on construal are not associated with measures of task involvement or deep processing (e.g., Wakslak et al., 2006). For example, Wakslak et al., (2006) suggest that people were equally attentive when performing a task in a high likelihood (i.e., proximal) and low likelihood (i.e., distal), ruling out their task involvement and motivation. On the other hand, while low involvement and shallow processing may be able to explain the lesser emphasis on low-level features as psychological distance increases, it fails to account for the findings that indicate underutilization of high-level features as psychological distance becomes proximal (Lee, 2019; Trope and Liberman, 2010).

CLT refers not only to how people represent and process information about objects, but also does it refer to the goals people pursue and the plans they make in the goal pursuit (Trope and Liberman, 2012). Therefore, it is a broad theory of cognition, motivation, and self-regulation.

Trope and Liberman (2012, p. 132) summarized the tenets of CLT as following: "*1) different distance dimensions are mentally associated, (2) distance on any of these dimensions influences and is influenced by higher levels of mental construal, and (3) the various distances are, to some extent, interchangeable in their effects on prediction, evaluation, and choice."* Thus, it can be said that the different dimensions of psychological distance are linked to each other. That is, psychological distance is a

broader concept addressing the same meaning regardless of the dimensions (i.e., temporal, spatial, social, and hypotheticality), (Trope and Liberman, 2012).

3. HYPOTHESES DEVELOPMENT

A set of research hypotheses that address the key research questions of this study were addressed in this chapter. Drawing upon an extensive review of the relevant literature, theoretical underpinnings, and empirical evidence, the rationale behind each hypothesis is outlined and their significance in expanding the existing knowledge of the domain is addressed.

First and foremost, upon conceptualizing ARM and IR as base-rate and case information, respectively, this approach offers a significant foundation for generating novel, testable hypotheses regarding consumers' intentions to adopt ARM or IR when evaluating a product or service. In essence, base-rate information refers to the broad, statistical data or likelihoods associated with a specific group or population, which offers a wider context for making decisions and evaluations (Tversky and Kahneman, 1974). It is evident that ARM aligns well with this notion, as they are composite indicators that consolidate multiple individual assessments of a product into a statistical measure (e.g., average rating). These metrics present an overarching perspective on the general sentiment, agreement, or perception of a target item, facilitating the formation of initial opinions or comparisons among alternatives for potential consumers or users (Hu et al., 2009).

Research related to base-rate neglect, on the other hand, suggest that the exemplars (i.e., case information) exceed the influence of structural, summarized accounts (i.e., base-rate information) (Brosius and Bathelt, 1994; Gibson and Zillmann, 1994). Because individuating information is more natural for people to process specific information of a particular individual than to process structural and abstract accounts. Another substantiation for this argument is that an individuating information is more related to the human perception of the non-mediated social environment. However, recent studies of exemplification cast doubt on the simple assumption of a general dominance of case information. Accordingly, base-rate information can be influential as well or have shown to be even more influential than case information (Betsch et al., 2013; Peter and Brosius, 2010). With these arguments in mind, numerous online

consumer reviews and retail platforms use an aggregate review score to summarize all customer reviews of a product, usually by calculating the average evaluations (ARM) (e.g., amazon.com, ebay.com). These scores are considered a reflection of overall consumer opinion or, in cases of a large number of reviews, an expression of popularity (Powell et al., 2017). As a result, these have an impact on consumer attitudes and purchasing decisions. However, unlike individual reviews (IR), aggregate review scores do not provide peripheral, textual indicators about the reviewers' identities and evaluative standards, making it impossible to gauge the credibility of the score itself (Ziegele and Weber, 2015). Although still influential, an ARM is likely to be less effective than an IR in influencing consumer attitudes and purchasing behavior (i.e., base-rate neglect is likely to be prevalent in the eWOM, particularly OCR domain). In line with these arguments, the first hypothesis is formulated as follows:

Hypothesis 1: Products with IFC are evaluated more favorably than AFC.

Yan and Sengupta (2013) propose a fundamental qualitative distinction between base-rate and case information. By definition, base-rate encompasses abstract, aggregated, and pallid information pertaining to a target category (e.g., "Covid-19 causes around 200 deaths in Turkey daily" or "the average evaluation of the marketing course is 8.5 out of 10 in the autumn semester of 2022"). Conversely, case information delivers unique, specific, concrete, and/or vivid details about a target. In other words, it offers a more nuanced perspective, illustrating individual instances or experiences that can evoke stronger emotional responses and create a more personal connection to the subject matter (e.g., "a beloved local teacher succumbed to Covid-19, leaving the community in mourning" or "a student in the marketing course praised the engaging teaching style and real-world examples provided by the instructor"). Following these arguments, it becomes evident that ARM aligns seamlessly with base-rate concept. This is because ARM are composite metrics that consolidate numerous individual assessments of a product or service into a statistical measure (e.g., average score). In contrast, IR, which embody the detailed experiences and feedback of individual consumers regarding a product, can be well conceptualized as a type of case information.

While base-rate neglect is well-established phenomenon in the literature, recent literature also suggests that the base-rate fallacy may not be as prevalent as previously thought. For example, Koehler (1996) argues that a thorough examination of the base-

rate literature does not support the conventional wisdom that people always routinely ignore base-rates. Instead, it is even asserted that base-rates are almost often used and that their degree of use depends on task structure at hand and representation. Lynch and Ofir (1989), on the other hand, argue that the base-rate fallacy is observed only when one combines base and case cues that lead to dissimilar judgments when each is considered alone, and the case cue is high in numerical value, reflecting high diagnosticity of the case. In particular, some other scholars in this domain also suggest that base-rate neglect may be attenuated, dissipated, and even reversed under different experimental condition (Cosmides and Tooby, 1996; Gigerenzer, 1996), or depending on people's construal level of psychological distance (Yan and Sengupta, 2013).

As an explanatory and predictive basis of the present study, construal level theory (CLT) posits that objects, events, or individuals can be perceived as either psychologically close or distant, with psychological distance varying across dimensions such as spatial, temporal, or social. The core tenet of this theory is that distant objects are characterized by abstract, high-level construals, which are based on generalized, category-level information instead of specific details. Conversely, psychologically close objects are depicted as concrete, low-level construals that emphasize specific details over generalized abstractions (Trope and Liberman, 2010; Trope, 2012). In parallel to these arguments, a considerable amount of research has shown that abstract information has a greater influence on representations and evaluations of psychologically distant (i.e., abstract) events, while concrete information has a more significant impact on psychologically close (i.e., concrete) events (Förster, Friedman, and Liberman, 2004; Liberman and Trope, 1998; Trope and Liberman, 2010). On one hand, the reliance on concrete (abstract) inputs increased as the target becomes psychologically closer (more distant) (Yan and Sengupta, 2013). On the other hand, the postulations of CLT include the notion that psychological distance is an egocentric concept, positioned relative to the self, the present, and the current location, and that the causal link between psychological distance and level of construal is bidirectional.

By merging the well-established influence of psychological distance, construal level and base-rate utilization literature with the prior distinction between base (abstract) and case (concrete) information, several logical inferences can be drawn regarding this

domain and its downstream consequences, which inform the development of our hypotheses:

> Hypothesis 2: Consumers' intention to adopt ARM-*aggregate review metrics* (vs. IR-*individual reviews*) increases when a) consumers adopt an abstract mindset (vs. concrete mindset), and b) the judgment task is psychologically distant (*vs.* relatively close).
>
> Hypothesis 3: Consumers who adopt an abstract (concrete) mindset exhibit a higher willingness to pay (WTP) for products with AFC (IFC), compared to consumers who adopt a concrete (abstract) mindset.
>
> Hypothesis 4: Consumers in an abstract (concrete) mindset are more likely to choose a product with AFC (IFC) than IFC (AFC).

The hypothesized effects are measured by operationalizing two different types of cues in an online review setting (i.e., ARM and IR), that are positioned in opposition (conflicting) to each other. The first rationale behind this operationalization is because it is aimed to create dichotomy between the valence of cue types to detect which cue types are dominant in participants' decision-making. Second, the way we operationalize the studies are also in line with the literature of base-rate utilization arguing that the base-rate fallacy is mainly observed when one combines base and case cues that lead to dissimilar judgments when each is considered alone (Lynch and Ofir, 1989).

Although hypothesis 2 rigorously test the intention to adopt cue types as a function of mental construals, yet some may argue that the empirical observations that reveals the moderating role of consumers' mental construal on WTP and choices for products or services with conflicting cues (i.e., AFC vs. IFC) lack process evidence, explicitly showing the utilization of cue types. Based on previous argument, the observed effects are more likely to arise from the degree of the utilization of cue types. Accordingly, the relevant hypothesis is as follows:

> Hypothesis 5: The relationship specified in H4 is mediated by IACT *(process evidence).*

In the e-commerce landscape, cultivating consumer trust in product evaluations is a multifaceted challenge. The nature of online shopping restricts consumers from directly interacting with products, such as inspecting and feeling them, as compared to

traditional brick-and-mortar shopping experiences. This restriction makes it difficult for consumers to accurately assess a product's value before making a purchase (Wells et al., 2011). At this point, online consumer reviews play critical role for the credibility of online commercial information (Flanagin et al., 2014). Nevertheless, the presence of fake reviews and manipulation of ratings has led to concerns about review credibility for consumers (Pooja and Upadhyaya, 2022). Consequently, online consumers often experience uncertainty in their product evaluations (Ismagilova et al., 2017), leading to purchase hesitance (Biswas et al., 2011). In order to increase consumer confidence and promote online purchases, it is essential to examine the factors that impact confidence within the e-commerce environment (Qu and Chau, 2022). On the other hand, consumers often use eWOM to decrease the perceived risk associated with making purchase decisions (Goldsmith and Horowitz, 2006). Besides, Yan and Sengupta (2013) use CLT to examine probability judgments (i.e., estimated risk likelihood), under the base-rate risk and case-specific information.

It is also suggested that the accuracy of the source of the individuating information reflects uncertainty and should have direct effects on probability judgment (Ginosar and Trope, 1980). For events where individuals possess limited prior information, they tend to depend on previously acquired associations when assessing probabilities. As a result, the construal level can directly impact their probability judgments. Construal level also has an impact on probability judgments through an *indirect* mechanism, namely, by influencing the relative impact of base versus case information on the final judgment (Yan and Sengupta, 2013).

Note that previous hypotheses address persuasion, intention to adopt cue types, WTP, and choice as the outcomes. However, as discussed above, consumers' risk likelihood estimation[12] (is an important outcome in the domain of eWOM. Because it can affect consumers' decision-making processes and downstream behavioral consequences about products or services. In other words, based on these arguments, risk assessment is also an important outcome in the process leading to downstream consequences of

[12] Estimated risk likelihood (i.e., perceived risk) refers to the level of uncertainty or concern that consumers have regarding the potential negative consequences of a purchase decision.

eWOM related to products or services with conflicting cues (i.e., AFC vs. IFC). Hence, the next hypothesis is formulated as follows:

> Hypothesis 6: Estimated risk likelihood of the product with IFC (AFC) increases (decreases) when consumers adopt abstract mindset compared to when consumers adopt concrete mindset. Likewise, estimated risk likelihood of the product with IFC (AFC) decreases (increases) when consumers adopt concrete mind-set compared to when consumers adopt abstract mind-set.

In the context of OCR, heightened confidence enables consumers to perceive their evaluations of product value as accurate and reliable, suggesting that these assessments can appropriately inform subsequent behaviors. As a result, enhanced confidence may have a direct influence on purchase decisions (Qu and Chau, 2022). In support of this, perceived risk has a significant negative influence on consumer online purchase intention (Ariffin et al., 2018). Accordingly, pertaining to products or services with conflicting cues (i.e., AFC vs. IFC), the following hypothesis is formulated:

> Hypothesis 7: Estimated risk likelihood of a product negatively affect behavioral intention to purchase the product.

As an inevitable outcome of the preceding two hypotheses, and in line with prior literature that aims to uncover the underlying mechanisms through which construal level influences downstream behavioral consequences (Yan and Sengupta, 2013), it is probable that the estimated risk likelihood (ERL) serves as a key mechanism in this process. Therefore, following hypothesis has generated in an attempt find a plausible answer as to whether it is likely that consumers' risk likelihood estimation might be an underlying mechanism of the base-rate fallacy observed in online review platforms:

> Hypothesis 8: The effects specified in hypothesis 3 is mediated by estimated risk likelihood (i.e., an underlying mechanism).

Providing individuals with specific information before making decisions can aid in mitigating cognitive biases and fallacies to some degree (Loewenstein et al., 2014). Information nudges, such as reminders or warnings, strive to offer relevant, comprehensible, and timely data to assist people in making improved decisions. These nudges can counteract numerous cognitive biases and fallacies, including the availability heuristic, anchoring, confirmation bias, the representativeness heuristic, and the base-rate fallacy (Loewenstein et al., 2014). More specifically, individuals

inclination toward base-rate neglect is mitigated by increasing the salience of base-rate information (Bar-Hillel and Fischhoff 1981; Lynch and Ofir 1989). In parallel with this argument, a simply reminder or warning about base-rate neglect, highlighting ARM and IR as a base-rate and case information, respectively can eliminate base-rate bias.

> Hypothesis 9: Base-rate nudge moderates the moderation of mental construal on the relationship between cue types and estimated risk likelihood such that upon providing a simply reminder of what base-rate fallacy is (i.e., base-rate nudge) the base-rate neglect is eliminated: a) base-rate nudge reverse the effect of cue types on estimated risk likelihood for people in concrete mindset b) base-rate nudge decreases (increases) the estimated risk likelihood of AFC (IFC) for people in abstract mindset, compared to when base nudge is not present.

> Hypothesis 10: Base-rate nudge moderates the moderation of mental construal on the relationship between cue types and behavioral intention such that upon providing a simply reminder of what base-rate fallacy is (i.e., base-rate nudge) the base-rate neglect is eliminated: a) base-rate nudge reverse the effect of cue types on behavioral intention for people in concrete mindset, b) base-rate nudge increases (decreases) behavioral intention toward AFC (IFC) for people in abstract mindset, compared to when base nudge is not present.

If estimated risk likelihood is one of the primary underlying mechanism leading utilization or under-utilization of ARM (e.g., base-rate neglect in eWOM) depending on people's mental construal in online review setting, we would not have observed such mediation effect of ERL, when base-rate nudge is present. Thus, the last hypothesis of this study is formulated as follows.

> Hypothesis 11: The indirect effect of cue types on behavioral intention through estimated risk likelihood will be moderated by both mental construal and base-rate nudge, such that the effect of cue types (i.e., AFC and IFC) on behavioral intention mediated by estimated risk likelihood when base-rate nudge is not present. In contrast, we expect no mediation through estimated risk likelihood when base-rate nudge is present. (i.e., boundary condition for the specified model in hypothesis 7).

In this chapter, the rationales behind the formulation of hypotheses are explained. The subsequent chapter will discuss the methodology and results, referencing the hypotheses established in this chapter. A summary of the hypotheses and their corresponding studies can be found in Table 3.1.

Table 3.1 : The hypotheses and their corresponding studies.

Hypotheses	**Study**
Hypothesis 1	Study 1
Hypothesis 2	Study 3a, 3b
Hypothesis 3	Study 4
Hypothesis 4	Study 5
Hypothesis 5	Study 5
Hypothesis 6	Study 6
Hypothesis 7	Study 6
Hypothesis 8	Study 6
Hypothesis 9	Study 6
Hypothesis 10	Study 6
Hypothesis 11	Study 6

4. METHODOLOGY & RESULTS

This thesis comprises eight main studies and used various methods including qualitative, survey and experimental research designs. In this chapter, methodology and results of the studies is addressed in detail. Experimental studies are addressed under the subtitles of procedure, manipulation checks, and the results.

Study 1 (n = 106) investigates consumers' utilization of conflicting cues (IFC vs. AFC) in eWOM platforms, indicating base-rate neglect phenomenon prevalence in online consumer reviews. Study 2a, a two-stage qualitative research (n = 34), compiles a list of elements influencing consumers' adoption of cue types (ARM and IR). Study 2b (n = 50) assesses the reliability and validity of the scale developed in Study 2, with a separate survey. Studies 3a (n = 104) and 3b (n = 96) are scenario-based experiments examining the impact of mental construal on consumers' intention to adopt ARM and IR when both cue types are salient with manipulating mental construal both externally and on the basis of social distance, respectively. Study 4 (n = 162) investigates the role of mental construal on consumers' willingness to pay (WTP) for products with AFC and IFC cues. Study 5 (n = 110) extends previous findings by incorporating choice as the dependent variable and intention to adopt cue types as the mediating variable, providing more nuanced, process-based evidence. Lastly, Study 6 (n = 264) is designed to addresses the underlying mechanisms in the lens of two research questions 1) whether consumers' estimated risk likelihood underlies the base-rate fallacy in online review platforms, and 2) whether base-rate fallacy can be mitigated or eliminated through interventions or nudges. An overview of the studies can be found in Table 4.19 at the end of this chapter.

4.1 Study 1: Base-rate Neglect and the Underutilization of the Aggregated Review Metrics

The aim of this study is to examine how consumers differentially utilize cue types in eWOM platforms, particularly in the presence of conflicting cues (i.e., positive IR and negative ARM: hereafter IFC; positive ARM or negative IR: hereafter AFC). In line

with this aim, study 1 examined whether IFC or AFC are more persuasive for consumers when both types of the cues are salient (hypothesis 1). In an attempt to provide initial evidence in the scope of this research program, first, the persuasiveness of AFC (i.e., a pair of favorable base-rate and unfavorable case information) versus IFC (i.e., a pair of favorable case information and an unfavorable base-rate) is tested. Contrasting the cue types in a single instance for an operationalization procedure enables us to detect the possible utilization or underutilization of the cue types (ARM vs. IR). The basic model of the study can be seen in Figure 4.1 below.

Notes. Risk Aversion is included as a control variable in the model.

Figure 4.1 : Conceptual model of the study 1.

4.1.1 Procedure

Study 1 was conducted online at a European university with 121 students (49.1% female; M_{Age} = 20.71 years, SD_{Age} = 1.59). Students participated in the study in return for course credits. They all are active online shoppers. Participants are told that the aim of the study was to evaluate their behavioral tendencies in an online shopping setting. The identities of the participants were completely anonymous in order to make sure that they were comfortable with the study.

The study employed a 2 group (Cue type: AFC vs. IFC) between-subject design. Participants were randomly assigned to one of the two conditions Accordingly, participants read a brief, generically positive (vs. negative) product review about a restaurant with an average rating and an individual evaluative score of the product. In the AFC condition, participants read the restaurant review with a 4.3/5 average score rated by more than 500 reviewers and a negative individual review. Similarly, in the IFC condition, participants read the restaurant review with a 3.0/5 average score rated by more than 500 reviewers and a positive individual review. After viewing the reviews, participants responded to six questions, indicating their attitudes toward the product and their intentions to purchase. Next, all respondents listed at least one thought about what influenced their attitude and behavioral intention that they just formed and decided. (i.e., “In the form below, please list at least one reason why you

decided to choose that option"; open-ended). Then, as a motivation check, participants were asked to indicate how involved they were while answering the questions about their attitude toward product and behavioral intentions, as well as how much thought they had put into them. As a manipulation check, participants also rated the valence of two cue types, separately (e.g., ARM, IR) (1 = "not at all positive," and 9 = "very positive"). Lastly, they were asked to complete a set of items measuring their risk aversion tendencies and manipulation checks. Throughout the procedure attention checks are randomly placed in the relevant positions on the survey interface without interrupting the task and flow.

The dependent variable (DV), persuasiveness of the cues, was measured by adapting a well-established attitude and behavioral intention scale used by Griskevicius et al. (2009) to fit the context of our study. Specifically, they first answered three nine-point questions regarding their attitudes toward the product ("bad/good," "unfavorable/favorable," and "negative/positive"), (α = 0.95). After that, they answered three nine-point behavioral intentions questions with endpoints "not at all" and "very much" regarding (1) the extent to which they were interested in finding out more about the product (2) how likely they were to consider buying it, and (3) how likely they were to actually buy it (α = 0.96). A composite score by averaging responses to the six items was calculated (α = 0.95).

To rule out an alternative explanation that findings might be due to risk aversion and motivation to process information, first participants rated the risk aversion (RA) scale (α =. 0.66) (Donthu and Gilliard, 1996), consisting of three five-point Likert-type questions (1 = Strongly disagree, 5 = Strongly agree). Next, the motivation check (α = 0.87) was measured using two seven-point items (1 = Not at all, 7 = Very much) adopted from Yan and Sengupta (2011). The conceptual model of the study, including persuasion as a DV and cue types as an IV can be seen in Figure 4.1.

4.1.2 Manipulation checks

As expected, those in the aggregate favored cue condition (AFC), participants reported that the ARM was more positive than in the individual favored condition (IFC) (M_{AFC_ARM} = 4.47, M_{IFC_ARM} = 3.45; $F(1, 104) = 14.28$, $p < .001$). Similarly, those in the individual favored cue condition, participants reported that the IR was more

positive (M_{AFC_IR} = 2.38 M_{IFC_IR} = 4.79; F(1, 104) = 80.71 p < .0001) than in the AFC. These results clearly indicate that our manipulation of cue valence was successful.

4.1.3 Results

In total, 15 respondents were eliminated from the sample based on attention checks. The remaining 106 respondents were included in the analyzes. The three-item attitude and the three-item behavioral intentions scale showed a similar pattern (α_{ATT}= .95; α_{BEH} = .96; r = 0.84, p < .0001, Table 4.1), and are combined as a persuasion index. It served as a DV in the analyses.

Persuasion. First, risk aversion was controlled for as a covariate to rule out the alternative explanation. Because individuals those who are more risk averse might be influenced more heavily from negative words per se, compared to people who are less risk averse. In other words, if a potential threat negative phrases signal was present, it would likely lead people with higher risk sensitivity to form negative attitude toward AFC, which in turn a systematic bias would be a potential concern for the study. To test the hypothesis 1 one-way analysis of covariance (ANCOVA) test was performed by including risk aversion as a covariate in the model. As expected, the results show that people in the IFC condition were more persuaded than those people in the AFC condition (M_{IFC} = 5.07 vs. M_{AFC} = 4.12 F(1, 103) = 7.03, p < .01, η^2 = 0.64), (Figure 4.2 and 4.3). Thus hypothesis 1 was supported.

Lastly, all attitudinal and behavioral components of the persuasion index, as well as descriptive statistics and reliability of constructs used in Study 1, can be found in Table 4.1, which provides a detailed description of the constructs.

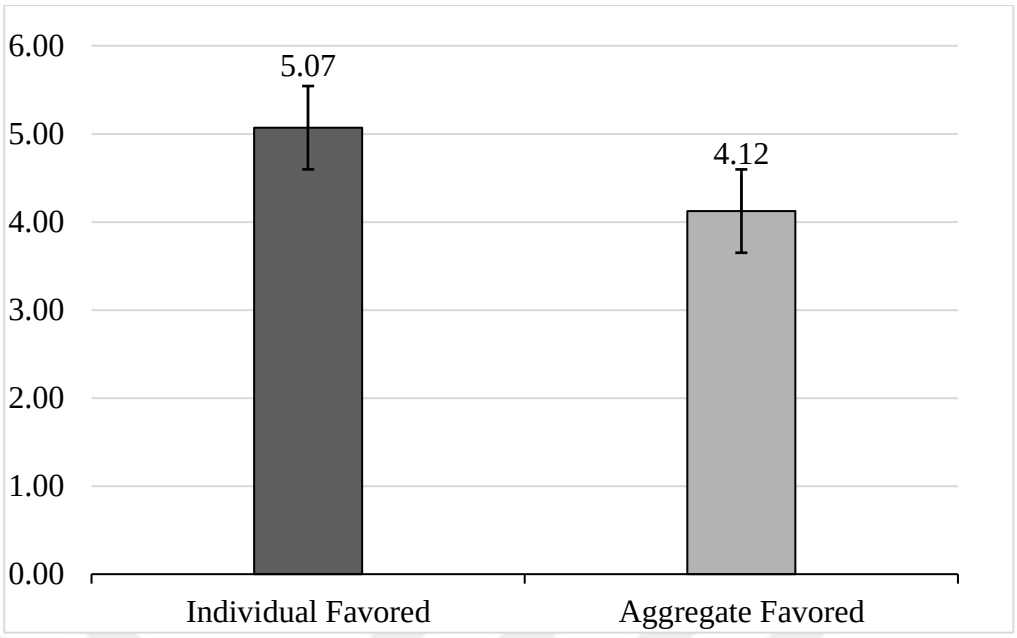


Figure 4.2 : Persuasion as a function of the cue type.

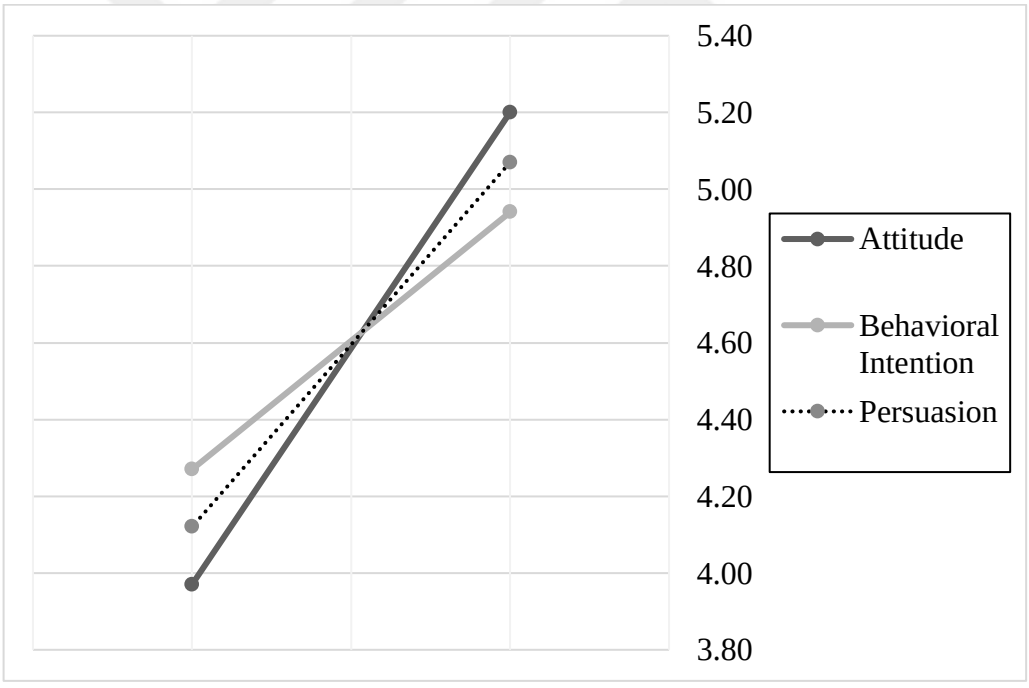


Figure 4.3 : Attitude and behavioral intention as a function of the cue type.

Motivation check. Lastly, if the observed effect in this study were driven by a higher level of processing motivation, the motivation index would indicate such bias about processing style (Yan and Sengupta, 2013). However, there was no significant difference on this measure ($F < 1$), indicating the alternative account was not at play.

Table 4.1 : Descriptive statistics and reliability of constructs of study 1.

Construct	Item	Mean	Std. Dev.	Skewness	Kurtosis	CA
Risk Aversion	I would rather be safe than sorry.					
	I want to be sure before I purchase anything.	5.61	0.96	-0.86	1.53	0.61
	I avoid risky things.					
Attitude	Bad - Good.					
	Unfavorable - Favorable.	4.58	2.05	-0.11	-0.79	0.95
	Negative Positive.					
Behavioral Intention	To what extent do you interested in finding out more about the product?					
	How likely do you consider to buy the product?	4.61	2.19	-0.22	-1.06	0.96
	How likely do you actually buy the product?					
Persuasion	A Linear Combination of the					
	Items in the Attitude and Behavioral Intention Scales.*	4.6	2.03	-0.16	-0.92	0.96

* Persuasion Index = 0.5*Attitude + 0.5*Behavioral Intention.

Table 4.2 : Demographics of study 1.

Demographics	Item	Freq.	%	Cumulative Percentage
Gender	Female	52	49.1	49.1
	Male	51	48.1	97.2
	Not prefer to say	3	2.8	100
Age	18	5	4.7	4.7
	19	17	16	20.8
	20	33	31.1	51.9
	21	25	23.6	75.5
	22	11	10.4	85.9
	23	8	7.5	93.4
	24	4	3.8	97.2
	25	3	2.8	100
Education	Bachelor student	106	100	100
Online shopping frequency	Several times in a year	17	16	16
	Once in a every two or three months	9	8.5	24.5
	Once in a month	33	31.1	55.6
	Several times in a month	20	18.9	74.5
	Almost every week	5	4.7	79.2
	Almost every day	22	20.8	100

All descriptive statistics including skewness and kurtosis and Cronbach alpha value of the constructs used in study 1 are shown Table 4.1 above. Similarly, as can be seen in Table 4.2, demographics of the study consist of bachelor student aged between 18-25, and as expected for the target group, 75% of participants report that they shop online at least once in a month or more frequently.

4.2 Study 2a: In-depth Interviews

The objective of this study is to investigate the specific factors in OCR platforms that determine consumers' choice to use either aggregate review metrics (ARM) or individual reviews (IR) when making decisions (i.e., ARM vs. IR). To examine the underlying factors related to eWOM cues influencing their preference for one over the other, a qualitative study is conducted.

This study performed a two-stage qualitative study (e.g., a modified version of the method used in Varnali and Cesmeci, 2022). In the first stage, 24 subjects participated in the study (50% female; Mage = 38.5 years). The data were collected with convenience sampling. First, the participants were asked to explain a list of elements on which they based their intention to adopt the review types in consumer decisions (i.e., ARM and IR). Next, two research assistants familiar with the OCR literature reviewed the phrases participants reported separately and coded the distinct and most generalized dimensions/categories based on the words that appeared most frequently. Then, each transcript was considered on its terms and coded. Next, the entire transcripts were reviewed and compared to look for expressions with similar meanings and the elements implicit in the transcripts. Finally, a list of mutually exclusive elements was compiled. The initial inter-rater agreement was 89%. They resolved disagreements through discussion, resulting in a list of 6 items.

In the second stage, another sample of 10 was recruited (MAge: 34, 60% female, frequent online shoppers) and was taken through the same steps. However, this time, they were shown the list of elements compiled in the first stage of the study and were asked to evaluate the list of items in terms of wording, semantic structure, and general adequacy. Next, the research team interviewed the respondents to assess if the items were understood as anticipated. Minor wording adjustments were applied to the items based on the interviews. Based on the final list of items, a six-item bipolar scale was developed to measure the intention to adopt review types in consumers' decisions.

4.2.1 Key concepts labelled in study 1

The distinct and semantic categorization of concepts in Study 2a also aligns with relevant literature. These are helpfulness, informativeness (i.e., usefulness), persuasiveness, importance for purchase intention, credibility, and diagnosticity. Of note, these constructs may be an antecedent or consequences of each other. However,

given the high correlation between the constructs and the question of interest of this qualitative study, the key concepts addressed under the proposed concept as intention to adopt cue types (IACT).

4.2.1.1 Helpfulness

Online platforms such as Amazon allow readers to give helpful votes to reviews posted by reviewers. Consumers are more receptive to and influenced by reviews that are perceived to be more helpful (Zhu et al., 2014; Schuckert et al., 2016). Websites that identify and indicate helpful reviews achieve higher consumer attention and stickiness (Yin et al., 2014).

A great deal of research has investigated factors that affect online review helpfulness. These factors include both review-related (i.e., IR) and rating-related factors (i.e., ARM) such as review length (e.g., Forman et al., 2008; Salehan and Kim, 2016), rating valence (e.g., King et al., 2014; Pan and Zhang, 2011; Racherla and Friske, 2012).

Review helpfulness describes the perceived value of a review to its readers and measures consumers' evaluation of a review. However, perceived helpfulness is dependent on the goal consumers pursue. For example, for consumers whose goal is to obtain information about a product/service, a cue would be perceived as helpful to the extent that it serves this end goal.

In this in-depth interview, the words and phrases used by the participants, including but not limited to “helpful, support my decision-making, contribute to” are coded under helpfulness.

4.2.1.2 Informativeness

One of the elements that affect consumers in an online shopping setting is informativeness. Consumers read online reviews and consider ratings a source of information about a product or service. In some respect, consumers rely more on information conveyed by reviews and ratings rather than firms’ official websites or owned media platforms (Ngarmwongnoi et al., 2020; Ozanne et al., 2019; Rynarzewska, 2019). In other words, consumers may deem OCR less biased than a marketing message (Hennig-Thurau et al., 2003).

In this in-depth interview, the words, and phrases such as when searching for a product, illuminating, information, misleading, message, and signal are generally categorized under the "informativeness" concept by coders.

4.2.1.3 Persuasiveness

Almost all (98%) consumers in an online setting reported that they read peer generated content such as reviews before deciding on products (Freedman, 2008). Nevertheless, offering online peer reviews is likely insufficient to attract and retain consumers. The quality of arguments, and presentation formats of the cues are also Therefore, marketing professionals should ensure not only that customers share their reviews with other customers, but also that these reviews are presented with persuasive arguments and formats in line with customers' processing styles.

According to Perloff, "Persuasion is a symbolic process in which communicators try to convince other people to change their attitudes or behaviors regarding an issue through the transmission of a message in an atmosphere of free choice." (2010, p. 12). More comprehensively, persuasion is a process of attitude formation involving cognitive (i.e., beliefs), affective (i.e., emotions and feelings) and behavioral dimensions (Cesmeci, 2017). In accordance with this definition, the study classifies phrases like attitude toward a product and, words and phrases such as feeling, sense, thoughts, belief, attraction, and influence, among others, under the umbrella of the persuasiveness concept.

4.2.1.4 Credibility

Online reviews may play an important role in consumers' decision-making processes. However, it cannot be concluded that all positive (negative) online reviews influence consumers positively (negatively). Because consumers consider the credibility of OCR as another important element in form attitude toward OCR (Kim and Kim, 2020). Prior studies also support this argument in the context of the online consumer reviews (Evrard and Krebs, 2018; Koiso-Kanttila, 2005).

Credibility in eWOM refers to the perceived trustworthiness and reliability of online consumer reviews or recommendations. In the context of eWOM, credibility is crucial as it influences how potential customers perceive and react to the information shared by others on various platforms. A credible eWOM message has a higher likelihood of

positively impacting consumer behavior and decision-making processes. Factors that contribute to eWOM credibility include the reviewer's expertise, objectivity, and the quality of the review content, and format.

Credibility is also related to the concept of authenticity and, in this sense, refers to an object's originality, sincerity, genuineness, reality, or truthfulness (Lu et al., 2015). In the same way as the concept credibility, the authenticity of eWOM cues, is associated with consumers' subjective evaluations and perceptions, rather than a direct measure of the reality of those cues (Chakraborty and Bhat, 2018). In parallel, the credibility construct was conceptualized as a perception of authenticity based on the idea that it is "*a social construction that may change due to different evaluators' perceptions and interpretations of the place, situation, person, or object.*" (Grayson and Martinec, 2004, p. 298). In parallel with this argument, consumers are expected to judge the credibility of the reviews or ratings based on their perception, regardless of the inherent accuracy of the reviews.

The words and phrases including "credible, veracity, valid, realistic, authentic, not misleading, genuine, true, truthful, credible, accurate, believable, not fake" are generally categorized under the "authenticity" concept by coders.

4.2.1.5 Importance in purchase intention

Purchase intention can be defined as an individual's willingness and readiness to given purchase behavior. The theory of planned behavior suggests that people's intention is an immediate antecedent of real behavior. The theory modelled human behavior as a function of behavioral intention (Ajzen, 1991; 2002). Similarly, purchase intention is a strong predictor of actual purchase.

Based on the extant literature, the concept of purchase intention strongly correlates with the concepts addressed in this study. Nevertheless, based on the qualitative study and relevant literature, this concept is included as an important element for the proposed concept (i.e., intention to adopt cue types, IACT).

The words and phrases, including but not limited to "important/dominant role in my purchase decision, buying decision, the importance for my decision, base my judgment on…" are categorized under the "importance for purchase intention" concept by coders.

4.2.1.6 Diagnosticity

Cue diagnosticity is a well-established concept in the realm of consumer behavior and refers to the extent to which a particular cue can accurately predict people's evaluation about or choice of a target. According to the *cue utilization theory*, consumers rely on certain cues or features of a product to make evaluations or choices (Bettman et al., 1998). The diagnosticity of a cue depends on several factors, including the relevance of the cue to the decision-making task, the variability of the cue across products, and the consistency of the cue with other available information (Johnson and Russo, 1984).

Cues related to a target are defined as more diagnostic when they lead to higher perceived probabilities that the target belongs to one category and to lower perceived probabilities that the target belongs to alternative categories in people's mind (Skowronski and Carlstoni 1987). In other words, ARM or IR that signals relevancy is considered to be more diagnostic.

Similarly, in the context of online consumer reviews, a novel conceptualization is offered about cue diagnosticity suggesting that it refers to the extent to which type of cues provide accurate signals about a product's attributes, features, or value proposition that significantly influences consumers' decision-making task. Both individual reviews and aggregate review metrics can provide valuable diagnostic signals about a product's attributes and features that are important to consumers. However, the diagnosticity of these cues are suggested to depend on different contextual factors (Johnson and Russo, 1984).

It is noteworthy to address an important distinction between the concepts of cue importance and cue diagnosticity. In the context of this study, while cue importance and cue diagnosticity are related, they are not interchangeable concepts. A cue may be important but not diagnostic, depending on the context and the individual's decision-making criteria. Not all cues may be equally diagnostic for all consumers or all decisions. For instance, ARM such as product ratings may be highly diagnostic when making a decision about a product's overall quality, but IR may provide more detailed information about specific features or use cases (Hu et al., 2012). Understanding the differences between these concepts can also help practitioners and researchers identify which cues are most relevant for a particular decision and develop effective communication strategies.

It is also important to clarify another potential misconception concerning cue diagnosticity and adoption. Despite each concept is cognate with the another, they are addressed as a different and distinct element in OCR literature (e.g., Filieri, 2015). In line with the literature and conceptual proposition of the present study, information/cue adoption is considered as an overarching component that also encompasses the cue diagnosticity. In other words, present study address cue diagnosticity as a sub-component of information/cue adoption (i.e., IACT).

Table 4.3 : Exemplary quotes from study 1.

When purchasing a product online, either review or ratings convince me depending on the situation. Sometimes, a review can change my attitude toward a product or service. I especially utilize individual reviews to get detailed information about the product. Reviews with photos are very important to me for the products like clothes and apparels, particularly. Also, both rating and reviews help me make a purchasing decision.
Ratings and reviews play an important role in my purchase decision of products with an unknown brand. Ratings and reviews are very helpful in my decision process, especially for the products that I have not experienced before, whose brands I do not familiar, and services such as hotels/restaurants. It also supports my decision-making when I am torn between two products.
When searching a product, I sort it by popularity and star ratings. Both ratings and reviews influence me. Then, just before purchasing, I examine the recent comments in detail and make a decision accordingly. But if I had to choose one, I would say that the star ratings definitely attract me and change my attitude toward a product in a positive way.
Sometimes the ratings and sometimes the reviews can be misleading. For instance, some people don't want to make an effort to review products. Just rate them and get it over with... Because rating is easy. Just one click. Even at this time, there may be a mistake. I once accidentally clicked on 1-star while rating a product and I couldn't undo this action. It remained so. For example, this has been misleading information for customers.
Sometimes there are some very weird things in the reviews. Some people are malcontent and exaggerate the situation to get more benefits. In other words, not all products or services with negative reviews may turn out to be bad. So, the veracity and authenticity also matter.
The dominance of both factors, that are star ratings and reviews, on my decision certainly vary depending on the context. Sometimes the stars ratings and sometimes the reviews can be more illuminating for me. But I think, the reviews influence me more. Because I can sense the feelings about customer experience, and this influence my actions. It is also not unusual for me to make a decision by synthesizing both ratings and reviews.
Online reviews can change my decision. But I usually don't attach much weight to what people post as a review. I generally make a decision based on star ratings. I believe it is much more valid and realistic. Because ratings are an aggregated opinion of crowds. One can err, but wisdom of crowd…
For me, star ratings or product scores are indicative of overall performance of a product. I think the ratings are mostly more relevant to my decisions. Because some individuals may deliberately misinform others for some reasons. However not everyone does it. But I must acknowledge that I learn much about a product both from reviews and ratings. I think it something to do with trade-offs and risk evaluations. It changes depending on the situation.

In this qualitative study, the words, and phrases; including but not limited to "relevant, useful, an indicator to, revealing, serving as a proxy" are categorized under the "diagnosticity" concept by coders.

All key concepts extracted from this qualitative study will be presented in an appropriate scale format in the subsequent sections of the thesis. Exemplary quotes extracted from the records of the qualitative study is presented in a brief format in Table 4.3.

In the following section, the concepts extracting from this qualitative study will be tested in terms of reliability and validity. This scale can be served as a DV and process evidence in certain studies of the present research. By doing so, the aim was to corroborate our theoretical position, findings, methodology of the study as well as to introduce a novel scale contributing to the literature and guiding future research in this domain.

4.3 Study 2b: Scale Test

4.3.1 A pilot test

Prior to exploratory and confirmatory factor analysis, a pilot study was conducted with 15 participants via the online survey tool Qualtrics. Although the forward-translations and back-translation methods adapted the original experimental tasks into Turkish, the tasks were checked in the pilot study in terms of wording, semantic structure, and general adequacy. In addition, several wording (e.g., authenticity is changed as credibility) were revised upon collecting the data in light of participants' feedback and discussion with experts in this domain.

4.3.2 Exploratory factor analysis (EFA)

A separate study was designed to test the consistency and reliability of the scale. Fifty participants from a European university (52% female, M_{Age} = 24.86, SD = 5.50) were participate in the study, in return for extra credits. Additionally, the base level (i.e., default level) of the construct “intention to adopt the cue types” without a mental construal manipulation was tested. In doing so, descriptive baseline scores are provided using this novel scale. However, this study should be carefully interpreted because the participants’ chronic construal level is mixed.

The list of items is also shown in Table 4.4. The IACT scale consists of a 101-point, 6-item bipolar measure (0 = intention to fully adopt ARM, 100 = intention to adopt IR for each item in question fully). More specifically, higher scores indicate that IR is

dominant, while lower scores indicate that ARM is dominant for adoption when making a judgment about a target.

Table 4.4 : Factor loadings of the items representing the ıntention to adopt cue types (IACT).

Items	**Factor Loadings**
1. Informativeness	0.89
2. Persuasiveness	0.90
3. Importance in Purchase Intention	0.96
4. Credibility	0.94
5. Diagnosticity	0.94
6. Helpfulness	0.93
Eigenvalue	**5.14**
Cumulative variance explained (per cent)	**85.68**
Cronbach's alpha	**0.96**

An exploratory factor analysis on the 6-item was performed. Bartlett's test of sphericity was significant ($p < 0.001$), and the Kaiser–Meyer–Olkin measure of sampling adequacy was 0.90. The 6-items were then subjected to principal components analysis with Varimax rotation. As expected, all items were successfully grouped into a single (i.e., IACT) dimension. As shown in Table 2, the factor loadings were significant ($p < 0.001$) and higher than 0.88 (all items are higher than 0.50; see Tabachnick and Fidell, 2001). No item had cross-loadings. Cronbach's alpha value of the scale is 0.96.

On the other hand, as expected, the results provide initial evidence concerning the base-rate neglect phenomenon in the online consumer reviews. In the absence of mental construal manipulation, people tend to adopt IR compared to ARM (see Table 4.5 for detailed descriptive statistics, $M_{IACT} = 78.66$, which is higher than the midpoint of the 101-point IACT scale).

Table 4.5 : Descriptive statistics of the intention to adopt the cue types (IACT).

	Helpfulness	Informativeness	Persuasiveness	Importance	Credibility	Diagnosticity	Summated IACT
MEAN	76.96	82.76	80.14	75.92	72.64	73.22	**78.66**
SD	21.25	15.68	15.68	22.44	24.16	20.42	**18.39**
MİN.	17	37.00	20.00	20.00	6.00	20.00	
MAX.	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	

4.3.3 One factor confirmatory factor analysis (CFA)

After EFA, a confirmatory factor analysis (CFA) was performed. Modification indices revealed that there are significant covariances among the error terms for helpfulness, informativeness, and persuasiveness. Allowing covariances between the error terms in question results in a significant improvement in model fit indices. Besides, it quite logical and acceptable that helpfulness, informativeness and persuasiveness are three highly related concepts in the literature. It is well-established that reviews being helpful influences consumers' decisions compared to the review being perceived less helpful (Chevalier and Mayzlin 2006; Schlosser, 2011). Argumentation density and diversity (i.e., informativeness) has a positive impact on helpfulness (Willemsen et al., 2011). In support of this argument, a vast number of studies also suggest that quality of information can influence perceived helpfulness of eWOM (Cheung 2014; Park and Kim 2008; Robinson et al. 2012). Based on these strong methodological and theoretical arguments, the model allowed for the covariances between the observed variables in question. The model fit indices indicate an excellent fit between the model and data (Cmin/df = 0.79; GFI = 0.97, CFI = 1.00, RMSEA = 0.000).

The results of CFA indicate that the relationships between IACT (the observed variable) and six latent variables: helpfulness, informativeness, persuasiveness, for purchase intention, credibility, diagnosticity. The maximum likelihood estimates for the regression weights, standardized regression weights, and squared multiple correlations were obtained.

The unstandardized regression weights indicate the strength and direction of the relationships between IACT and the observed variables. The results show significant positive relationships between IACT and all six variables ($p < .001$): diagnosticity (B = 1.042, SE = 0.1, CR = 10.451), credibility (B = 1.246, SE = 0.116, CR = 10.731), importance for purchase intention (B = 1.195, SE = 0.102, CR = 11.656), persuasiveness (B = 0.841, SE = 0.077, CR = 10.943), informativeness (B = 0.678, SE = 0.071, CR = 9.568), and helpfulness (B = 1, fixed parameter). Also, the standardized weights were for diagnosticity (β = 0.945), authenticity (β = 0.954), importance (β = 0.985), persuasive (β = 0.814), informative (β = 0.801), and helpful (β = 0.871) were also obtained (Table 4.6). Thus, the model demonstrated significant positive relationships between the IACT latent and all six observed variable(s), with the strongest relationships being with the items of importance in purchase intention, credibility, and diagnosticity, respectively.

Table 4.6 : Regression coefficients of the model.

Item	**Path**	**Factor (Latent)**	β_0	β_1	**S.E.**	**C.R.**	***p***
Informativeness	<---		0.801	0.678	0.071	9.568	<0.001
Persuasiveness	<---		0.814	0.841	0.077	10.943	<0.001
Importance in Purchase Intention	<---	IACT	0.985	1.195	0.102	11.656	<0.001
Credibility	<---		0.954	1.246	0.116	10.731	<0.001
Diagnosticity	<---		0.945	1.042	0.1	10.451	<0.001
Helpfulness	<---		0.871	1			

Notes. β_0 and β_1 denote standardized and unstandardized regression coefficients, respectively.

To test convergent validity, composite reliability (CR) and average variance extracted (AVE) are calculated (Fornell and Larcker, 1981), using the formulas shown in the figures (Figure 4.4 and Figure 4.5).

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \epsilon_i)}$$

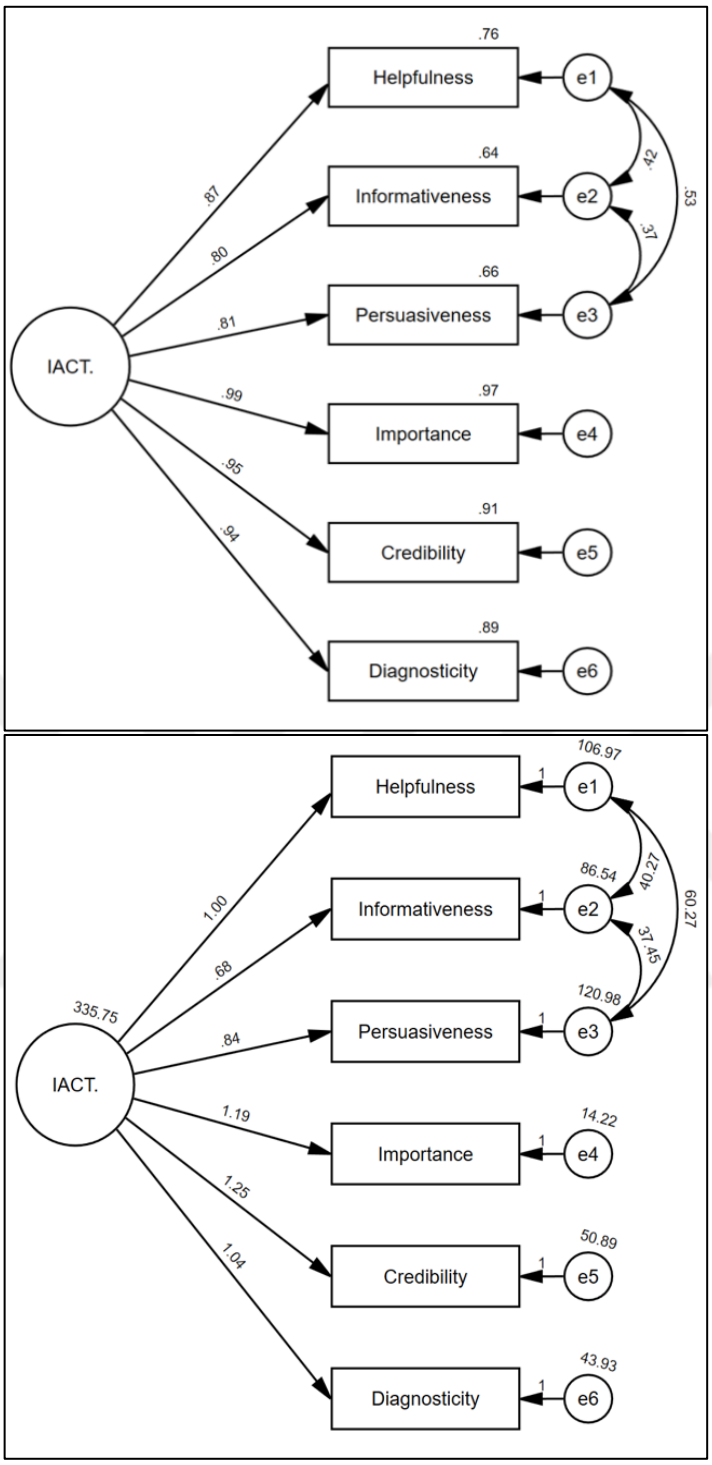
Figure 4.4 : Composite reliability formula.

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum_i \text{var}(\varepsilon_i)}$$

Figure 4.5 : Average variance extracted formula.

The squared multiple correlations indicate that the proportion of variance in the observed variables is explained by the latent IACT construct. The values are presented as follows: diagnosticity ($R^2 = 0.892$), credibility ($R^2 = 0.911$), importance for purchase intention ($R^2 = 0.971$), persuasive ($R^2 = 0.662$), informative ($R^2 = 0.641$), and helpful ($R^2 = 0.758$). Standardized and unstandardized coefficients in the measurement model are presented in Figure 4.6.

AVE values for each factor significantly surpass (well above) the threshold of 0.50, while the composite reliability (CR) values for all factors exceed the 0.80 benchmark. Collectively, it is shown in Table 4.7 substantiates that the convergent validity and internal consistency of the measurement items (Hair et al., 2010), (see also Table 4.8).



Notes. Standardized and unstandardized coefficients in the measurement model are presented in left and the right side, respectively.

Figure 4.6 : Measurement models of IACT (CFA).

Table 4.7 : Regression coefficients of the model.

Items	Loading	AVE	CR	CA
Intention to Adopt Cue Types		0.81	0.96	0.96
Informativeness	0.80			
Persuasiveness	0.81			
Importance in Purchase Intention	0.99			
Credibility	0.95			
Diagnosticity	0.95			
Helpfulness	0.87			

Notes: AVE: Average variance extracted. CR: Composite reliability. CA: Cronbach's alpha. χ^2/df ratio = 0.79, GFI = 0.97, CFI = 1.00, RMSEA=0.00; suggesting a perfect goodness-of-fit (Browne and Cudeck, 1993; Hair et al., 2010). Multivariate normality assumption was met (Multivariate *C.R.* < 10, Hair et al., 2010).

Table 4.8 : Acceptable level of model fit indices.

Indicator	Reference Value
Cmin/df (Chi-Square/df)	<3 Acceptable ; <5 Reasonable
CFI (Comparative Fit Index)	≥0.97 Good, ≥0.97 Acceptable
GFI (Goodness-of-Fit Index)	≥0.90 Good, 0.89-0.85 Acceptable
RMSEA (Root Mean Square Error of Approximation)	<.05 Good, 0.05-.10 Reasonable; >0.10 Poor

4.4 Study 3a: The Intention to Adopt Cue Types (External Manipulation)

The study is designed to test whether there is a significant difference between the intention to adopt ARM and IR depending on consumers' mental construal when both types of cues are salient. In parallel, the study was designed with a three-fold agenda: (1) to test the scale developed in the previous study in an experimental setting, (2) to manipulate consumers' mental construal with an external manipulation by adapting the well-established category-exemplar task to the Turkish language (Appendix B for the manipulations), (3) to test the focal hypothesis H1 (H2a), that is, whether consumers' intention to adopt ARM is higher than IR (lower) while making a judgment about a target when they adopt abstract (vs concrete) mental construal. The conceptual model of Study 3a was shown in Figure 4.7, below.

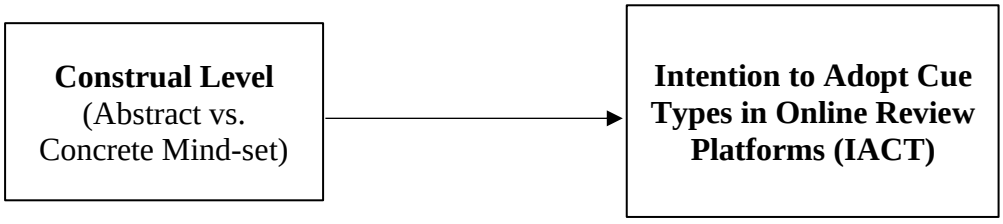


Figure 4.7 : Conceptual model of the study 3a.

4.4.1 Procedure

This study was conducted online with 104 bachelor and graduate students from a European university (57.7% female; M_{Age} = 27.96 years, SD_{Age} = 7.19). Demographics and frequencies of study 3a can be seen in Table 4.9. The participants' identities were completely anonymous to ensure they were comfortable with the questions. Also, they all are active online shoppers. Participants are told that the study aims to evaluate their behavioral tendencies in online shopping. By doing so, potential demand characteristics in the study are minimized.

The main study employed a 2 group (Target: concrete vs abstract mental construal) between-subject experimental design. Participants were randomly assigned to one of the two experimental conditions after reporting online shopping frequency. First, participants were provided with a category exemplar task designed to externally manipulate their construal level. (e.g., Fujita et al., 2006; see Appendix B for the modified version of the task in Turkish). In the concrete mind-set condition, participants were asked to think of a word that is a specific example of that word. Contrarily, in the abstract mind-set condition, they were asked to come up with a broad category as much as possible, in which the given word is an exemplar of that category. Then participants were asked to read a scenario describing buying a Bluetooth speaker. In this scenario, to reduce a potential bias peculiar to product features, visual or brand, participants were only told a buying the product, without further information about its technical specifications, brand, or visual of the product. Then, participants rated on the IACT scale, indicating which cue types would relatively be more salient for their intentions based on specified elements. Of note, higher scores in IACT indicate that IR is dominant, while lower scores indicate that ARM is dominant for adoption when making a judgment about a target. Next, participants rated motivation check. Lastly, participants were asked to report their gender, age, and education, respectively. Table 4.19 provides a detailed breakdown of the demographics of participants in Study 3a.

4.4.2 Manipulation checks

Behavior Identification (BIF): After participants were given a category exemplar task, a BIF manipulation check was administered to ensure that their mental construal was manipulated as intended. Participants' responses to a modified version of the BIF (Vallacher and Wegner, 1989; Yan and Sengupta, 2013; see Appendix D for the

modified version of the task in Turkish) questionnaire were subjected to binary coding (high level of construal = 1, low-level of construal = 0), and summed. A higher (lower) score indicated a higher (lower) construal level. As expected, a one-way ANOVA on participants' BIF scores shows that participants in the abstract mental construal condition had higher BIF scores than did those in the buying for themselves condition ($M_{abstract}$ = 6.60, $M_{concrete}$ = 5.25, $F(1, 102) = 22.43$; $p < .001$, $\eta^2 = 0.18$). These results indicate that the mental construal manipulation was successful.

Table 4.9 : Demographics of study 3a.

Mi	**Item**	**Freq.**	**%**	**Cumulative Percentage**
Gender	Female	60	57.70	42.30
	Male	44	43.30	100.00
Age	19	1	1.00	1.00
	20	6	5.80	6.70
	21	8	10.60	17.30
	22	7	7.70	25.00
	23	8	6.70	31.70
	24	5	7.70	39.40
	25	8	4.80	44.20
	26	5	7.70	51.90
	27	8	4.80	56.70
	28	5	5.80	62.50
	29	6	2.90	65.40
	30	3	4.80	70.20
	31	5	3.80	74.00
	32	4	8.70	82.70
	34	9	4.80	87.50
	35	5	1.90	89.40
	36	2	1.90	91.30
	40	2	1.90	93.30
	41	2	1.00	94.20
	45	1	1.90	96.20
	48	2	1.00	97.10
	49	1	1.00	98.10
	50	1	1.00	99.00
	54	1	1.00	100.00
Education	Bachelor student	50	48.10	48.10
	Graduate student	54	51.90	100.00
Online shopping frequency	Several times in a year	16	15.40	15.40
	Once in a every two or three months	11	10.60	26.00
	Once in a month	21	20.20	46.20
	Several times in a month	24	23.10	69.20
	Almost every week	13	12.50	81.70
	Almost every day	19	18.30	100.00

4.4.3 Results

Descriptive statistics, including skewness and kurtosis of the items and reliability of the construct are shown in Table 4.10. To test hypothesis 2a a one-way analysis of variance test (ANOVA)[13] was performed. As expected, the results show that people who adopt abstract mental construal scored lower on the IACT scale as compared to people who adopt abstract mental construal ($M_{Abstract}$ = 65.99 vs $M_{Concrete}$ = 77.63; F(1, 102) = 7.11, p < .01, η2 = 0.07)[14], (see Figure 4.8). Thus, the hypothesis 2a was supported. In other words, consumers' intention to adopt ARM for making a judgment about a product/service is higher when they adopt abstract construal (versus concrete construal). However, on the flip side, consumers' intention to adopt IR for making a judgment about a product/service is higher when they adopt concrete construal (versus abstract construal). Descriptive statistics of items and reliability measure of the construct were presented in Table 4.10.

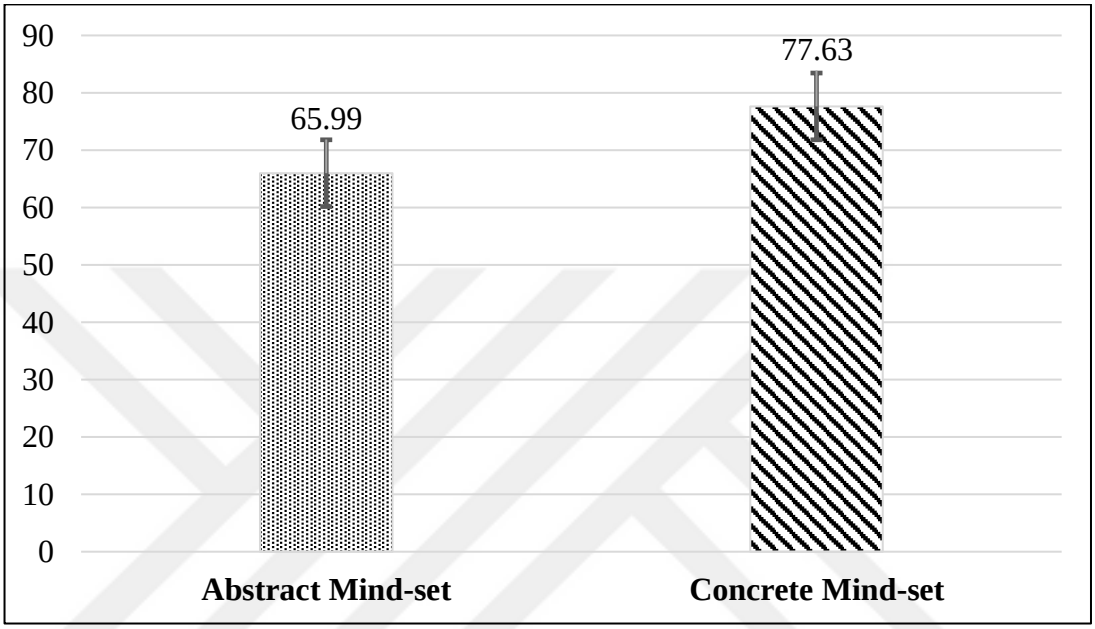
Table 4.10 : Descriptive statistics and reliability of IACT in study 3a.

Construct	Item	Mean	Std. Dev.	Skewness	Kurtosis	CA
Intention to Adopt Cue Types in Online Review Platforms (IACT)	Helpfulness	70.23	24.88	-1.12	0.4	0.97
	Informativeness	76.08	23.23	-1.26	0.83	
	Persuasiveness	72.62	24.19	-1.09	0.42	
	Importance in Purchase Intention	69.83	25.14	-0.85	-0.19	
	Credibility	69.90	26.26	-0.96	0.06	
	Diagnosticity	72.23	24.15	-1.14	0.61	

[13] When there are only two groups, the F statistic from ANOVA is equal to the square of the t statistic from a two-sample t-test, and the p-value from ANOVA is equal to the p-value from the t-test" (Rosner, 2015, p. 322).

[14] Levene's test indicate a significant difference in variances across groups (F(1, 102) = 6.32, $p < 0.05$). However, ANOVA is robust to violations of the assumption of equality of variance when sample sizes are equal across groups (Stevens, 2009, p. 169). Besides, in analyzing the data, it is found that skewness and kurtosis were within acceptable thresholds (Hair et al., 2010). This indicates that the data are normally distributed and meets the assumptions of our statistical tests. Nevertheless, the mean scores for two groups were also compared using the Welch's procedure (t(94.89) = 9.00, p = 0.03), indicating a significant difference between the two groups.

Motivation check: Lastly, if the observed effect in this study were driven by a higher (lower) level of processing motivation for concrete (abstract) mind-set, such bias would have been revealed in the motivation index (Yan and Sengupta, 2013). However, the results indicated no significant difference between the two experimental groups regarding participants' motivation ($F < 1$), indicating the results did not stem from the alternative account in question.



Notes. Y axis denotes IACT

Figure 4.8 : Consumers' intention to adopt cue types as a function of mental construal.

4.5 Study 3b: The Intention to Adopt Cue Types (Psychological Distance)

This study aims to extend and replicate Study 3a by manipulating social dimension of psychological distance and to test whether individual favored cues (IFC) are more persuasive than aggregate favored cues (AFC) in line with the hypothesis 2b. Similar to study 3a, this study was also designed with a three-fold agenda: (1) to test the scale developed in the previous study in an experimental setting (2) this time to manipulate consumers' mind-set with the social dimension of psychological distance (3) to test the hypotheses H2b, that is, whether consumers' intention adopt ARM is higher (lower) than IR for making a judgment about a product when the judgment task is psychologically distant (close). Also, the conceptual model of Study 3a was shown in Figure 4.9, below.

Figure 4.9 : Conceptual model of the study 3b.

4.5.1 Procedure

Study 1 was conducted online with 96 people recruited in return for monetary compensation from Amazon Mechanical Turk. (47.9% female; M_{Age} = 44.02 years, SD_{Age} = 11.33). They all are active online shoppers. Participants are told that the aim of the study was to evaluate their behavioral tendencies in an online shopping (Table 4.11)

The study employed a 2 group (Target: self vs. distant other) between-subject design. Participants were first asked to read the same scenario used in previous study (Study 3a), describing buying a Bluetooth speaker with modification of phrases depending on the condition. Buying for themselves" in the psychologically close condition vs. "buying for a distant other" in the psychologically distant condition. Then, participants were rated their intention to adopt the cue types in their decisions based on the IACT scale. To reiterate, higher scores in IACT indicate that intention to adopt IR is dominant, while lower scores indicate that intention to adopt ARM is dominant when making a judgment about a target. Lastly, participants were asked to report their gender, age, and education, respectively.

4.5.2 Manipulation checks

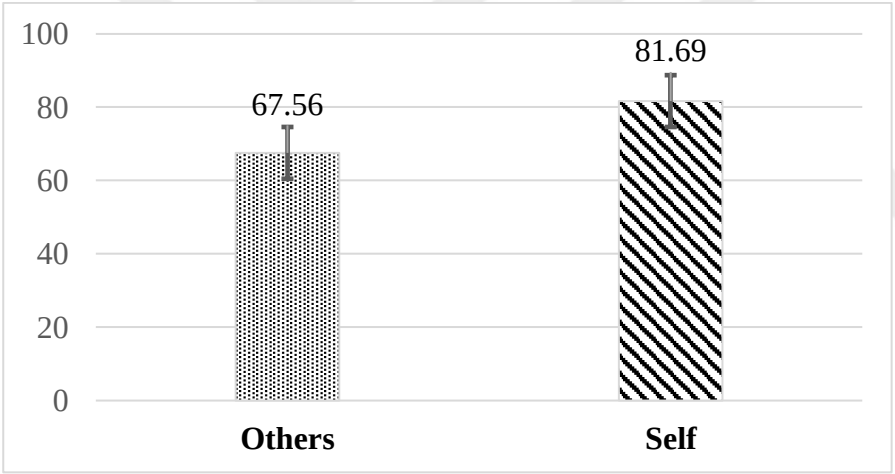
Behavior Identification. Participants' responses to BIF questionnaire were subjected to binary coding (high level of construal = 1, low level of construal = 0), and summed. A higher (lower) score indicated a higher (lower) level of construal. As expected, a one-way ANOVA on participants' BIF scores show that participants in the buying for another person condition had higher BIF scores than did those in the buying for themselves condition (M_{others} = 7.48, M_{self} = 6.81, $F(1, 95) = 4.34$; $p < .05$, $\eta^2 = 0.044$). These results indicate that psychological distance manipulation was successful.

Table 4.11 : Demographics of study 3b.

Demographics	Item	Freq.	%	Cumulative Percentage
Gender	Female	46	47.90	49.90
	Male	49	51.00	99.00
	Not prefer to say	1	1.00	100.00
Age	28	3.1	3.10	3.10
	29	2.1	2.10	5.20
	30	2.1	2.10	7.30
	31	3.1	3.10	10.40
	32	2.1	2.10	12.50
	33	3.1	3.10	15.60
	34	8.3	8.30	24.00
	35	4.2	4.20	28.10
	36	3.1	3.10	31.30
	37	5.2	5.20	36.50
	39	5.2	5.20	41.70
	40	4.2	4.20	45.80
	41	3.1	3.10	49.00
	42	5.2	5.20	54.20
	43	4.2	4.20	58.30
	44	3.1	3.10	61.50
	45	4.2	4.20	65.60
	47	1	1.00	66.70
	49	2.1	2.10	68.80
	50	4.2	4.20	72.90
	51	2.1	2.10	75.00
	52	1	1.00	76.00
	54	2.1	2.10	78.10
	55	2.1	2.10	80.20
	56	3.1	3.10	83.30
	57	3.1	3.10	86.50
	58	1	1.00	87.50
	60	5.2	5.20	92.70
	61	1	1.00	93.80
	62	1	1.00	94.80
	63	1	1.00	95.80
	69	1	1.00	96.90
	70	2.1	2.10	99.00
	82	1	1.00	100.00
Education	High school degree or equivalent (e.g., GED)	1	1.00	1.00
	Some college but no degree	10	10.40	11.50
	Associate’s degree	41	42.70	54.20
	Bachelor’s degree	20	20.80	75.00
	Graduate degree	24	25.00	100.00
Online shopping frequency	Several times in a year	3	3.10	3.10
	Once in a month	12	12.50	15.60
	Several times in a month	38	39.60	55.20
	Almost every week	35	36.50	91.70
	Almost every day	8	8.30	100.00

4.5.3 Results

To test hypothesis 2b a one-way analysis of variance (ANOVA)[15] test was performed. As expected, the results show that people in the psychologically distant (close) condition scored lower (higher) on IACT. In other words, people tend to adopt ARM when buying for distant others (i.e., high construal) compared to when buying for themselves (i.e., low construal) (M_{self} = 81.69 vs. M_{others} = 67.56; F(1, 94) = 11.66, $p < .01$, $\eta^2 = 0.11$), (see Figure 4.10). Thus, the hypothesis 2b was supported. In other words, consumers intention to adopt ARM for making a judgment about the product when the judgment task is psychologically distant (versus relatively close). On the flip side, consumers' intention to adopt IR for making a judgment about the product when the judgment task is psychologically close (versus relatively distant). Descriptive statistics, including skewness and kurtosis of the items and reliability of the construct are shown in Table 4.12.



Notes. Y axis denotes IACT

Figure 4.10 : Consumers' intention to adopt cue types as a function of psychological distance.

Motivation check. Likewise, if the observed effect in this study had driven by a higher (lower) level of processing motivation for the psychologically close condition, such a bias would have been revealed in the motivation index (Yan and Sengupta, 2013). However, as expected the results indicated that there was no significant difference

[15] When there are only two groups, the F statistic from ANOVA is equal to the square of the t statistic from a two-sample t-test, and the p-value from ANOVA is equal to the p-value from the t-test" (Rosner, 2015, p. 322). To calculate effect size and additional statistics, one-way ANOVA with two groups was preferred instead of independent sample t-test.

between two experimental groups in terms of participants' motivation ($F < 1$), indicating the alternative account was not at play.

Table 4.12 : Descriptive statistics and reliability of IACT in study 3b.

Construct	Item	Mean	Std. Dev.	Skewness	Kurtosis	CA
Intention to Adopt Cue Types in Online Reviews Platforms (IACT)	Helpfulness	73.31	22.36	-1.27	0.97	0.98
	Informativeness	78.36	22.09	-1.54	1.94	
	Persuasiveness	75.94	21.96	-1.30	1.26	
	Importance in Purchase Intention	72.70	23.46	-1.04	0.36	
	Credibility	73.53	24.86	-1.21	0.65	
	Diagnosticity	73.90	20.90	-1.25	1.29	

4.6 Study 4: WTP as a Function of Cue Types and Mental Construal

In this study, the role of consumers' mental construal on consumers' willingness to pay (WTP) for a reviewed product with AFC and IFC is examined. By doing so, the variations in the downstream behavioral outcomes are aimed to be explored in light of construal level theory (i.e., hypothesis 3). More specifically, the study was designed with a three-fold agenda: (1) to provide strong evidence that construal level theory can be served as a theoretical explanatory base for the differential impact of the ARM and IR on the behavioral outcomes. (2) to test the hypothesized effect and replicate previous studies with a different measure of evaluation, (i.e., WTP), stimuli (i.e., the design of cue types), and a product type (i.e., earbuds). (3) to rule out possible alternative explanations arising from a) consumers' risk aversion, b) familiarity to the reviewed product, c) income, d) consumers' processing style using an with implicit measures of response time in addition to their self-report check (i.e., motivation index). Conceptual model of the study 4 can be seen in Figure 4.11.

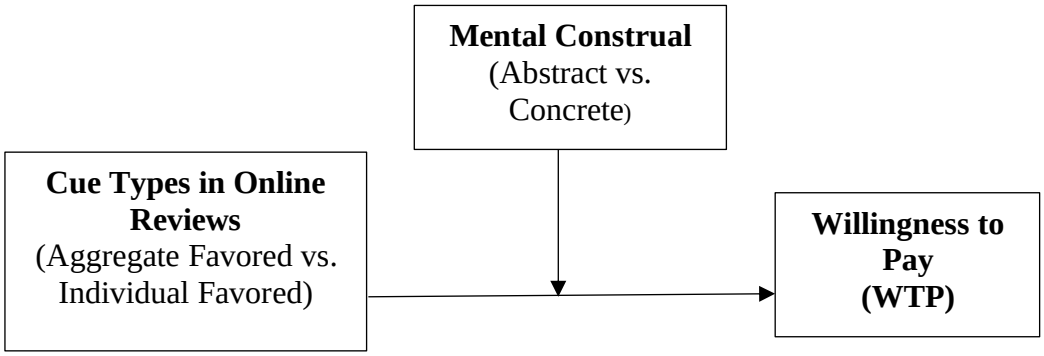


Figure 4.11 : Conceptual model of the study 4.

4.6.1 Procedure

Study 4 was conducted at a European university with 173 bachelor and graduate students (49.4% female; Mage = 23.81 years, SD = 6.07), in return for course credits. Demographics was shown in Table 4.13 in detail. The experiment was conducted online on Qualtrics platform and employed a 2 (Cue type: AFC vs. IFC) x 3 (mental construal: abstract vs. concrete vs. control) between-subject design. Upon reporting online shopping frequency, participants were randomly assigned to one of the six conditions. First, participants in the abstract and concrete mental construal conditions were given a category exemplar task that aimed at manipulating their construal level externally (e.g., Fujita et al., 2006). They were provided with a set of 10 words (e.g., computer, university, and guitar). In the concrete mindset condition, participants were asked to think a word that is specific example of that word. In the abstract mindset condition, they were asked to come up with a broad category in which the given word is an exemplar (see Appendix B for details). On the other hand, the participants in the control condition, completed some filler tasks instead of the category-exemplar task. In doing so, the time elapsed and cognitive load of the participants in the control group are aimed to be controlled.

For the stimuli, brief, generically positive and negative product reviews about a pair of earbuds were crafted. To control affective elements that might be induced by the contents of the reviews, each review was paraphrased, only changing the valence. In other words, the negative review was created as a negative version of the positive review. The word count remained the same. For the AFC condition, the product with a 4.3/5 average score rated by more than 100 reviewers were paired with a negative review. Contrarily, for the IFC condition, the product with a 3.3/5 average score rated by more than 100 reviewers. The rationale behind choosing 3.3 as our rating benchmark rather than much lower score are two-fold. First, a comprehensive analysis of the electronics category in Amazon discovered that a significant majority, around 80%, of products within this category (i.e., electronics) have rating scores more than 3.3 (Powell et. al, 2017). Second, previous research has suggested that a product rating below 3.5 on a 5-point scale is generally perceived as negative by consumers (Hennig-Thurau et al., 2004; Mudambi and Schuff, 2010). By establishing this benchmark at this point, our objective is to effectively reflect realistically “low” score in a way that

is both meaningful and accurately reflects their standing within the market and consumer perception.

Table 4.13 : Demographics of study 4.

Demographics	Item	Freq.	%	Cumulative Percentage
Gender	Female	80	49.40	49.40
	Male	81	50.00	99.40
	Not prefer to say	1	0.60	100.00
Age	18	14	8.60	8.60
	19	13	8.00	16.70
	20	24	14.80	31.50
	21	26	16.00	47.50
	22	20	12.30	59.90
	23	9	5.60	65.40
	24	12	7.40	72.80
	25	7	4.30	77.20
	26	5	3.10	80.20
	27	3	1.90	82.10
	28	2	1.20	83.30
	29	4	2.50	85.80
	30	4	2.50	88.30
	31	2	1.20	89.50
	34	3	1.90	91.40
	35	4	2.50	93.80
	37	2	1.20	95.10
	39	1	0.60	95.70
	42	3	1.90	97.50
	43	2	1.20	98.80
	45	1	0.60	99.40
	46	1	0.60	100.00
Education	Secondary school	1	0.60	0.60
	High school	16	9.90	10.50
	Bachelor's degree	87	53.70	64.20
	Master's degree	34	21.00	85.20
	PhD	24	14.80	100.00
Online shopping frequency	Several times in a year	25	15.40	15.40
	Once in two or three months	12	7.40	22.80
	Once in a month	51	31.50	54.30
	Several times in a month	33	20.40	74.70
	Almost every week	10	6.20	80.90
	Almost every day	31	19.10	100.00
Income	Q1 0 - 5000	38	23.50	23.50
	Q2 5001-7750	43	26.50	50.00
	Q3 7751-11000	40	24.70	74.70
	Q4 11001 +	41	25.30	100.00

After viewing the pair of reviews, participants reported an open-ended question asking participants to report their maximum WTP for the reviewed product in Turkish Liras (₺). Following this task, a modified version of Behavioral Identification Form (BIF; Vallacher and Wegner 1989), was administrated (see Slepian et al., 2015), a 10-item dichotomous questionnaire that measures whether participants identify actions at a higher or a lower level. Each item provides two descriptions of an action. Specifically,

one of the options describes the action at a lower level, while another describes the same action at a higher level. Next, they were asked to complete a set of questions measuring control variables for risk aversion, product familiarity, income. Lastly, participants were asked to report their gender, age, education, and monthly income.

The dependent variable (DV), willingness to pay, was measured by asking participants to specify their maximum WTP for the reviewed product in Turkish Liras (see Karataş and Gürhan-Canli, 2020). Risk aversion (RA) was measured with the same scale used in the Study 1 (α =. 0.79) (Donthu and Gilliard, 1996), consisting of three seven-point Likert-type questions (1 = Strongly disagree, 7 = Strongly agree). To rule out possible bias concerning to the general familiarity with a product category, a two-item seven-point scale developed and used in the study (α =. 0.92). The scale has two seven-point Likert-type questions (1 = Strongly disagree, 7 = Strongly agree). As a manipulation check for mental construals, a modified version of Behavioral Identification Form (BIF; Vallacher and Wegner 1989), (α =. 0.63) (see Slepian et al., 2015) was used. Lastly, two single-item questionnaire was created to measure the intended valence the stimuli of the AFC and IFR signal.

4.6.2 Manipulation check

Aggregate vs. Individual Favored Reviews. As expected, participants reported that the ARM was more positive in the AFC condition than in the IFC condition (M_{AFC_ARM} = 4.68, M_{IFC_ARM} = 2.85; F(1, 160) = 76.21, $p < .001$). Similarly, participants reported that the IR was more positive in the IFC condition as compared to the AFC condition (M_{IFC_IR} = 5.00 M_{AFC_IR} = 2.19; F(1, 160) = 195.80 $p < .001$). These indicate that our manipulation of the review valence was successful. Within each experimental group, one-sample ARM (IR) was higher (lower) than the midpoint of the six-point valence scale in the AFC condition. Likewise, IR (ARM) was higher (lower) than the midpoint of the six-point valence scale in the AFC condition. These results indicate that our manipulation of the review valence was successful.

Behavior Identification. In the experimental groups, participants' responses to BIF questionnaire were subjected to binary coding (high level of construal = 1, low level of construal = 0), and summed. A higher (lower) score indicated a higher (lower) level of construal. As expected, a one-way ANOVA on participants' BIF scores show that participants in the abstract condition had higher BIF scores ($M_{Abstract}$ = 8.69) than did

those in concrete condition ($M_{Concrete}$ = 8.69, F(1, 106) = 7.89; $p < .05$, $\eta^2 = 0.052$). These results indicate that the mental construal manipulation was successful.

4.6.3 Results

In total, 11 respondents were eliminated from the sample based on attention check questions and their online shopping frequency. The remaining 162 respondents were included in the analyzes.

Willingness to Pay. Since WTP was positively skewed, and Levene's Test indicate that the error variance of the dependent variable is not equal across groups. According to Hair et al. (2010) and Bryne (2010), if the skewness of observations fall within the range of -2 to +2 and the kurtosis falls within the range of -7 to +7, then the distribution is considered to be normal.

Table 4.14 : Descriptive statistics and reliability of the constructs used in study 4.

Construct	Item	Mean	Std. Dev.	Skewness	Kurtosis	CA
WTP	Open ended	561.44	627.48	2.98*	15.32*	-
LnWTP	Log transformed WTP	5.74	1.21	-0.47**	-0.27**	-
Risk Aversion	I would rather be safe than sorry. I want to be sure before I purchase anything. I avoid risky things.	5.4	1.14	-0.89	1.1	0.79
Familiarity to the Product	I know a lot about this product/service in general. I am completely familiar with this product/service.	4.15	1.5	-0.5	-0.68	0.92

Notes. Risk aversion, familiarity, and income are served as a covariate in the model.
* It points out the violation of assumptions in the model. (Bryne, 2010; Hair et al., 2010).
** It denotes log transformed scores.

However, the skewness and kurtosis does not meet aforementioned criteria. Scores participants reported, thus, was first subjected to a logarithmic transformation to remedy the violations of model assumptions. Both original and log transformed WTP scores, as well as reliability of the major scales used in this study is presented in Table 4.14 above.

No significant main effect is observed for the mental construal ($M_{Concrete}$ = 5.64 vs $M_{Abstract}$ = 5.96 vs $M_{Control}$ = 5.63; F(2, 153) = 1.67; p = .19) and cue types (M_{AFC} = 5.60 vs M_{IFC} = 5.88; F(2, 153) = 2.65; p = .11). Of note, risk aversion, familiarity with a product category, and income were controlled as covariates. In parallel with hypothesis 3, a two by three ANCOVA results indicate a significant interaction

between review types and the mental construal ($F(2, 153) = 14.48$, $p < .001$, $\eta^2 = 0.16$). Thus, hypothesis 3 was supported. Planned contrasts supported our prediction, that is, when consumers were induced to think in an abstract way, they reported higher WTP for the AFC ($M_{AFC} = 6.45$) than they did for the IFR ($M_{IFC} = 5.46$; $F(1, 196) = 11.18$, $p < .01$). Contrarily, when consumers adopted a concrete mindset, they reported higher WTP for the IFC ($M_{IFC} = 6.16$; $M_{AFC} = 5.11$; $F(2, 153) = 12.76$, $p = .001$) than they did for the AFC. In the control condition, as expected, participants reported higher WTP for the IFR than they did for the AFC ($M_{IFC} = 6.03$, $M_{AFC} = 5.23$; $F(2, 153) = 6.96$, $p = .01$), replicating the results of base-rate neglect found in study 1. All results depicted in Figure 4.12 and 4.13.

Pairwise comparisons using the Tukey-Kramer method also support our hypothesis. WTP for the product with AFC is significantly higher for those in abstract mind-set condition compared to those in concrete mind-set condition ($p < .001$). Contrarily, WTP for the product with IFC is marginally higher for those in concrete mind-set condition compared to participants in abstract mind-set condition ($p = .08$).

Motivation check & Response Time as an Implicit Measure. Lastly, if the observed effect in this study were stem from a higher level of processing motivation and elaboration, such an effect would be detected in the motivation index. The motivation check, employed as an explicit measure, was also utilized in Study 1, thereby ensuring consistency in the methodological approach across both studies. Furthermore, an implicit measure accounting for the response time that participants spent engaged in the study was incorporated into the analyses, providing a more comprehensive assessment of their involvement. While doing so, the same alternative explanation was ruled out with two different measures. No significant difference was found on these measures (both for motivation check and response time *F's* < 1), indicating the alternative account was not at play.

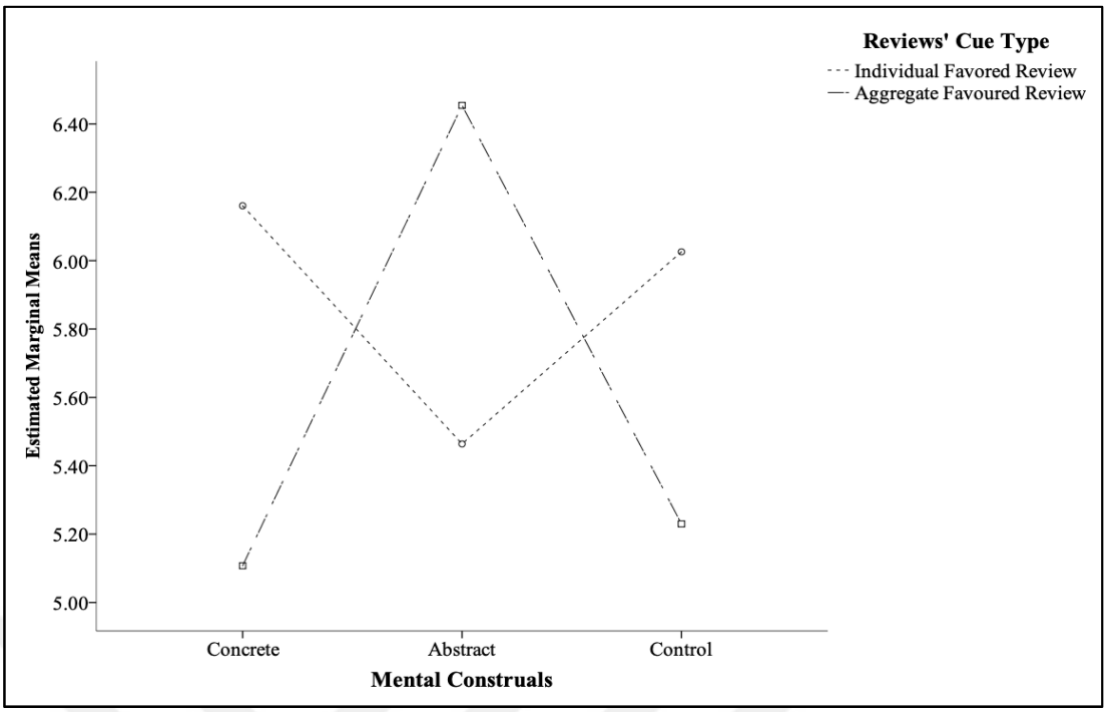


Figure 4.12 : WTP as a function of the mental construal and reviews' cue types (Line graph).

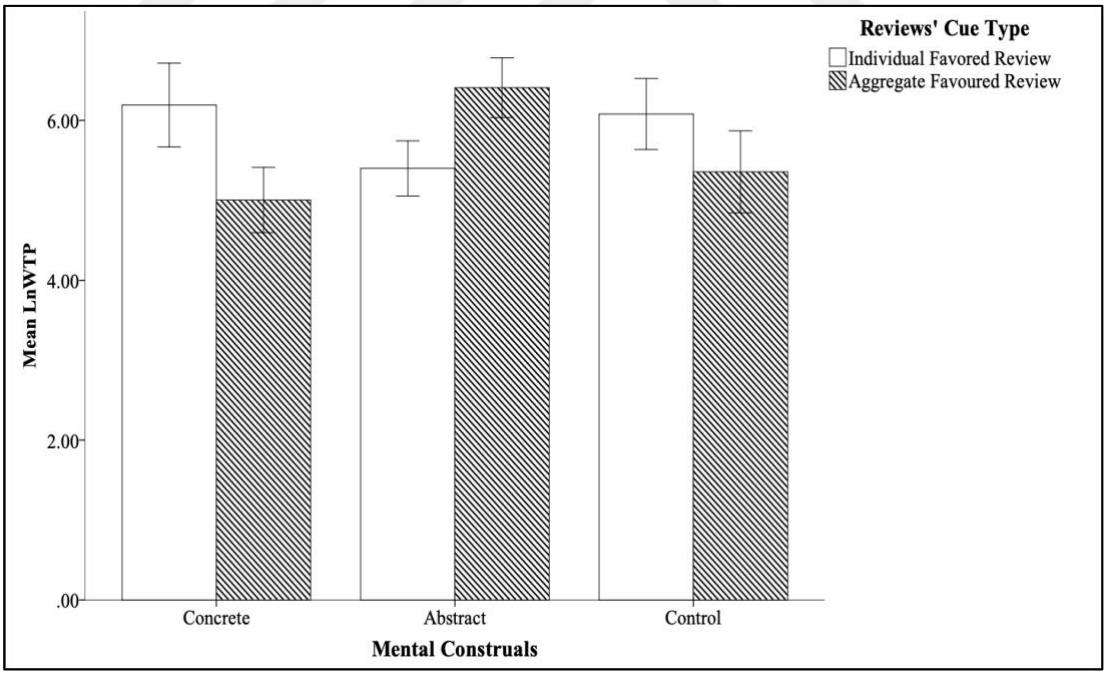


Figure 4.13 : WTP as a function of the mental construals and reviews' cue types (Bar chart).

4.7 Study 5: Process Evidence and Choice

The hypothesized effects are measured by operationalizing two different types of cues in an online review setting (i.e., ARM and IR), that are positioned in opposition (conflicting) to each other. To clarify, in the AFC condition, the individual review is assigned a relatively negative valence when the overall product rating is relatively positive. Contrarily, in the IFC condition, overall product rating is set to be relatively positive, when the individual review is positive in valence. This is because we aim to create dichotomy between the valence of cue types to detect which cue types are dominant in participants' decision-making. Basically, this study aims to explore the effect of cue types in case they are presented in conflicting way. Nevertheless, to better understand how and when consumers prioritize different cue types, hypothesized process evidence is added to the model as a separate construct. By doing so, we aim to uncover the process evidence that drive consumers to shift their attributional inferences between two types of cues when making a decision about a target. On the other hand, previous studies in this thesis measure the downstream consequences by WTP, persuasion, and a self-report intentional variable. To corroborate findings in the previous studies, *choice* is introduced as a dependent variable in this study, while mental construal is manipulated with social dimension of psychological distance (i.e., self vs. other). Additionally, the magnitude difference between rating scores AFC and IFC has been increased (i.e., AFC: 4.5, IFC: 2.5).

In this respect, the present study aims to extend the findings of previous studies by incorporating choice as the dependent variable and consumers' intention to adopt cue types as the mediating variable. This approach seeks to provide more nuanced and process-based evidence, as opposed to the "black box" approach, which may leave the underlying mechanisms (thus, the proposed causal mechanism) underexplored. By delving into the mediating role of consumers' intentions to adopt cue types, this study aims to offer a more comprehensive understanding of the cue types that influence consumer choices in online review platforms. Furthermore, this study also replicates previous findings in a different setting and with participants from a diverse demographic pool.

4.7.1 Procedure

Study 5 was conducted with 115 participants (%55.5 female, M_{Age}: 35.94) recruited via Amazon Mechanical Turk. Four participants were removed from the data pool after failing attention validation measures. Additionally, one respondent was deemed unsuitable based on attrition analysis, as their average completion time for the survey significantly surpassed the acceptable duration. In total, five participants were excluded from the study. Demographics was shown in Table 4.15 in detail. Participants all are active online shoppers.

The study was conducted online using two groups (psychological distance: low vs. high) between-subject experimental design. Accordingly, psychological distance was manipulated as a between-subject factor. All experimental flows were created via Qualtrics survey platform. In order to mitigate any potential demand effect, participants were informed that the purpose of the study was to assess their decision-making patterns while navigating e-commerce websites. Also, utmost care was taken to preserve participant anonymity, fostering a comfortable environment for participants.

Table 4.15 : Demographics of study 5.

Demographics	**Item**	**Freq.**	**%**	**Cumulative Percentage**
Gender	Female	61	55.50	55.50
	Male	49	44.50	100.00
Age	18-34	47	42.70	42.70
	35-50	56	50.90	93.60
	51-65	7	6.40	100.00
Education	Associate degree	17	15.50	15.50
	Bachelor degree	87	79.10	94.50
	Graduate degree	6	5.50	100.00
Online shopping frequency	Several times in a year	12	10.90	10.90
	Once in a every two or three months	39	35.50	46.40
	Once in a month	41	37.30	83.60
	Several times in a month	15	13.60	97.30
	Almost every week	2	1.80	99.10
	Almost every day	1	0.90	100.00

Upon reporting online shopping frequency, participants were randomly assigned to one of the two conditions. Participants in the buying for self vs. others condition were

instructed to imagine that they had decided to buy a pair of sneakers for themselves vs. others, respectively. Then they were also instructed that while scrolling through the website, they had come across the sneakers with a specified product rating and an individual review. Because, choice was manipulated within-subject design, all participants were given both AFC and IFC paired with a product of sneakers, regardless of their assigned experimental condition (i.e., buying for self or for a distant other). The pair of sneakers in AFC option was presented with relatively positive aggregate review metrics (4.5 out of 5.0) as the product rating. To create a contrast, sneakers with AFC was also paired with a relatively negative individual review, highlighting some negative experiences. Likewise, the pair of sneakers in IFC option was presented with relatively positive aggregate review metrics (2.5 out of 5.0) as the product rating. To create a contrast, sneakers with IFC was also paired with a relatively positive individual review, highlighting some positive experiences. To mitigate biases tied to product, image, and brand, participants were given two options: Product A and Product B, without visual presentation or a semantically meaningful brand name. In any case, the products were randomized and subjected to between-subject replication to counteract biases related to the labels "A" or "B." Moreover, individual reviews were rephrased as exact opposites of each other, while keeping the word count same, to rule out possible biases regarding semantic content, such as cues about product attributes, and affective tone of the content. This approach ensures equivalency and prevents any attributions that are not attributable the experimental manipulations.

Participants'' intention to adopt cue types (IACT) which is introduced in previous studies was used the measure the hypothesized process evidence pertaining to consumers' choice. The construct was assessed using a six-item, 101-point scale (for a modified version of the scale see also Cesmeci and Burnaz, 2022). As in the previous studies this thesis, the motivation check ($\alpha = 0.80$) was measured using two seven-point items (1 = Not at all, 7 = Very much) adopted from Yan and Sengupta (2011) and response time as an implicit measure was also included in the study to ensure that the findings were nothing to do with participants' elaboration. Also, to control a possible bias, risk aversion, which is consisting of three seven-point Likert-type questions (1 = Strongly disagree, 7 = Strongly agree) was included in the study ($\alpha =$. 0.87) (Donthu and Gilliard, 1996).

Pilot Test. To check the effectiveness of the experimental manipulations, a separate pilot test was also conducted beforehand with 100 graduate students from a European University (%59 female, Mage = 26.93). In other words, we tested the sneakers' review page to ensure whether the specified product rating and the single individual review used in the main experiment were effectively manipulated the aggregate favored cue (AFC) and individual favored cue (IFC) conditions as intended.

Participants were randomly assigned to two groups and presented with either the AFC or IFC stimuli (i.e., the sneaker page paired with the relevant cues). They will be asked to rate the valence of cue types on a 6-point scale, with 1 being very negative and 6 being very positive. Participants will also be asked to leave a short comment on why they rated the stimulus as they did. The mean valence rating for each stimulus was calculated for both groups, and a one-way ANOVA was conducted. Additionally, the comments provided by participants will be analyzed to identify any common themes related to the stimuli's valence. As predicted, participants reported that the aggregate review metric (ARM) was more positive in the AFC condition than in the IFC condition (M_{AFC_ARM} = 5.40, M_{IFC_ARM} = 2.84, F (1, 98) = 189.52, p < .0001). Conversely, participants reported that the individual review (IR) was more positive in the IFC condition compared to the AFC condition (M_{IFC_IR} = 5.42, M_{AFC_IR} = 1.56; F (1, 98) = 432, p < .0001). These findings indicate that our manipulation of the review valence was effective.

Moreover, within each experimental group, the one-sample mean of aggregate review metrics (ARM) was significantly higher than the midpoint of the six-point valence scale for the AFC stimulus (M = 5.40, t (49) = 21.69, p < 0.001). Conversely, the mean of individual reviews (IR) was significantly lower than the midpoint of the six-point valence scale for the AFC stimulus (M = 1.56, t (49) = -9.67, p < 0.001). In the IFC condition, the one-sample mean of individual reviews (IR) was significantly higher than the midpoint of the six-point valence scale (M = 5.42, t(49) = 17.89, p < 0.001). Conversely, the mean of aggregate review metrics (ARM) was not reach traditional statistical significance level for the midpoint of the six-point valence scale (M = 2.84, t(49) = -1.07, p = 0.15). However, because the relative valence of ARM was lower for

the AFC stimulus than of IR, this did not pose a serious threat for this study.[16] To sum up, the pilot test aimed to confirm the effectiveness of the manipulation, thereby providing evidence for the intended valence of the AFC and IFC stimuli.

4.7.2 Manipulation check

Psychological Distance and BIF. In the experimental groups, participants' responses to BIF questionnaire were subjected to binary coding (others / high level of construal = 1, self / low level of construal = 0), and summed. A higher (lower) score indicated a higher (lower) level of construal. As expected, a one-way ANOVA on participants' BIF scores show that participants in the buying for others condition had higher BIF scores (M_{Self} = 7.36) than did those in buying for the self condition (M_{Others}= 8.78, $F(1, 108) = 54.25$; $p < 0.001$, $\eta^2 = 0.33$). These results indicate that the manipulation pertaining to construal level of psychological distance was successful.

4.7.3 Results

The current study employed a mediation analysis to investigate the mediating role (i.e., process evidence) of intention to adopt cue Types (IACT) in the relationship between psychological distance (coded as Self = 0, Other = 1) and choice (Aggregate Favored Cue Option i.e., AFC = 1, Individual Favored Cue Option i.e., IFC = 2). More specifically, to test hypothesis 4 and 5, a mediation analysis with 5000 bootstrapped samples with 95% CI (PROCESS macro, Model 4; Hayes, 2013) was performed. As in other studies we conducted, the IACT variable was operationalized as a dichotomous scale, with higher values indicating an increased intention to adopt individual reviews (IR) and lower values indicating an increased intention to adopt aggregate review metrics (ARM) such as product ratings (ARM). The study aimed to understand how the mediator IACT influenced the relationship between psychological distance and choice. After elimination of aforementioned observations, a total of 110

[16] The threshold for consumers to perceive a product rating as negative can vary depending on the context and product category. However, previous research has suggested that a product rating below 3.5 on a 5-point scale or below 3.0 on a 7-point scale is generally perceived as negative by consumers (Hennig-Thurau et al., 2004; Mudambi and Schuff, 2010). For example, in a study by Hennig-Thurau et al. (2004), participants were asked to rate the overall quality of service in a restaurant on a 5-point scale. The authors found that a rating of 3 or below was perceived as negative by consumers. Similarly, in a study by Mudambi and Schuff (2010), participants were asked to rate the overall quality of hotels on a 7-point scale. The authors found that a rating of 3 or below was perceived as negative by consumers, and that consumers were more likely to consider a hotel with a lower rating as risky or of low quality.

participants were included in the analysis. Descriptive statistics and reliability of the constructs used in study 5 are shown in Table 4.6.

Table 4.16 : Descriptive statistics and reliability of the constructs used in study 5.

Construct	Item	Mean	Std. Dev.	Skewness	Curtosis	CA
Intention to Adopt Cue Types (IACT)	Helpfulness Informativeness Persuasiveness Importance in Purchase Intention Authenticity Diagnosticity	5.72	0.76	-0.86	1.98	0.95
Risk Aversion	I would rather be safe than sorry. I want to be sure before I purchase anything. I avoid risky things.	57.11	23.8	0.04	-1.16	0.87

First and foremost, in the context of the current study, the -2LL and ModelLL indicators provide information about how well the logistic regression model fits the data when predicting the choice variable based on psychological distance and IACT. In this study, a significance of the ModelLL indicated that the model fitted the data significantly better than a null model, which had assumed no relationship between the predictor variables and the outcome variable. In this study, the overall model's result showed that the fitted model was significantly better than the null model in explaining the relationship between psychological distance, IACT, and choice (-2LL = 128.13, ModelLL =19.08, p <.0001).

First, the relationship between psychological distance and IACT was examined. The analysis revealed a significant negative effect of psychological distance on IACT (B = -18.0212, SE = 4.2159, t = -4.2746, p < .0001, 95% CI [-26.3778, -9.6646]). This finding indicates that as psychological distance increases in the context of buying decision (from self to other), participants' intention to adopt individual reviews (IR) decreases, while their intention to adopt aggregate review metrics (ARM) increases. Specifically, in the buying for self condition, participants exhibited a stronger preference for IFC compared to the participant in the buying for other condition.

Next, a logistic regression was conducted to examine the direct and indirect effects of psychological distance on choice, with IACT as the mediator. The model showed a good power in explanation hypothesized effects. The results provide evidence that, 21.59% (Nagelkerke $R^2 = 0.2159$) of the variance in choice can be explained by the model when using Nagelkerke R^2. Other indicators of the model are as follows: McFadden R^2 (0.1296), and Cox-Snell R^2 (0.1593), respectively.

The results demonstrated a significant direct effect of psychological distance on choice (B = -1.2220, SE = .4485, Z = -2.7248, p = .0064, 95% CI [-2.1009, -.3430]). In other words, this result suggests that as psychological distance increases, participants are more likely to choose AFC option over IFC option. More specifically, for each unit increase in psychological distance, the odds of choosing AFC over IFC increases by a factor 29.4% (exp(-1.2220)). All coefficients of the paths in the conceptual model are depicted in Figure 4.15.

Moreover, the analysis revealed a significant indirect effect of psychological distance on choice through IACT (B = -.3876, BootSE = .2316, BootLLCI = -.9437, BootULCI = -.0413). This finding also suggests that the effect of psychological distance on choice is mediated by participants' intentions to adopt either individual reviews or aggregate review metrics (i.e., IACT). As psychological distance increases, participants are less likely to adopt IR, which in turn, increase the likelihood of the opt AFC option over IFC option.

Finally, as psychological distance implies consumers with high construal (thus, in abstract mindset) are more likely to choose a product with AFC than IFC. Likewise, consumers with low construal (thus, in concrete mindset) are more likely to choose a product with IFC than AFC. Additionally, these results highlight the crucial role of IACT as process evidence for more clear depiction of the relationship between psychological distance (or mental construal) on consumers' decision-making processes in an online review setting. Therefore, both hypothesis 4 and hypothesis 5 were supported.

In addition to the primary findings, a key contribution of this study lies in its replication of previous results in a different setting and the utilization of "choice" as the dependent variable. By employing choice as a dependent variable, the study extends existing knowledge by corroborating the findings with a real behavioral measure, which offers a more ecologically valid understanding of consumers' decision-making processes.

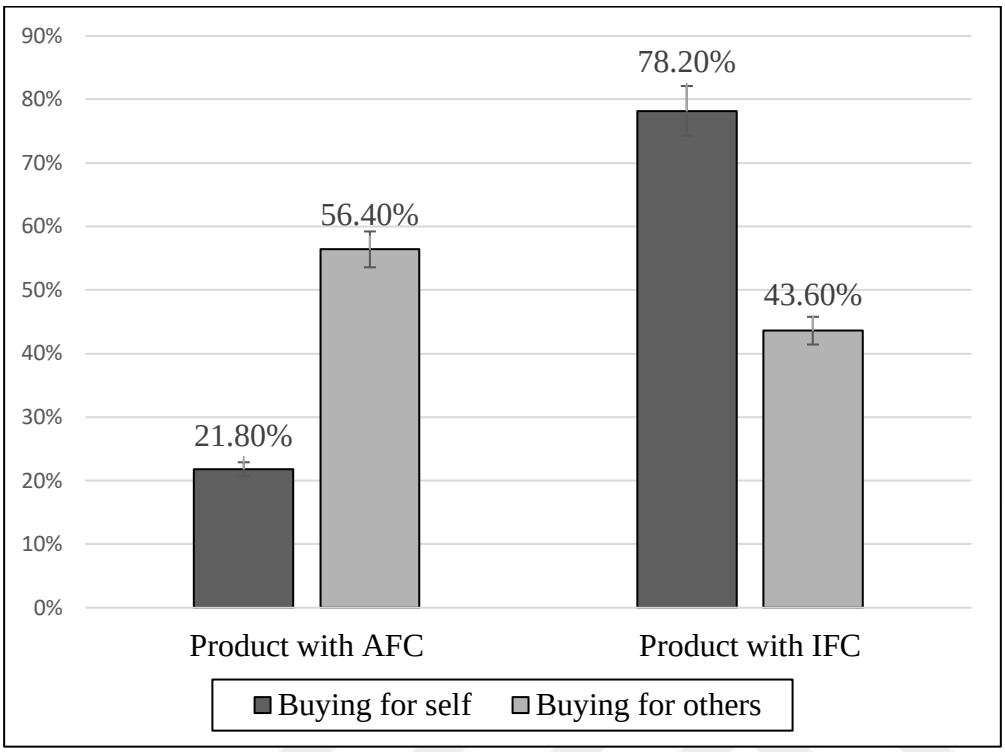
According to Hsee et al. (1999), incorporating choice as a dependent variable can provide valuable insights into consumers' preferences and choices under different conditions, as it captures the actual behavior of individuals rather than their reported intentions or attitudes. By doing so, this research bolsters the external validity of the findings and enhances their generalizability across various contexts and populations.

A Chi-square test. Apart from logistic regression, a chi-square test also performed. The analysis revealed a significant association between psychological distance and choice, $\chi^2(1, N = 110) = 13.783$, $p < .001$. Specifically, participants in the buying for self condition were more likely to choose the IFC option, with 78.2% (43 out of 55), compared to 43.6% (24 out of 55) in the buying for others condition. Conversely, the proportion of participants choosing the AFC option was higher in the buying for other condition (56.4% or 31 out of 55) than in the self condition (21.8% or 12 out of 55). These findings reconfirm that psychological distance plays a crucial role in shaping consumers' preferences for different types of cues when making choices (see Figure 4.14).

Alternative accounts. Firstly, it is important to acknowledge that if the observed effect in this study were due to increased motivation for processing and elaboration (i.e., deep processing), this influence would have manifested in the motivation index. Additionally, to rule out the same alternative explanation using two distinct measures, an implicit measure of participants' response time was incorporated into the analyses. Remarkably, no significant differences were detected for either measure (both F's < 1), suggesting that this alternative explanation did not significantly impact the results.

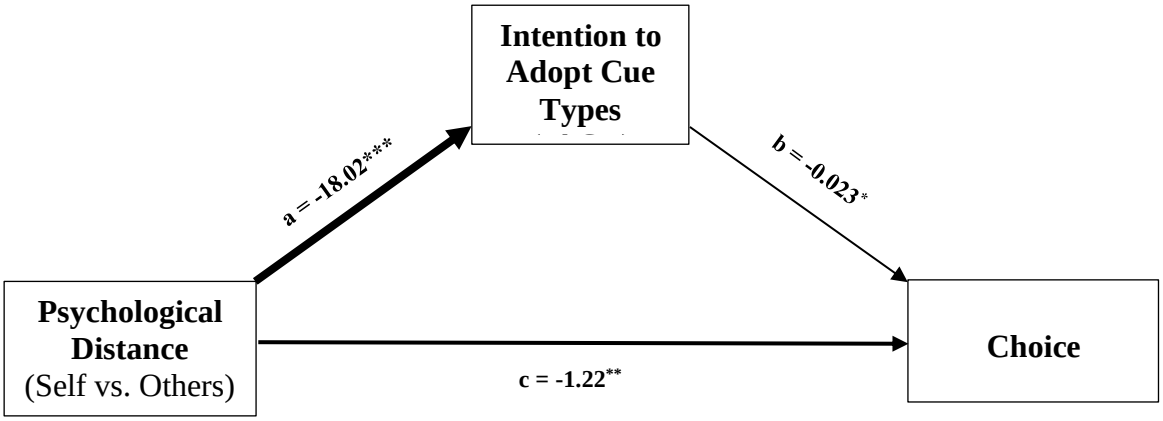
Conversely, a potential confound regarding risk aversion could pose a threat to the study's validity. Initially, risk aversion may seem inherently influence the model, wherein risk likelihood estimation functions as a mediator. In other words, participants with higher risk aversion tend to evade relatively negative signals, as exemplified by a negative product rating or an individual review. Concurrently, one could argue that an individual review might serve as an avoidance factor, regardless of a person's construal level. However, if delved into the experimental design, this possibility was carefully addressed by crafting individual reviews devoid of narrative elements. Yet, it might still remain a concern. Therefore, a univariate ANOVA performed with risk aversion as the DV and cue types and mental construal as the IVs. Nonetheless, the results of the comprehensive model revealed no main or interaction effects of the IVs

on risk aversion (all F's <1), reconfirming there was not an account regarding risk aversion at play.



Notes. Y-axis denotes the percentage of participants choosing the relevant option.

Figure 4.14 : Choice as a function of psychological distance and cue types.



Notes: All coefficients reported are unstandardized effects.
All paths depicted are significant (*p < 0.05,**p < 0.01,***p < 0.001).
Thickness of the arrows indicate the magnitude of the coefficients.

Figure 4.15 : The coefficients of the paths in the conceptual model of study 5 (Hayes, Model 4).

4.8 Study 6: Nudging Base-Rate Neglect

This study aims to extent the findings of previous studies in the light of two important research questions. First and foremost, in line with the relevant literature (see, Yan and Sengupta, 2013), is it plausible that consumers' estimated risk likelihood might be an underlying mechanism of the base-rate fallacy observed in online review platforms? Second, can base-rate fallacy be mitigated or even eliminated with an intervention or nudge? The answer to the latter also provides an opportunity for firms to help consumers make more informed decision and to increase their revenues as a result of heightened control over an external intervention that might be served as a boundary condition for downstream behavioral consequences. In an attempt to find a plausible answer to these research questions it is hypothesized that when consumers adopt an abstract mindset, their risk perception (i.e., estimated risk likelihood, hypothesis 6), pertaining to a target with AFC (IFC) is decreased (increased), which in turn it affects behavioral intention to purchase the product such that estimated risk likelihood of a target negatively affect behavioral intention to purchase the product (hypothesis 7). In line with these hypotheses, the estimated risk likelihood is also introduced in a mediation model providing an underlying mechanism (hypothesis 8). Lastly, it is hypothesized that the effect of cue types on behavioral intention through estimated risk likelihood is no longer pronounced when base-rate neglect is introduced with a simple reminder of what base-rate fallacy is (hypothesis 11). In other words, nudging base-rate fallacy is served as a boundary condition by moderating the moderated mediation of estimated risk likelihood in the model. On the other hand, this study aims to replicate findings of the past studies in this thesis by changing product type, sample characteristics, and language in which the experiment was conducted. Additionally, a fictitious review page of a hotel is used in this study to eliminate possible bias with respect to an existing hotel brand. Data was collected from Amazon MTurk panel of US consumers and the experiment was conducted in English.

4.8.1 Procedure

Study 6 was conducted with 280 participants recruited on Amazon Mechanical Turk. Fourteen respondents were eliminated from the sample on the basis of attention check. Additionally, two participants were also excluded from sample based on attrition check, because their average survey completion time was unrealistically longer than it

was supposed to be. In total, it was sixteen participants who were excluded from the study, The remaining 264 respondents were included in the analyzes. (46.2% female; M_{age} = 44.63 years). Demographics was shown in Table 4.17 in detail. All participants are active online shoppers.

The experiment was conducted online with a 2 (Cue type: aggregate favored cues vs. individual favored cues) x 2 (mental construal: abstract vs. concrete) x 2 nudge (present vs. control) between-subject design. All experimental flows were created via Qualtrics survey platform. Participants were assigned in one of the eight conditions in question. To minimize a potential demand effect, they are told that the aim of the study was to evaluate their behavioral tendencies in online shopping platforms.

Likewise in the previous studies, participants were first given a category exemplar task that aimed at manipulating their construal level externally (Fujita et al., 2006). The task consists of predetermined set of words, such as "computer," "university," and "guitar." In the concrete mindset condition, participants were instructed to generate as much specific example of the given word as possible. In contrast, those in the abstract mindset condition were asked to identify broader category in which the given word belonged (Appendix A).

In the cue type condition, to eliminate possible bias to a particular destination or a brand, a fictitious stimuli cue was crafted. The stimuli consist of a brief, generic hotel review and rating combinations. More specifically, in the AFC condition, a hotel with a 4.7/5 average score rated by more than 200 reviewers were paired with a negative review. In contrast, in the IFR condition, a hotel with a 3.7/5 average score rated by more than 200 reviewers were paired with a positive review. To control affective elements that might be induced by the contents of the reviews, each review was paraphrased, of valence was modified in either positive or negative direction. For example, the negative review was created as a negative version of the positive review. The word count remained the same for both versions.

Next, participants in the base-rate nudge condition were provided a text with a single sentence pertaining to base-rate neglect, which explained what a base-rate neglect is in the context of online reviews and ratings. The participants in the control condition, on the other hand, were presented a neutral unrelated text with an equal number of the word counts as the text in the nudge condition. In doing so, the time elapsed and

cognitive load of the participants are aimed to be balanced between experimental and control groups.

Then, all participants listed minimum one and up to five thoughts about the cue types (i.e., AFC or IFC), and all thoughts were counted to reveal the number of times base-rate- and aggregate-related terms appeared in the comments (for a similar version of the procedure see Sun et al., 2021). Upon viewing the cue types, they were reported their estimated risk likelihood pertaining to not liking the hotel and their behavioral intentions to book a room in this hotel (i.e., behavioral / purchase intention).

Behavioral intention serving as a DV was measured by adapting a well-established attitude and behavioral intention scale used by Griskevicius et al. (2009) to fit the context of our study. Specifically, they answered three nine-point behavioral intentions questions with endpoints “not at all” and “very much” regarding (1) the extent to which they were interested in finding out more about the hotel (2) how likely they were to consider booking a room in that hotel (3) how likely they were to actually book a room in that hotel ($\alpha = 0.98$). The mediator variable estimated risk likelihood was measured by the scale adopted from Sen and Yangupta (2013) and it was modified and added one more item to fit the context of the study. During the course of the study, all subjects were asked to evaluate the risk of not liking the experience on three separate items consisting of a two 7- point and a 101-point scale, respectively. All three items were anchored by "very unlikely" and "very likely." Because the items were highly correlated with each other, a summated index of estimated risk likelihood ($\alpha = 0.97$) was created. In addition to risk aversion ($\alpha = 0.76$), (Donthu and Gilliard, 1996) and general familiarity with a product category ($\alpha = 0.73$), which were used in the previous studies, perceived similarity of a reviewer ($\alpha = 0.96$), (Packard et al., 2016) was included in this study. The latter was a semantic differential scale used by Packard et al. (2016), which were aimed to measure how similar participants think the reviewers were to them. The motivation check ($\alpha = 0.87$) was measured as in the previous studies. Additionally, response time as an implicit measure was also included in this study.

Table 4.17 : Demographics of study 6.

Demographics	Item	Freq.	%	Cumulative Percentage
Gender	Female	122	46.20	46.2
	Male	142	53.80	100
Age	18-34	39	14.90	14.90
	35-50	147	55.70	70.60
	50-65	72	27.20	97.80
	66+	6	2.40	100.00
Education	Less than high school degree	3	1.10	1.10
	High school degree or equivalent (e.g., GED)	32	12.10	12.10
	Some college but no degree	40	15.20	27.30
	Associate degree	59	22.30	49.60
	Bachelor degree	110	41.70	91.30
	Graduate degree	23	8.70	100.00
Income (USD)	0-2000	83	31.40	31.40
	2001-2750	51	19.30	50.80
	2751-3000	65	24.60	75.40
	3001+	65	24.60	100.00
Online shopping frequency	Several times in a year	7	2.70	2.70
	Once in a every two or three months	29	11.00	13.60
	Once in a month	126	47.70	61.40
	Several times in a month	81	30.70	92.00
	Almost every week	14	5.30	97.30
	Almost every day	7	2.70	100.00

4.8.2 Manipulation checks

Behavior Identification. In the experimental groups, participants' responses to BIF questionnaire were subjected to binary coding (high level of construal = 1, low level of construal = 0), and summed. A higher (lower) score indicated a higher (lower) level of construal. As expected, a one-way ANOVA on participants' BIF scores show that participants in the abstract condition had higher BIF scores ($M_{Abstract}$ = 7.81) than did those in concrete condition ($M_{Concrete}$ = 6.90, F (1, 262) = 7.81; $p < .001$). These results indicate that manipulation was successful to induce abstract or concrete mind-set as intended. A full model test including all IVs (i.e., base-rate salience nudge, cue type, mental construal, and all two- and three-way interactions) also performed to rule out possible confounding related to mental construal manipulation. As expected, no main effects or interactions were significant apart from the mental construal variable. In other words, mental construal manipulation only manipulated participants' mental construal without giving rise to any unintended main or interaction effects in question. ($M_{Abstract}$ = 7.81 vs. $M_{Concrete}$ = 6.90, (F (1, 256) = 14.89 $p < .001$). Descriptive statistics and reliability of the constructs used in Study 6 are presented in Table 4.18.

Aggregate vs. Individual Favored Reviews. As expected, participants reported that the ARM was more positive in the AFC condition than in the IF condition (M_{AFC_ARM} = 4.94, M_{IFC_ARM} = 3.59; F(1, 262) = 157.67, $p < .001$). Similarly, participants reported that the IR was more positive in the IFC condition as compared to the AFC condition (M_{IFC_IR} = 5.28 M_{AFC_IR} = 1.64; F(1, 262) = 1210.49 $p < .001$). These indicate that our manipulation of the cue valence was successful. Full model tests (ARM and IR served as DV for each model) including base-rate salience nudge, mental construal, cue type and of all two- and three-way interactions as IVs also indicated that only cue type was significant. There was no significance effect observed for rest of the variables (M_{AFC_ARM} = 4.94, M_{IFC_ARM} = 3.59, F(1, 256) = 155.28, $p < .001$; M_{IFC_IR} = 5.28 M_{AFC_IR6} = 1.64, F(1, 256) = 1191.70, $p < .001$). Lastly, within each experimental group, ARM (IR) was higher (lower) in the AFC condition (M_{AFC_ARM} = 4.94, M_{AFC_IR} = 1.64). Likewise, IR (ARM) was higher (lower) than ARM (IR) in the IFC condition M_{IFC_ARM} = 3.59, M_{IFC_IR} = 5.28). These results provide strong evidence that the cue type manipulation was successful.

Table 4.18 : Descriptive statistics and reliability of the constructs used in study 6.

Construct	Item	Mean	Std. Dev.	Skewness	Kurtosis	CA
Perceived Similarity	Nothing / very much in common with me Not at all / very much like me Not at all /very much similar to me	4.33	1.11	-0.35	0.36	0.96
Risk Aversion	I would rather be safe than sorry. I want to be sure before I purchase anything. I avoid risky things.	5.47	0.78	-0.74	0.78	0.76
Familiarity to the Product	I know a lot about the hotels in general. I am completely familiar with the service of hotels, in general.	5.28	1.02	-1.07	1.83	0.72
Estimated Risk Likelihood	How likely would it be for you not to like the hotel? How likely would it be for you to be dissatisfied with the hotel?	6.91	3.28	-0.15	-1.19	0.97
Behavioral Intention	To what extent are you interested in finding out more about this hotel? How likely are you to consider book a room in this hotel? How likely are you to actually book a room in this hotel?	6.19	3.6	0.15	-1.49	0.98

Base-rate salience (Nudge). A modified version of the open-ended protocol (see Sun et al., 2021) was used for checking this manipulation. In an attempt to confirm the success of the base-rate salience manipulation, the keywords that the respondents wrote down while they were viewing the review page of the hotel (i.e., Beach Resort X or Y) was analyzed. The participants in the salient base-rate condition mentioned more base-rate and aggregate -related words in general (M_{nudge} = 0.30, F (1,262) = 15.05, $p < 0.001$) than those in the control condition ($M_{control}$ = 0.21), indicating base-rate salience manipulation was successful.

4.8.3 Results

A 2 (cue type: AFC vs. IFC) x 2 (mental construal: abstract vs. concrete mind-set) x 2 (nudge: base-rate reminder vs. control) a univariate ANOVA with estimated risk likelihood as the dependent variable indicated that there was no significant main effect observed for the cue types (M_{AFC} = 6.93, M_{IF} = 6.92, F (1, 256) = 0.01, p = 0.98), mental construal ($M_{Abstract}$ = 7.17, $M_{Concrete}$ = 6.68, F (1, 256) = 1.88, p = 0.17), and nudge (M_{Nudge} = 6.75, $M_{Control}$ = 7.09, F (1, 256) = 0.90, p = 0.34). In support of hypothesis 6, the results showed that there was a significant interaction between cue types and mental construal. More specifically, estimated risk likelihood of the target with AFC (IFC) (i.e., the risk of not liking the hotel with aggregate favored cue) is lower (higher), when consumers adopt an abstract mindset ($M_{Abstract\_AFC}$ = 6.21, $M_{Abstract\_IFC}$ = 8.13) compared to when consumers adopt concrete mindset ($M_{Concrete\_AFC}$ = 7.65, $M_{Concrete\_IFC}$ = 5.71, F (1, 256) = 29.31, $p < 0.001$, $\eta^2 = 0.10$).

As expected, there was a significant interaction between cue type and nudge. Because when people encounter a simply remind of what base-rate fallacy is, AFC (i.e., a cue signals favored base-rate information [ARM]) inherently exerts stronger influence over consumer decision-making (M_{AFC_Nudge} = 5.79, $M_{AFC\_Control}$ = 8.06 vs. M_{IFC_Nudge} = 7.71 $M_{IFC\_Control}$ = 6.12, F (1, 256) = 29.16, $p < 0.01$, $\eta^2 = 0.10$). On the other hand, a two-way interaction of mental construal and base-rate nudge was not significant (F = 0.18). Despite being beyond the scope of this study, these reports were delivered with the intention of providing an additional explanation.

To test hypothesis 9, an ANOVA with all three-way interaction of cue types, mental construal, and base-rate nudge was performed. The results showed that there was a significant three-way interaction. Specifically, base-rate nudge leads people in

concrete mind-set to estimate a lower (higher) likelihood of risk about the hotel with AFC (IFC) compared to control. It is a striking result, because base-rate nudge reverses the risk estimation, causing people with a concrete mindset to estimate a lower (higher) likelihood of risk for the hotel with AFC (IFC) compared to control (control: $M_{Concrete\_AFC}$ = 9.64, $M_{Concrete\_IFC}$ = 4.21 vs. base-rate nudge: $M_{Concrete\_AFC}$ = 5.66, $M_{Concrete\_IFC}$ = 7.21; F (1, 256) = 19.28, $p < 0.0001$, $\eta^2 = 0.07$). In other words, base-rate nudge eliminates base-rate fallacy for participants in concrete mind-set. However, when nudged, participants who were already exempt from the base-rate fallacy due to their abstract mental construal estimated a slightly lower (higher) likelihood of risk for the hotel with AFC (IFC) compared when nudge was not present. It can be said that base-rate nudge only slightly lowered (increased) already existing low (high) risk estimation of the hotel with AFC (IFC) for participants in abstract mindset. (Control: $M_{Abstract\_AFC}$ = 6.48, $M_{Abstract\_IFC}$ = 8.04; base-rate nudge: $M_{Abstract\_AFC}$ = 5.93, $M_{Abstract\_IFC}$ = 8.21; F (1, 256) = 19.28, $p < 0.0001$, $\eta^2 = 0.07$). These results indicated that in any case base-rate nudge exerted an influence over consumers' decision-making and shifted their consideration base in the direction of product ratings (i.e., ARM). Yet, it is important to note that, base-rate nudge had most dramatic and significant effect on participants with a concrete mindset. In conclusion, hypothesis 9a and 9b was supported (Figure 4.16, 4.17, and 4.18)

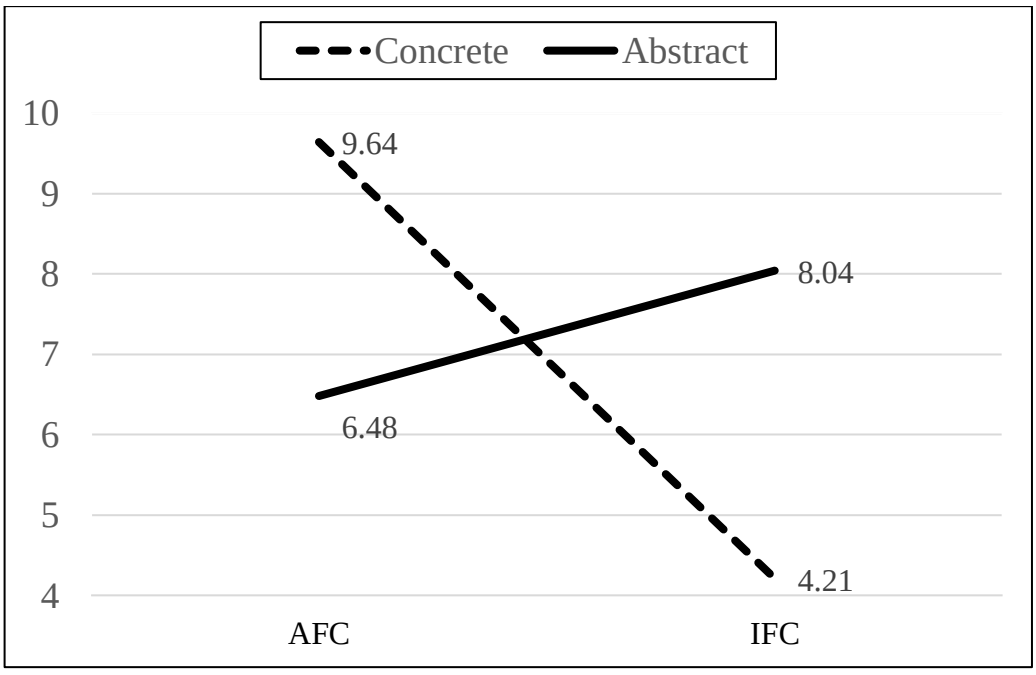


Figure 4.16 : Moderating effect of mental construal on the relationship between cue types on estimated risk likelihood in the control condition.

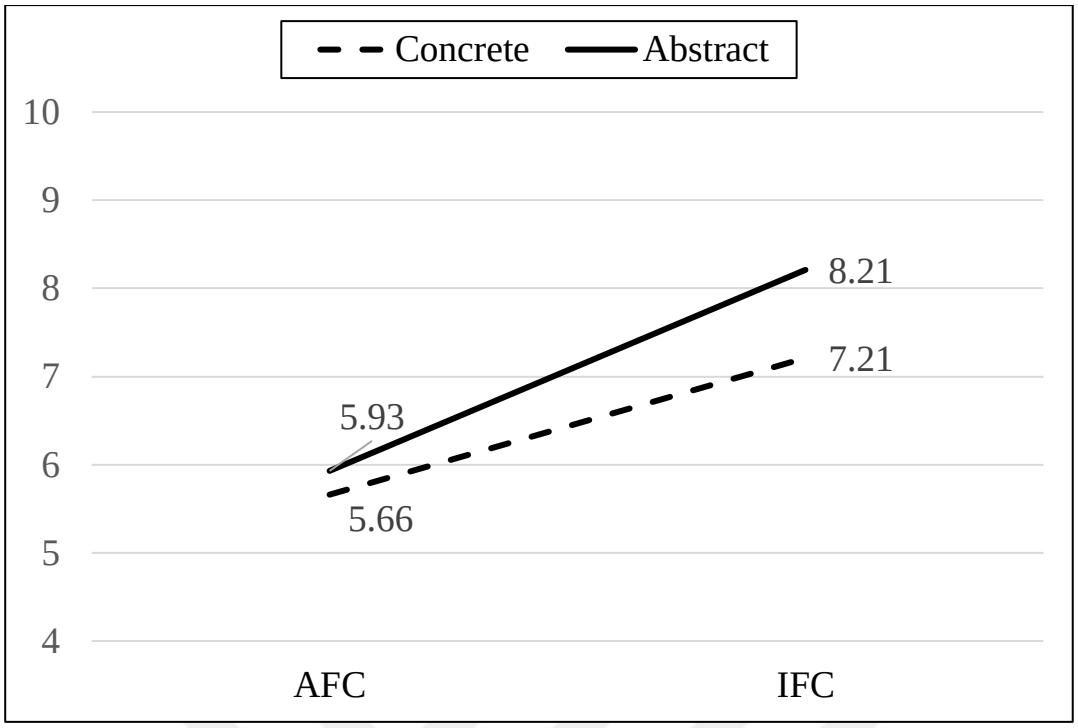


Figure 4.17 : Moderating effect of mental construal on the relationship between cue types and estimated risk likelihood in the nudge condition

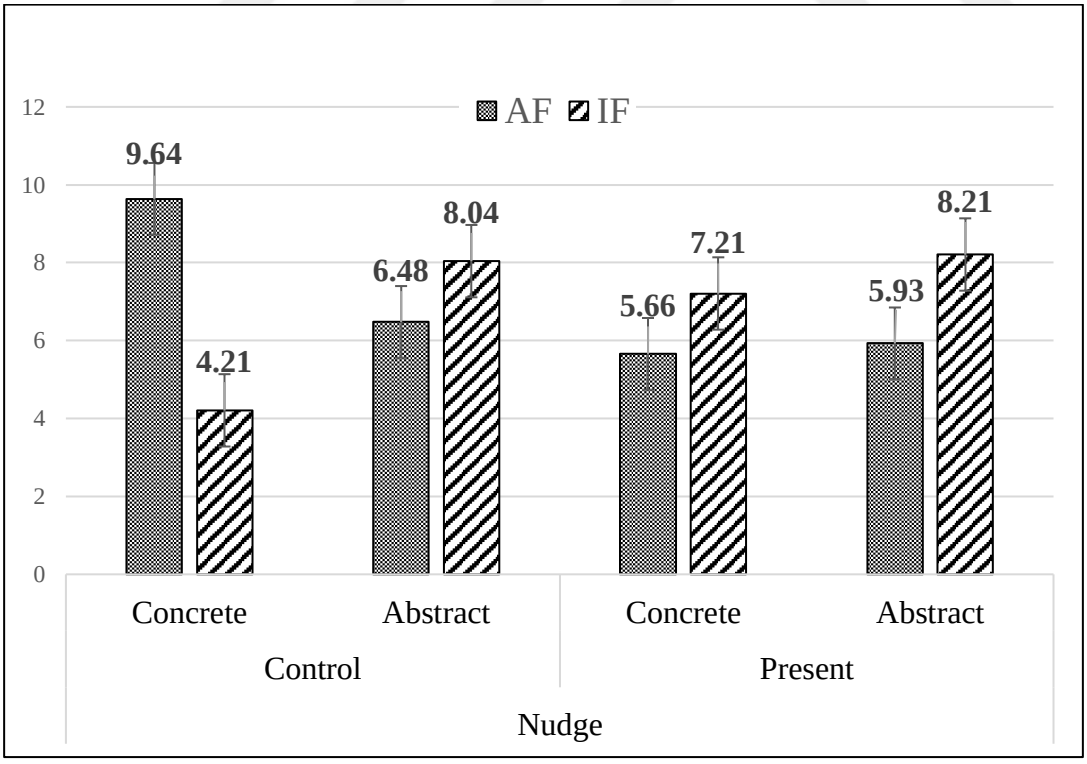


Figure 4.18 : Estimated risk likelihood as a function of mental construal and nudging.

To test hypothesis 10, a univariate ANOVA with behavioral intention as the dependent variable was performed with all three variables with their two- and three-way interaction terms. Only main effect of cue types was significant (M_{AFC} = 6.66 vs. M_{IFC} = 5.70, F (1, 256) = 6.32, $p < 0.05$, $\eta^2 = 0.02$). Except from the interaction between base-rate nudge and mental construal, all other two- and three-way interactions were significant. Specifically, base-rate nudge increases (decrease) behavioral intention of people in concrete mind-set for the hotel with AFC (IFC) compared to control (control: $M_{Concrete\_AFC}$ = 3.58 $M_{Concrete\_IFC}$ = 8.65 vs. base-rate nudge: $M_{Concrete\_AFC}$ = 8.20 , $M_{Concrete\_IFC}$ = 5.00 ; F (1, 256) = 15.70, $p < 0.0001$, $\eta^2 = 0.06$). Through the same theoretical lens, it can be said that base-rate nudge eliminates base-rate fallacy in terms of behavioral intention for participants in concrete mind-set. On the other hand, when nudged, participants who were already free from the base-rate fallacy due to their abstract mental construal scored slightly higher (lower) in behavioral intention scale for the hotel with AFC (IFC), compared to in the absence of nudge. That is to say, base-rate nudge increased (decreased) already existing higher (lower) score in behavioral intention toward the hotel with AFC (IFC). (Control: $M_{Abstract\_AFC}$ = 6.89, $M_{Abstract\_IFC}$ = 5.12; base-rate nudge: $M_{Abstract\_AFC}$ = 7.97, $M_{Abstract\_IFC}$ = 4.01, F (1, 256) = 15.70, $p < 0.0001$, $\eta^2 = 0.06$). These results also indicated that in any case base-rate nudge exerted an influence over consumers' decision-making and shifted their consideration base in the direction of product ratings again (i.e., ARM). Yet, it is important to note that, base-rate nudge had most dramatic and significant effect on participants with a concrete mindset. Therefore, hypothesis 10a and 10b was supported (Figure 4.19).

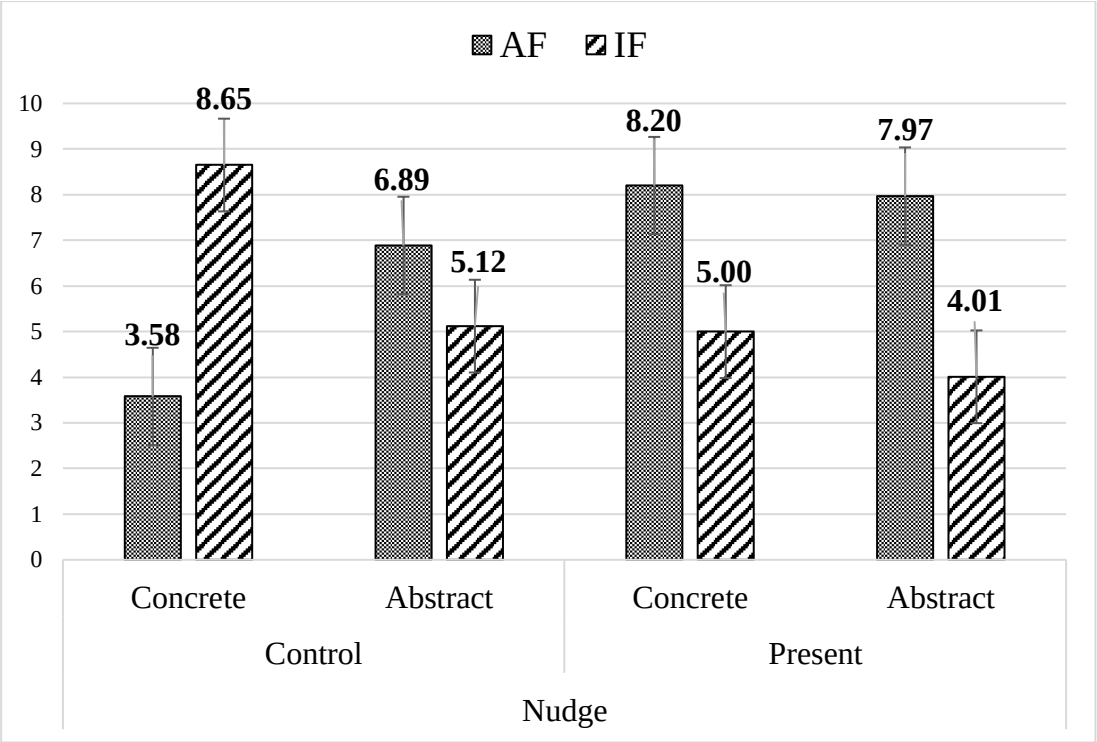


Figure 4.19 : Behavioral intention as a function of mental construal and nudging.

Replication. To retest and further corroborate findings presented in study 4, an analysis of planned comparison was followed up. When there was no base-rate nudge (i.e., for the control groups) a univariate ANOVA with behavioral intention as the dependent variable was performed. As predicted, there was a significant effect of cue types (M_{AFC} = 5.23., M_{IF} = 6.88, F (1, 128) = 8.51, $p < 0.01$, $\eta^2 = 0.06$), indicating the base-rate fallacy in parallel with previous studies in this thesis. In other words, consumers' behavioral intention is higher for the hotel with IFC than AFC. No significant main effect was observed for mental construal ($M_{Abstract}$ = 6.00, $M_{Concrete}$ = 6.11, F (1, 128) = 0.04, p = 0.85). However, there was a significant interaction effect between cue types and mental construal ($M_{Abstract\_AFC}$ = 6.89, $M_{Abstract\_IF}$ = 5.12 vs. $M_{Concrete\_AFC}$ = 3.58, $M_{Concrete\_IF}$ = 8.65 vs., F (1, 128) = 36.35, $p < 0.001$, $\eta^2 = 0.22$), supporting hypothesis 3 by replicating the study in another experimental setting, design and DV.

Process Analysis. Following a number of serial univariate ANOVA models, in order to test hypothesis 8, 9, and 10, a moderated mediation analysis with 5000 bootstrapped samples with 95% CI (PROCESS macro, Model 12; Hayes, 2013) was performed. Cue types (AFC = 0, IFC = 1), mental construal (concrete = 0, abstract = 1), nudge (control = 0, present = 1), and all two- and three-way interactions among them served as the independent variables. Behavioral intention served as the dependent variable, while

estimated risk likelihood included as the mediating variable (Figure 4.20). All main and interaction effects were significant in the first path of the model. A significant main effect of cue types on estimated risk likelihood showed that there was a negative relationship between cue types and estimated risk likelihood. More clearly, estimated risk likelihood of the hotel was lower for IFC, which is plausible and supportive our base-rate fallacy hypothesis addressed throughout the studies in this thesis. In other words, in spite of positive valence for both focal cues in question (e.g., aggregate favored cue favors ARM vs. individual favored cue favors IR), IFC was seen less risky than AFC, highlighting robustness of base-rate fallacy in online reviews, recurrently.

In the first path (path a: Cue Types → ERL) of the model, when nudge was not present (i.e., at values of base-rate nudge variable: base-rate nudge = 1 vs. control = 0), test of conditional interaction of cue types and mental construal was significant (Effect = 6.99, F (1, 256) = 48.07, $p < 0.001$). However, when nudge is present, the test of conditional interaction of cue types and mental construal was no longer significant. These results were also consistent with the findings of separate univariate ANOVAs', indicating initial evidence pertaining to base-rate nudge served as a boundary condition of base-rate fallacy for those in concrete mind-set.

In support of hypothesis 7, it was found that estimated risk likelihood negatively affected behavioral intention to book a room in the hotel provided (Path c: Effect = 0.90, t = -24.11, p < 0.01) (see path b in Figure 4.20).

The index of moderated mediation was significant for the overall model (Cue Types → ERL → BEH: index = 5.6143, Boot SE = 1.2992, 95% CI [3.1213, 8.2137], providing evidence to support hypothesis 8. Additionally, indices of conditional moderated mediation revealed that the index was significant in the control (i.e., no base-rate nudge) condition. Contrarily, the index was no longer significant in the base-rate nudge condition (Index = -0.6536 Boot SE = 0.8141, 95% CI [-2.2311, 0.9486], supporting hypothesis 11. Base-rate nudge served as a boundary condition for the moderated mediation model. In line with these arguments hypothesis 11 was supported.

It is also important to note that path c, the direct effect of cue types on behavioral intention, was not significant. To further examine, when estimated risk likelihood included in the model as a mediator, there was no longer significant direct effect of cue types on behavioral intention (path c: Effect = 0.2028, t = 0.4342, p = 0.66).

Furthermore, except from the interaction effect of cue type and nudge, all other two- and three-way interaction effect was not significant (path c': Effect = -0.5673, t = -0.8676, p = 0.39; path c'': Effect = -0.4626, t = 0.5257, p = 0.60). These results supported that there was a full mediation in this model (i.e., Cue Types → ERL → BEH). The findings with respect to indirect effect of cue types on behavioral intention (i.e., full mediation rather than partial mediation) not only supports hypothesis 11, but it is also consistent with previous literature in terms of revealing the underlying mechanism through which construal level operates on downstream behavioral consequences (see Yan and Sengupta, 2013). On the other hand, when base-rate nudge was introduced, direct effect of cue types on behavioral intention was significant (Base-rate nudge: $\text{Effect}_{\text{Abstract}}$ = -1.9158, t = -4.1984, p < 0.0001; $\text{Effect}_{\text{Concrete}}$ = -1.8111 t = -4.1984, p < 0.0001 vs. control: $\text{Effect}_{\text{Abstract}}$ = -0.3646, t = -0.8450, p = 0.40; $\text{Effect}_{\text{Concrete}}$ = -0.2028, t = 0.4342, p = 0.66), which was plausible and consistent with our arguments. The specified direct effect was only pronounced when the base-rate nudge was at play. We can only pronounce an indirect conditional effect of mental construal on the relationship between cue types and behavioral intention through estimated risk likelihood effect (as a process evidence) when the effect of base-rate nudge was eliminated. To reiterate, the results suggested that the relationship between the independent variable and dependent variable was mediated by the estimated risk likelihood. However, there was no significant direct effect of the cue types on the behavioral intention, indicating that the relationship was fully mediated. These findings provided support for the proposed theoretical model and have important implications for future research and practice. All aforementioned relationships were depicted in Figure 4.20.

Alternative accounts: First of all, it should be noted that if the effect observed in the present study were attributable to a greater level of motivation for processing and elaboration (i.e., deep processing), this effect would have been reflected in the motivation index. Furthermore, an implicit measure of participants' response time in the study was also included in the analyses, in order to exclude the same alternative explanation using two different measures. Notably, no significant differences were found on either measure (both F's < 1), indicating that this alternative account did not have a significant impact on the results.

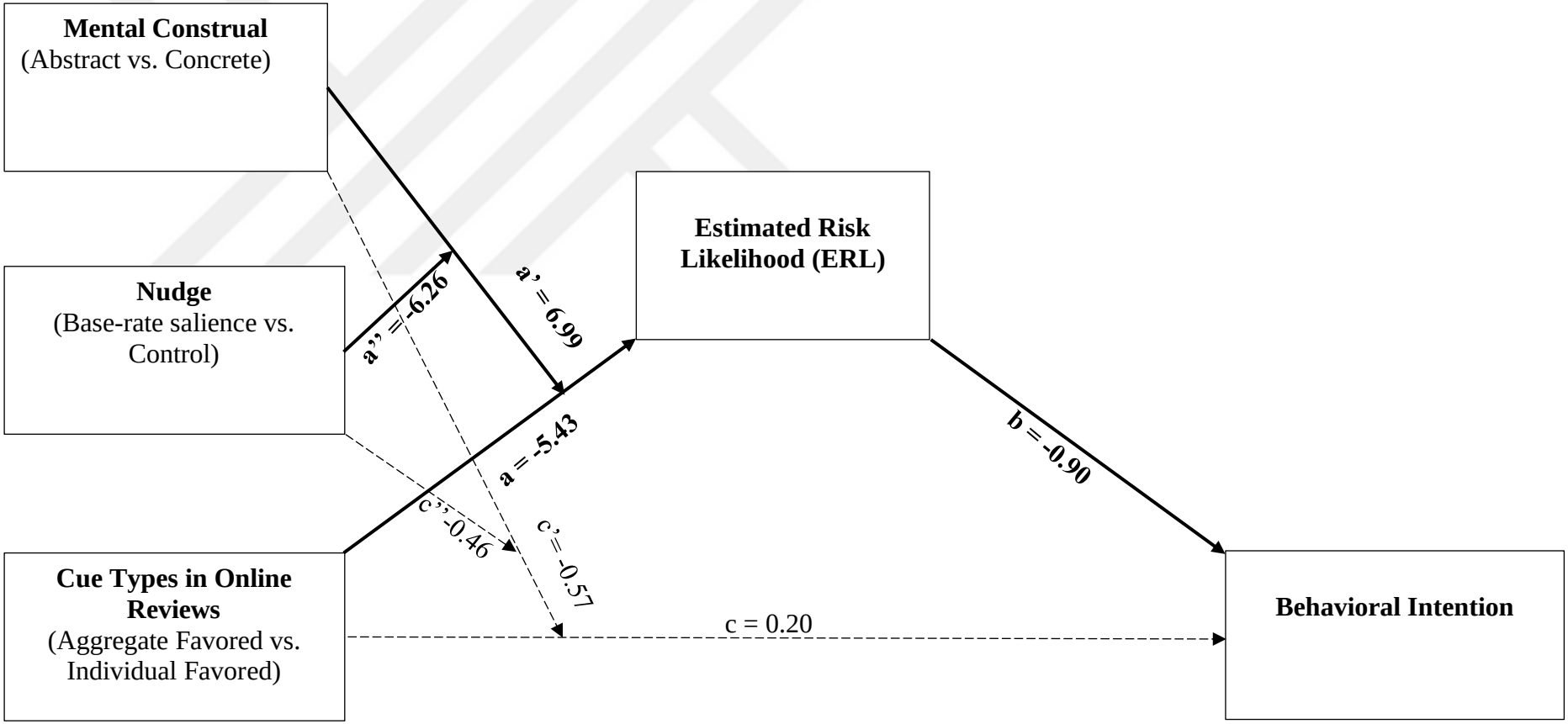
On the other hand, there are several potential confounding may threat the validity of the study. First, risk aversion inherently might play a role in the model in which estimate risk likelihood serves as the mediator. In other word, participants who are more risk averse tend to avoid relatively negative signals, which is reflected by a negative product rating or an individual review. In parallel with this argument, one may assert that individual review might be an avoidance factor regardless of an individual's construal level. Although it was aimed to be ruled out rigorously designing individual reviews so that they have not include any narrative elements. Because negative elements in an individual review with vivid, concrete, and narrative elements may discourages people who have already heightened risk perception to form a positive attitude toward the target. However, the full model's results indicate there is no main or interaction effects of IVs on risk aversion (all F's < 1).

Second, the reviewers' perceived similarity also plays an important role in online reviews. More specifically, the persuasive power of individuals is often influenced by their similarity to the recipient, with those who are similar being more persuasive (Brown and Reingen, 1987; Simons et al., 1970). Conversely, dissimilar individuals are often subject to discounting of their opinions. Given the significance of reviewer identity in determining the value of a given review (Gershoff et al., 2001), consumers, inherently seek out a cue about a reviewer's identity. To rule out this possible systematic bias of reviews' similarity to the participants in this study, the individual reviews are presented with no information and cues revealing or signaling the reviewer's identity. However, even in cases where the identity of a reviewer is ambiguous, individuals tend to utilize an egocentric anchor on the basis of accessibility to assume that the ambiguous reviewer shares similar tastes to their own. As a result, they are inclined to be similarly influenced by the opinions of ambiguous and similar reviewers (Naylor et al., 2011). However, the full model's results indicate there is no main or interaction effects of IVs on the reviewers' perceived similarity (all F's < 1).

Third, a prior familiarity to the product was already controlled with a fictitious and generic hotel brand. However, general familiarity of a product type (i.e., a hotel in this study), may jeopardize the results. To rule out and remedy this concern, and to ensure equivalency of general familiarity across the groups in this study, the variable in question was also controlled. Yet, the results also rule out this potential concern (all F's < 1).

To address the aforementioned accounts regarding the study, three separate univariate model of ANOVA with risk aversion, perceived similarity, and familiarity as the dependent variable, respectively, and cue types, mental construal, and base-rate nudge as the independent variable were performed. The results show that, there are no significant main or interaction effect in all three models. (All F's < 1.99), suggesting that the results go against such an account.

In this methodology and results chapter, the comprehensive research design, data collection, and analysis procedures employed in this study are meticulously addressed. An overview of the studies (Table 4.19) and summary of hypothesis with corresponding studies (Table 4.20) are shown below. The next chapter aims to contextualize and interpret our findings within the broader context of theoretical perspectives of existing literature and discuss the results accordingly.



Notes: All coefficients reported are unstandardized effects.
Bold arrows denote significant effects ($p < 0.001$).
No significant effect is present on the paths depicted with dashed arrows.

Figure 4.20 : The coefficients of the paths in the conceptual model of study 6 (Hayes, Model 12).

Table 4.19 : Overview of the studies.

Study	Title	Setting / Sample	Research Method	Research Design	n	DV / Mediator	Manipulation of Construal Level	Language
Study 1	Base-rate Neglect	Online / University students	Experimental	A 2-group between-subject	106	Attitude and Behavioral Intention	N/A	Turkish
Study 2a	In-depth Interviews	Online / Convenience	Qualitative	In-depth Interviews	34	N/A	N/A	Turkish
Study 2b	Scale test	Online / Convenience	Survey / CFA	Survey	50	N/A	N/A	Turkish
Study 3a	IACT (External Manipulations)	Online University students	Scenario based Experiment	A 2 group between-subject	104	IACT	Category-Exemplar Task	Turkish
Study 3b	IACT (Social Dimension of Psychological Distance	Online (Amazon MTurk)	Scenario based Experiment	A 2 group between-subject	96	IACT	Social dimension of psychological distance	English
Study 4	WTP as a Function of Cue Types and Mental Construal	Online / University students	Experimental	A 2 x 3 between-subject	162	WTP	Category-Exemplar Task	Turkish
Study 5	Process Evidence and Choice	Online (Amazon MTurk)	Experimental	A 2-group between-subject	110	Choice / IACT	Social dimension of psychological distance	English
Study 6	Nudge as a Boundary Condition and ERL as an Underlying Mechanism	Online (Amazon MTurk)	Experimental	A 2 x 2 x 2 between- subject	264	Behavioral Intention / Estimated Risk Likelihood	Category-Exemplar Task	English

Table 4.20 : Summary of hypotheses.

Hypotheses	Study	Result
H_1: Products with IFC are evaluated more favorably than AFC. *(base-rate neglect).*	Study 1	Supported
H_2: Consumers' intention to adopt ARM-*aggregate review metrics* (vs. IR-*individual reviews*) increases when a) consumers adopt an abstract mindset (vs. concrete mindset), and b) the judgment task is psychologically distant (*vs.* relatively close).	Study 3a & 3b	Supported
H_3: Consumers who adopt an abstract (concrete) mindset exhibit a higher willingness to pay (WTP) for products with AFC (IFC), compared to consumers who adopt a concrete (abstract) mindset.	Study 4	Supported
H_4: Consumers in an abstract (concrete) mindset are more likely to choose a product with AFC (IFC) than IFC (AFC).	Study 5	Supported
H_5: The relationship specified in H4 is mediated by IACT. *(Process evidence)*	Study 5	Supported
H_6: Estimated risk likelihood of the product with IFC (AFC) increases (decreases) when consumers adopt abstract mindset compared to when consumers adopt concrete mindset. Likewise, estimated risk likelihood of the product with IFC (AFC) decreases (increases) when consumers adopt concrete mind-set compared to when consumers adopt abstract mind-set.	Study 6	Supported
H_7: Estimated risk likelihood of a product negatively affect behavioral intention to purchase the product.	Study 6	Supported
H_8: The effects specified in H_{10} is mediated by estimated risk likelihood. *(An underlying mechanism).*	Study 6	Supported
H_9: Base-rate nudge moderates the moderation of mental construal on the relationship between cue types and estimated risk likelihood such that upon providing a simply reminder of what base-rate fallacy is (i.e., base-rate nudge) the base-rate neglect is eliminated: a) base-rate nudge reverse the effect of cue types on estimated risk likelihood for people in concrete mindset b) base-rate nudge decreases (increases) the estimated risk likelihood of AFC (IFC) for people in abstract mindset, compared to when base nudge is not present.	Study 6	Supported
H_{10}: Base-rate nudge moderates the moderation of mental construal on the relationship between cue types and behavioral intention such that upon providing a simply reminder of what base-rate fallacy is (i.e., base-rate nudge) the base-rate neglect is eliminated: a) base-rate nudge reverse the effect of cue types on behavioral intention for people in concrete mindset, b) base-rate nudge increases (decreases) behavioral intention toward AFC (IFC) for people in abstract mindset, compared to when base nudge is not present.	Study 6	Supported
H_{11}: The indirect effect of cue types on behavioral intention through estimated risk likelihood will be moderated by both mental construal and base-rate nudge, such that the effect of cue types (i.e., AFC and IFC) on behavioral intention mediated by estimated risk likelihood when base-rate nudge is not present. In contrast, we expect no mediation through estimated risk likelihood when base-rate nudge is present (i.e., boundary condition for the specified model in H_8).	Study 6	Supported

5. DISCUSSION

Research on the effects of ratings versus individual reviews remains inconclusive (Nazlan et al., 2018). Thus**,** this study seeks to answer three important research question. First, this study aims to explore whether there is specific manifestation of base-rate neglect in online review setting, which involves the underutilization of aggregate review metrics (e.g., average product rating) in comparison to individual reviews. Second, if base-rate neglect is evident in the context of eWOM, the study aims to investigate how consumers and marketers can effectively address this bias by identifying strategies to alleviate or potentially reverse (i.e., debiasing) this specific instance of base-rate neglect. By delving into this substantive topic within the realm of online shopping environments, this study also seeks to reveal a more profound comprehension of the ways in which consumers process and appraise frequently encountered review cues (e.g., ARM vs. IR). Furthermore, it is aimed to explore why certain factors may have a disproportionate impact on their decision-making processes and to identify the underlying mechanisms that lead to base-rate neglect in consumer judgments. Additionally, this investigation provides a foundation for developing targeted interventions that could guide consumers towards a more balanced consideration of both aggregate review metrics and individual reviews, ultimately leading to more informed and satisfactory purchasing decisions in the domain of eWOM.

The present research consists of eight unit including six experiments, a survey, and a qualitative study that utilize various stimuli, measures of evaluation (such as persuasion, willingness to pay, real choice, and behavioral intention), and methods (including lab experiment, online experiment, survey, and qualitative study), as well as different sample pools (such as students and frequent online shoppers with different demographic characteristics) and cultural backgrounds (involving American and Turkish participants). These studies collectively have demonstrated that the observed effect is consistent, reliable, and robust across different conditions.

Study 1 explores how consumers utilize various cues on OCR platforms, particularly when confronted with conflicting information (e.g., positive individual reviews (IR) and negative aggregate review metrics (ARM): referred to as IFC; or positive ARM and negative IR: referred to as AFC). The results provide evidence that people are more persuaded by IFC compared to AFC, indicating base-rate neglect is evident in OCR settings. The result of this study is in line with the first research stream suggesting individuals tend to give more weight to diagnostic, case information than base-rates, resulting in a phenomenon known as base-rate neglect (Kahneman and Tversky, 1973; Tversky and Kahneman, 1974; Welsch and Navarro, 2012; Yan and Sengupta, 2013). Other empirical findings support base-rate neglect indicating exemplars (case-specific information) exceed the influence of structural, summarized accounts (base-rate), (Brosius and Bathelt, 1994; Gibson and Zillmann, 1994). Daschmann (2008) substantiates this phenomenon asserting that case information is more natural for individuals to process than decontextualized, because processing case information is more relevant in a non-mediated social environment of human beings. In contrast, second research stream has found no significant differences between base-rate (e.g., statistical) and case information (e.g., narrative) evidence when it comes to forming attitudes about a target, or evaluating the credibility of a source (Nadler, 1983; Reinard, 1988). The findings of this study support first research stream in the context eWOM, particulary in OCR setting.

In eWOM context, several studies also examined aggregate reviews and individual reviews in different operationalization and settings. For instance, Hong and Park (2012) discovered that there was no difference between statistical reviews and narrative reviews in terms of influencing people's attitudes towards a product. Although it was not the main focus of that study, when both cue types were presented simultaneously, attitudes towards products with negative narrative reviews were found to be lower than those with negative statistical reviews, signaling initial evidence for base-rate neglect account. On the other hand, Qiu et al. (2012) investigated the impact of conflicting aggregate review cues on product-related attribution and review credibility, drawing on the confirmatory bias account. Specifically, this study implied that even if a product receives a positive overall rating at the aggregate level, consumers may still predominantly focus on a few negative reviews when forming their judgments. However, in the case of positive reviews, the findings showed that the

presence of conflicting aggregate ratings negatively impacts the perceived credibility and diagnosticity of the review, which appears to be inconsistent with the base-rate fallacy account. In contrast to the aforementioned study, the current thesis supported the base-rate neglect hypothesis even for a positive individual review paired with conflicting aggregate rating (i.e., IFC). This thesis is also supportive to the argument of another study, indicating if a review seems credible and well-supported, it can influence potential buyers' purchase decisions even when it clearly and noticeably contradicts an aggregate review score that indicates poor product performance (Ziegele and Weber, 2015). In this thesis, however, the author preferred to design the experimental manipulation in such a way that there were no credibility signals present for participants to infer the credibility of eWOM. Besides, the ARM was presented with 500+ evaluations in study 1, which can imply the credibility of the ARM cue rather than of IR. Namely, this factor could potentially go against, complicate, and weaken the strength of our hypothesis (H_1). However, the author has prioritized high internal validity over external validity. As a result, the findings of this study suggest that even when factors such as credibility and other potentially persuasive elements are accounted for experimentally, base-rate neglect still persists in the OCR setting.

Nettelhorst et al., (2013) suggested that the valence of the base-rate information had a significant impact on participants' evaluation of the product only when case information was not provided. Conversely, when case history information was available, its valence had a significant impact on participants' evaluation of the product, regardless of the nature of any base-rate information. These insights underscore the importance of case information in shaping participants' perceptions, supporting the finding of the present thesis.

On the other hand, to account for uncontrolled potential confounding related to receivers of eWOM (i.e., receivers are the participants in this study), participants' risk aversion and processing motivation was controlled. Base-rate neglect account was robust irrespective to participants' risk aversion, and processing motivations. This result is also in line with research indicating involvement is not an alternative account for the utilization of base-rate (Lee, 2019; Trope and Liberman, 2010; Yan and Sengupta, 2013).

The aim of study 2 was to explore the distinct factors within OCR platforms that influence consumers' decisions to rely on either aggregate review metrics (ARM) or

individual reviews (IR) when making choices (i.e., ARM vs. IR). To investigate the underlying factors associated with eWOM cues that affect consumers' relative utilization of one over the other, a qualitative study was carried out. As a result, six elements that consumers consider when deciding to utilize either cue were identified (i.e., credibility, helpfulness, informativeness, persuasiveness, importance for purchase intention, and diagnosticity). All these factors were congruent with relevant eWOM literature, and well-established dependent variables in the domain. (for further details see, Ismagilova et al., 2017). Based on this qualitative study, a scale is developed with the purpose of measuring consumers' relative intentions to adopt different cue types (see IACT in chapter 4).

In the subsequent studies, the author tested construal level account to mitigate or even reverse base-rate neglect being present in OCR setting. First, this hypothesis is tested using the aforementioned novel scale introduced in this thesis (IACT). Specifically, study 3a and 3b designed to test whether there was a significant difference between the intention to adopt ARM and IR depending on consumers' mental construal when both types of cues are salient. Results indicated that consumers' intention to adopt ARM is higher (lower) when they adopt abstract (concrete) mental construal, or the task at hand is psychologically distant (close). Likewise, the exact opposite was true for IR. Study 4 replicated these findings with different measures instead of previously used self-report scale and using conflicting review cues (AFC vs. IFC) as stimuli and further ruling out alternative explanations by incorporating response time as implicit measure of processing motivation. Study 5 further expand the previous studies with real choice task and corroborated the findings of study 3a and 3b by providing process evidence rather than adopting "black box" approach. Lastly, study 6 extended previous findings with two major contributions. First, this study examined the role of consumers' estimated risk likelihood regarding a product or service as an underlying mechanism for the over- or underutilization of ARM (IR) depending on abstractness cue (concreteness). Second, the study also provides evidence by showing that a simple reminder nudge about base-rate neglect in the OCR setting can effectively eliminate the over- and underutilization of cue types resulting from consumers' mental construal.

Base-rate and case information utilization depending on construal level were addressed in the context of health risk assessment (Yan and Sengupta, 2013), evaluations of others' decisions (Burgoon et al., 2013), the use of social comparison information

(Bruchmann and Evans, 2012) and risky decision making following near-miss events (Kirshner, 2021). However, specific studies focusing on eWOM in this regard is still scarce, with only two exceptions (Hansen and Melzner, 2014[17]; Ledgerwood et al., 2010).

Ledgerwood et al, (2010) were the first to suggest that temporal distance increases the relative weight placed on aggregate vs. individualized information when participants are asked to choose between two products. This thesis also moves beyond this work suggesting that not only temporal distance but also social distance, and externally manipulated mental construal influence the weight ARM vs. IR with different operationalizations, measures, a novel self-reported process evidence scale, and a possible underlying mechanism. In support of construal level account, Hansen and Melzner (2014) also replicated the direct impact of construal levels on information usage by priming either abstract or concrete mental construal using musical sounds that differed in chord length, reverberation, and harmonic modulation (a direct replication of the study conducted by Ledgerwood et al., 2010). Their findings revealed that participants exposed to abstract sounds (e.g., whole note chords with reverberation) placed greater importance on the toaster with a favorable aggregate rating. In contrast, participants who heard concrete sounds (e.g., quarter-beat chords without reverberation) opt for the toaster with favorable individual reviews. This thesis also extends these findings by manipulating construal level externally with a category-exemplar task (Fujita et al., 2006), social distance manipulation (Yan and Sengupta, 2013), different outcome variables (persuasion, WTP, behavioral intention, and self-reported process evidence -IACT-) and different product and service types (e.g., electronics, restaurant, hotel). Furthermore, this thesis also provide possible underlying mechanism through which construal level serves as a moderator on the outcomes. Additionally, this thesis highlights an important debiasing technique, a simple base-rate reminder, as a nudge and showed how this nudge serves as a boundary condition.

Given that the average overall product rating serves as the most all-inclusive measure of product quality for consumers, it is logical to believe that a rational consumer's decision-making is substantially swayed by this comprehensive quality signal.

[17] This study replicated the toaster study of Ledgerwood et al., (2010), p. 640.

However, a significant portion of consumers committed to making conscientious purchases also examine individual reviews before reaching a conclusion. For instance, despite a product's high overall rating, a single negative review can undermine and alter a consumer's otherwise favorable attitude. Conversely, a single positive review can prompt consumers to adopt a positive attitude towards a product or service, even if the product has a low aggregate rating. As discussed throughout this thesis, this phenomenon illustrates a cognitive bias of base-rate neglect where consumers in an online review setting may disregard the overall review metrics in favor of individual reviews. On the other hand, ratings are purported to offer an almost flawless representation of product quality while requiring minimal search efforts (Simonson 2014; 2015; Simonson and Rosen 2014). However, other studies suggest it a poor proxy to predict product quality (e.g., De Langhe et al., 2015). Drawing on classical "*wisdom of crowd"*[18] approach, in this research, it is presumed that, despite their shortcomings, aggregate metrics (i.e., ARM) exhibit less bias compared to a single individuating cue at any given time (Lorenz et al., 2011; Surowiecki, 2004). Furthermore, merely claiming that a rating is not an adequate representation of product quality and performance (e.g., De Langhe et al., 2015) is entirely distinct from arguing that ratings are a better predictor of product quality and performance compared to a specific subset of individual reviews. In other words, these arguments are not mutually exclusive. Specifically, to further increase unbiased nature of ARM, popular ecommerce platform Amazon uses machine-learned models to calculate a product's star rating, which considers various factors such as the recency and verified purchase status of ratings or reviews. The system uses multiple criteria to authenticate feedback, such as natural language processing and supervised machine learning. Additionally, Amazon's model continually improves through the incorporation of new data over time. This helps ensure that the star rating accurately reflects the product's quality and relevance (Amazon, 2023).

Based on these argument, present thesis embraces the fundamental idea is that people can err because their inclination is to rely on a limited portion of the available

[18] The "wisdom of crowds" is a phenomenon that suggests a group of diverse and independent individuals can collectively make more accurate decisions, predictions, or estimations than individual members or even experts. This concept relies on the idea that the aggregate knowledge and insights of a diverse group can cancel out individual biases, errors, and subjective judgments, resulting in a more accurate collective outcome (see Surowiecki, 2004).

information (e.g., a set of individual reviews) for any particular judgment (see Kahneman's WYSIATI[19] concept; Kahneman, 2011). With the prevalence of various online platforms where users exchange advice, it is becoming increasingly crucial to comprehend how consumer utilize ratings and individual reviews to lessen cognitive biases in the OCR domain. In doing so, both marketers and consumers make more informed decisions.

5.1 Theoretical Contributions

This study makes several key theoretical contributions to the understanding of online consumer reviews and their impact on decision-making processes. First, the conceptualization of cues on online review platforms is grounded in the well-established concepts of base-rate and case information. This distinction highlights the differences between two types of cues in online consumer review platforms and encourages researchers to develop novel, testable hypotheses based on this conceptualization. Second, the study provides strong evidence that the base-rate fallacy operates in online consumer review platforms, shedding light on a cognitive bias that affects consumer decision-making in this context. Third, while findings on the relative influence of average ratings and individual reviews remain mixed, this study suggests that *Construal Level Theory* offers a more comprehensive and robust explanatory framework for understanding these seemingly disparate results. By proposing a novel theoretical approach, this research also elucidates a novel moderator (mental construal) that determine which cues are more prominent under specific conditions. Fourth, the study identifies a crucial boundary condition, showing that nudging base-rate cues by providing a simple reminder of the base-rate fallacy can significantly influence consumer decision-making. This nudge increases the intention to adopt ARM compared to IR, which are otherwise more influential by default (base-rate neglect). Lastly, the research highlights the importance of estimated risk likelihood as a critical underlying mechanism in the pathway of behavioral outcomes. This insight enhances our understanding of the factors driving consumer decision-

[19] WYSIATI, or "What You See Is All There Is," refers to our tendency to form judgments and impressions based on the information readily available to us. Generally, we do not invest much time considering the notion that there is still a wealth of information we have yet to discover (Kahneman, 2011).

making in the context of online reviews and paves the way for future research on strategies to mitigate potential biases and improve decision-making processes.

The theoretical implications and contributions of this thesis are manifold, given the comprehensive nature of the research conducted. To reiterate, the investigation encompassed six experiments, a survey, and a qualitative study, employing a diverse range of stimuli, evaluative measures (including persuasion, intention to adopt cue types, willingness to pay, real choice, and behavioral intention), and methodologies (such as lab experiments, online experiments, surveys, and qualitative research. Furthermore, the studies drew from varied sample pools, featuring participants with distinct demographic characteristics, such as students and frequent online shoppers, as well as individuals from different cultural backgrounds, specifically American and Turkish. The collective findings from these studies have demonstrated that the observed effect is consistent, reliable, and robust across multiple conditions. Consequently, this thesis significantly expands the existing body of knowledge by offering a comprehensive and nuanced understanding of the phenomenon under investigation, while also providing a foundation for future research to build upon and explore additional factors and contexts.

In the context of ARM and IR and their downstream consequences, this thesis shows that CLT may serve as a broad explanatory base with the potential to reconcile seemingly disparate findings and, in an attempt, to reveal the underlying mechanisms at play. For instance, Ordabayeva et al. (2022) suggest that negative reviews might benefit identity-relevant brands when the reviewers are perceived as more socially distant. Identity-relevant, semantic memories may serve as abstract information and mitigate the effect of negative individual reviews by leading individuals to underutilize individual reviews. Likewise, Naylor et al. (2011) provide evidence that when the identity of a reviewer is unclear, customers tend to use accessibility-based egocentric anchor to infer that these anonymous reviewers is similar to them. This leads consumers to be equally influenced by reviews from both anonymous and similar reviewers. When consumers focus on individuating information (e.g., individual reviews) which serve as tangible, vivid, contextualized cues, they are more likely to develop a more concrete mindset. On the other hand, Braga et al. (2015) suggest that low levels of construal (e.g., concrete mindset) favor the use of availability heuristics.

Accordingly, the ultimate explanation of these findings could be linked to construal level and its impact on over reliance on the accessibility-based egocentric anchor.

In a similar vein, findings of a recent study revealed that the influence of individual reviews stemmed from the specific textual content within the reviews, rather than their ratings or any recency effect, implying concreteness cue of individual reviews (Lei et al., 2022). Another study examines a conflicting aggregated rating on individual reviews' perceived credibility and diagnosticity (Qiu et al., 2012). The results show that a conflicting aggregated rating decreases review diagnosticity and credibility via its negative effect on consumers' product-related attributions of the reviews. Considering consumers' chronic construal level as a trait and contextual factors that influence it, mental construal may also play a role as an underlying psychological mechanism. Additionally, Naylor et al. (2011) suggest that consumers are similarly persuaded by reviews written by ambiguous and similar reviewers, and ambiguous reviewers are more persuasive than dissimilar reviewers. Since it is evident that abstract construal induces a similarity focus (McCrea et al., 2012), the similarity attribution to ambiguous reviewers may be accounted for the level of construal.

In addition, this thesis has made an important contribution by introducing the category vs. exemplar task, which externally induces abstract or concrete mindset, and the *Behavioral Identificaiton Form* (BIF), which reliably measures individuals' level of construal, to the Turkish literature in the domain.

The author believes that this thesis is a promising alternative and has the potential to explain seemingly disparate findings in the literature. Also, it extends related studies in the domain by adding novel mechanisms, and moderators. Thus, the results of this study make significant theoretical contributions to relevant literature by identifying and testing a new mechanism (i.e., estimated risk likelihood) through which consumers' utilization of cue types is differentially utilized in OCR platforms.

5.2 Managerial Implications

Findings in this study may provide preliminary implications and valuable insights to the practitioners. For example, firms can make either ARM or IR more salient depending on consumers' mental construal. As noted, studies in CLT have suggested that different dimensions of psychological distance (i.e., time, space, social distance,

and hypotheticality) influence consumers' mental construal and, in turn, it affects the prediction, evaluation, and behavior of consumers (Trope and Liberman, 2010). With this in mind, customers buying a product for others (e.g., gift giving, buying on behalf of others) adopt a more abstract mind-set than customers buying a product for themselves (e.g., Baskin et al., 2014). Similarly, consumers at the informational stage of a customer journey are more likely to be in an abstract mind-set. In contrast, consumers at the transactional stage of the customer journey are more likely to be in a concrete mind-set (Humphreys et al., 2021). In addition, the spatial distance between consumers and firms (e.g., tourists' hometown and their spatial proximity to a hotel) or a consumer to a reviewer (e.g., spatial proximity among online users in a review platform) can serve as an important cue for detecting consumers' mental construal. Since consumers' mental construal influences their intention to adopt either IR o ARM in the decision-making process, firms can increase or decrease the salience of the review types as a part of their user experience strategy. Rigorously monitoring similar instances on these platforms, firms can manage their marketing communications mix accordingly to gain competitive advantages in the market. Policymakers can also leverage the behavioral findings of the study to increase the effectiveness of their persuasive communications.

Firms are continuously exploring methods to minimize the risks associated with negative customer feedback. Some individuals may have excessively high expectations or intention to sabotage the firm. Reducing the impact of such reviews is advantageous for businesses. Thus, firms can also leverage the methods and insights provided by this thesis for reducing the adoption of individual reviews in this respect.

Reducing the impact of such disinformed or misinformed reviews is also beneficial for consumers, as it prevents them from being misguided.

Lastly, this thesis also seeks to emphasize the importance of debiasing in the context of electronic word-of-mouth (eWOM). In light of this focus, the following key takeaways are presented:

(1) Debiasing refers to the process of reducing or eliminating cognitive biases to improve decision-making. By addressing biases in eWOM, consumers can make more informed choices and businesses can benefit from a more accurate representation of their products and services.

(2) Potential debiasing techniques for eWOM include nudging (using subtle interventions to guide decision-making), incentivizing (using more direct intervention, e.g., discount coupons) perspective-taking (encouraging individuals to consider other viewpoints), and training (enhancing self-awareness and cognitive flexibility). These techniques can help mitigate base-rate neglect and other biases in eWOM by promoting more balanced and rational decision-making.

(3) Ecommerce and online review platforms could implement nudges by displaying aggregated ratings prominently, encouraging users to consider the overall satisfaction levels of a product or service rather than focusing on isolated reviews. Moreover, platforms could encourage users to reflect on potential cognitive biases before making decisions, by advising them not to overly focus and ruminate on a single positive or negative review. This approach may help users make more informed choices and mitigate the influence of cognitive biases in their decision-making process.

(4) Beware of challenges and limitations in implementing debiasing techniques in online review platforms. Some users may resist efforts to influence their decision-making, and the effectiveness of debiasing techniques may vary depending on individual differences, age, education, and psychographic factors and the specific biases being addressed. Therefore, each marketing challenge in this context should be addressed in its own way.

5.3 Limitations and Future Research Directions

Employing a robust research methodology, the present study has achieved considerable progress in understanding the influence of eWOM cue types on consumer decision-making. Nonetheless, the results should consider the several limitations when interpreting the findings.

First, the present study provides only a single review to the participants with an overall aggregate rating. Because, in the controlled experimental setting, the aim was to minimize potential confounding factors associated with the reinforcing or reducing effects of cues of multiple reviews when they are either conflicting or congruent with one another. In other words, if participants are presented with multiple reviews, the interaction effect of these reviews (i.e., conflicting and congruent) may have a potential to be diagnostic in consumer decision journey (Cheung et al., 2009). As a

result, while the internal validity of this research is bolstered by the well-controlled experimental design, some aspects of external validity might have been compromised. Because in a field setting, consumers are often exposed to multiple reviews simultaneously. Similarly, individual reviews presented in this study lack rich contextual details (e.g., concreteness, narrativeness, vividness, affective elements, and textual or pictorial aspects).The rationale behind choosing this type of reviews is to control potential confounding effects that may arise from the interaction between subjects and stimuli.

In a similar vein, the present study employed ARM as a single overall metric that represents an average overarching score of the product, without breaking it down into feature- or performance-based ratings. The overall rating is almost always presented cue in online review settings, and aligns with the general gist of a product, which is inherently congruent with the abstract nature of this type of cue as suggested in this study. However, numerous review platforms also offer feature-based rating cues for customers (e.g., Amazon, TripAdvisor). Consequently, future research can consider incorporating feature-based ratings as an ARM into their studies, while concurrently displaying them alongside contrasting individual reviews that address the corresponding features.

In order to strictly control internal validity of experiments, the present research does not include numerous factors related to OCR, such as recency, total number of individual reviews, and their consistency or conflict and so on. Also, this study did not extensively investigate the presentation formats of ARM (e.g., stars, dotted Venn diagrams, or icon displays). Future studies could delve into these elements to enhance the current understanding of how presentation of ARM influences consumer decision-making. On the other hand, several factors, such as consumers' risk perception, skepticism about OCR, goal orientations, and product types (i.e., search, experience, and credence) may serve as a boundary condition or improve the explanatory power of the proposed model. By examining these factors and replicating the studies in light of additional details, future research can further contribute to the OCR and eWOM literature.

An additional limitation of this study is the ambiguity of products and services presented across the studies. For the sake of internal validity, brand details and product features were eliminated. This method may have caused products, like sneakers, to

appear more experiential than they would under typical conditions. This high uncertainty raises concerns about the generalizability of the observed effects to scenarios where consumers have more extensive product information. If a stimulus encompassing complete product details were employed, the observed effects might be diminished. Future research should employ a diverse range of stimuli, incorporating both comprehensive product information and varying degrees of uncertainty, to further replicate the findings concerning the differential utilization of ARM vs IR depending on consumers' mental construal.

In the present study, only single review was salient to the participants in order to minimize potential confounding related to corroborating or mitigating perceived risk likelihood about a product when they are conflicted and/or consistent with each other among reviews them influences from other reviews on consumers' perceptions of the target review, which could otherwise confound the effect of the aggregate rating (Ismagilova et al., 2017). In reality, however, consumers often have access to multiple reviews of congruent or contrasting valence simultaneously. As a result, while the internal validity of this research is bolstered by the well-controlled experimental design, some aspects of external validity might have been compromised. Future research could delve into the effects of conflicting cues when consumers are exposed to a broader array of reviews, thereby offering a more comprehensive understanding of consumer behavior in real-world online shopping environments.

Lastly, the experimental studies employed in this thesis used *a post-test only control group design*, which is a widely used true experimental design in psychology and consumer behavior realm. A major drawback of this design is the lack of a pretest for both experimental and control groups before treatment. While a pretest is not essential for true experimental designs, and random assignment of subjects to groups can ensure "equality" between experimental and control groups before treatment (Campbell and Stanley, 1963), having a pretest can help fully control initial biases between groups. In such instances, pretest-posttest control designs or the Solomon four-group design may be considered more appropriate alternatives. However, the benefits of pretest-posttest and Solomon four-group designs might not always outweigh the challenges. Additionally, pretest-posttest designs have their own drawbacks (Campbell and Stanley, 1963), in some cases, pretests can be redundant and lead to an increased "giveaway effect."

5.4 Concluding Remarks

Building on a well-grounded conceptualization of cue types in online review platforms (i.e., base-rate and case information), this study fosters the development of innovative, testable hypotheses. Additionally, the research provides robust evidence of the base-rate fallacy in online consumer review platforms, unveiling a cognitive bias that influences decision-making with different stimuli, participants, and methods.

Suggesting construal level theory as a comprehensive explanatory framework, the study reconciles mixed findings on the relative influence of average ratings and individual reviews. This novel approach sheds light on the underlying mechanisms that dictate cue prominence under specific conditions. The study also identifies a crucial boundary condition, demonstrating that nudging base-rate cues with a simple reminder significantly impacts consumer decision-making, increasing the intention to adopt average rating measures.

Lastly, the research underscores the importance of estimated risk likelihood as an essential underlying mechanism in behavioral outcomes. These insights deepen our understanding of the factors shaping consumer decision-making within online reviews and paves the way for future research on strategies to minimize biases and enhance decision-making processes.

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APPENDICES

APPENDIX A: Category-exemplar manipulation task (English)

High-Level Condition Task Instructions:

In this task, you will be provided with a series of words. Your task will be to write a word that you think each provided word is an example of. That is, ask yourself the question, "[Provided word] is an example of what?" and then write down the answer you come up with. For instance, if we gave you the word "POODLE," you might write down "DOGS" or even "ANIMALS," as a poodle is an example of a dog or animal. Be creative and come up with the most general word for which the provided word is an example.

Low-Level Condition Task Instructions:

In this task, you will be provided with a series of words. Your task will be to write down a word that is an example of this word. That is, ask yourself the question, "An example of [provided word] is what?" and write down the answer you come up with. For example, if we gave you the word "DOGS," you might write down the category "POODLE" or even "PLUTO" (the Disney character). Be creative and try to think of as specific an example of the category as you can.

Stimuli:

SODA	SHOE	BEER	PAINTING	POSTER
COMPUTER	MOVIE	PHONE	BAG	SOAP OPERA
NEWSPAPER	PEN	SOAP	WATER	RIVER
PROFESSOR	SENATOR	FRUIT	COLLEGE	MATH
PASTA	LUNCH	COIN	DANCE	KING
BOOK	TRAIN	RESTAURANT	CANDY	WHALE
SPORT	MAIL	TREE	GUITAR	SINGER
TABLE	ACTOR	GAME	MOUNTAIN	TRUCK

APPENDIX B: Category-exemplar task (Turkish)

Yüksek Seviye (Soyut) Düşünme Şekli Manipülasyonu

Öncelikle, size bir dizi sözcük verilecektir. Verilen her bir sözcüğün sizce neyin bir örneği olduğunu yanına yazmanız istenmektedir. Kendinize, "[size verilen sözcük] daha genel hangi kavramın örneğidir?" sorusunu sorup aklınıza gelen cevabı yazabilirsiniz. Örneğin; eğer size "KANGAL" gibi bir sözcük verilirse, bunun yanına "KÖPEKLER" ya da "HAYVANLAR" hatta "CANLILAR" gibi o sözcüğün neyin bir örneği olduğuna dair genel kavramlar yazabilirsiniz. Çünkü kangal köpekler, hayvanlar, hatta canlılar aleminin bir unsurudur. Sizden istenen yaratıcı olup verilen örneklerin yanına olabildiğince en genel ve kapsayıcı kategoriyi yazmanızdır.

Düşük Seviye (Somut) Düşünme Şekli Manipülasyonu

Öncelikle, size bir dizi sözcük verilecektir. Verilen her bir sözcüğün yanına size göre bu sözcüğün bir örneğini yazmanız istenmektedir. Kendinize, "[size verilen sözcüğe] örnek olarak ne verilebilir?" sorusunu sorup aklınıza gelen cevabı yazabilirsiniz. Örneğin; eğer size "KÖPEKLER" gibi bir sözcük verilirse, bunun yanına bir köpek cinsi olan "KANGAL" ya da "SCOOBY DOO" (bir çizgi film karakteri), hatta "KENDİ KÖPEĞİNİZİN ADI" gibi verilen sözcüğe dair spesifik örnekler yazabilirsiniz. Sizden istenen yaratıcı olup verilen örneklerin yanına olabildiğince en spesifik, belirli bir örneği yazmanızdır.

Uyaran:

GAZLI İÇECEK	AYAKKABI	İÇECEK	RESİM TABLOSU	POSTER
BİLGİSAYAR	FİLM	TELEFON	ÇANTA	DİZİ
GAZETE	KALEM	SABUN	SU	NEHİR
PROFESÖR	SİYASETÇİ	MEYVE	ÜNİVERSİTE	MATEMATİK
MAKARNA	ÖĞLE YEMEĞİ	MADENİ_PARA	DANS	PADİŞAH
KİTAP	TREN	RESTAURANT	ŞEKERLEME	BALİNA
SPOR	POSTA	AĞAÇ	GİTAR	ŞARKICI
MASA	AKTÖR	OYUN	DAĞ	KAMYON

APPENDIX C: Behavioral identification form (English)

Any behavior can be described in many ways. For example, one person might describe a behavior as "writing a paper," while another person might describe the same behavior as "pushing keys on the keyboard." Yet another person might describe it as "expressing thoughts." This form focuses on your personal preferences for how a number of different behaviors should be described. Below you will find several behaviors listed. After each behavior will be two different ways in which the behavior might be identified.

Your task is to choose the identification, a or b, that best describes the behavior for you. Simply place a checkmark next to the option you prefer. Be sure to respond to every item. Please mark only one alternative for each pair. Remember, mark the description that you personally believe is more appropriate for each pair.

1. Making a list a. Getting organized* b. Writing things down	**2. Voting** a. Influencing the election* b. Marking a ballot
3. Reading a. Following lines of print b. Gaining knowledge*	**4. Filling out a personality test** a. Answering questions b. Revealing what you're like*
5. Cleaning the house a. Showing one's cleanliness* b. Vacuuming the floor	**6. Toothbrushing** a. Preventing tooth decay* b. Moving a brush around in one's mouth
7. Painting a room a. Applying brush strokes b. Making the room look fresh*	**8. Eating** a. Getting nutrition* b. Chewing and swallowing
9. Locking a door a. Putting a key in the lock b. Securing the house*	**10. Pushing a doorbell** a. Moving a finger b. Seeing if someone's home*

*Yüksek seviye (soyut) seçenek.

APPENDIX D: Behavioral identification form (Turkish)

Herhangi bir davranış birçok şekilde tanımlanabilir. Örneğin; bir kişi, gözlenen bir davranışı "makale yazmak" olarak tanımlarken başka bir kişi aynı davranışı "klavyedeki tuşlara basmak" olarak tanımlayabilir. Yine başka bir kişi bunu "düşüncelerini ifade etmek" olarak tanımlayabilir. Bu form, bir dizi farklı davranışın sizce nasıl tanımlanacağına dair kişisel tercihlerinize odaklanır. Aşağıda listelenmiş olan birkaç davranış bulacaksınız. Her davranıştan sonra seçeneklerde, davranışın tanımlanabileceği iki farklı yol olacaktır.

Sizden beklenen, aşağıdaki davranışları sizin için en iyi tanımlayan a ya da b tanımlamasını seçmektir. Unutmayın, burada doğru cevap yoktur. Sadece her davranış için kişisel olarak daha uygun olduğuna inandığınız tanımlama seçeneğini işaretleyiniz.

1. Bir liste yapma a. Bir şeyleri sıralayarak yazma b. Organize ve düzenli olma*	**6. Oy kullanma** a. Oy pusulasında bir partiye mühür vurma b. Ülkenin geleceğini belirleme*
2. Okuma a. Metnin satırlarını takip etme b. Bilgi edinme*	**7. Kişilik testi/envanteri doldurma** a. Testteki sorulara cevap verme b. Nasıl bir kişi olduğunu belirleme*
3. Evi temizleme a. Elektrik süpürgesiyle evi süpürme b. Yaşam alanın temizliğini sağlama*	**8. Diş fırçalama** a. Ağızda oval hareketlerle diş fırçasını hareket ettirme b. Çürükleri önleme*
4. Bir odaya boya badana yapma a. Fırçayla duvarlara boya sürme b. Odaya yeni bir görünüm kazandırma*	**9. Yemek yeme** a. Çiğneme ve yutma b. Beslenme*
5. Kapıyı kilitleme a. Anahtarı kilide sokup çevirme b. Evi emniyete alma*	**10. Kapının zilini çalma** a. Parmakla kapı ziline basma b. Evde birisinin olup olmadığına bakma*

*Yüksek seviye (soyut) seçenek.

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PUBLICATIONS, PRESENTATIONS AND PATENTS ON THE THESIS:

- **Çeşmeci, C**., & Burnaz, Ş. 2022. How does the construal level affect consumers' intention to adopt product ratings and individual reviews? *Business and Management Studies: An International Journal*, 10(4): 21-41, doi: https://doi.org/10.15295/bmij.v10i1.2146.
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