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Is Scarcity Effective? An exploration of Ad Scarcity Effect on Recall and Attention

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Abstract

Scarcity appeals have been widely employed within marketing, however scholarly understanding has focussed primarily on scarcity of products within ads, and not the scarcity of the ad itself. Ad scarcity has become an important area of investigation due to the prevalence of scarce ads (one-time view ads) shown in popular social media technologies such as Snapchat and Instagram.

To address the gap of understanding on ad scarcity, this thesis offers the first exploration of the effect of “scarcity of the ad” on participant’s attention and recall. Three experiments support the argument that scarcity of the ad has a positive effect on people’s attention and recall of the ad’s content. Moreover, boundary conditions to this positive effect were established, first based on personal traits such as FOMO and Social Media Intensity levels, and second, based on the presence of a visible countdown timer. Lastly, this thesis finds the positive effect is not limited to the directly viewed scarce ad, but spill-overs to subsequent ads which are not scarce. This thesis contributes to the knowledge of scarcity within marketing, and broader literature on social media marketing. Theoretical and managerial implications are discussed.

Lay Summary

This study examines scarcity of advertisements through a series of experiments. It argues that the scarce nature of ads has an effect on customer recall and attention.

Table of Contents

Acknowledgements.....	iii
Abstract.....	iv
List of Figures	x
List of Tables	xi
1 Chapter 1: Introduction	13
1.1 Ephemeral ads.....	13
1.2 Scarcity marketing and ad scarcity	14
1.2.1 Demand side scarcity	14
1.2.2 Supply side scarcity	15
1.2.3 Time-based scarcity	15
1.3 Boundary conditions for ad scarcity	17
1.4 Spillover effect of ad scarcity	18
1.5 Significance of research	19
1.6 Scarcity in economics.....	19
1.7 Attention economy	20
1.8 Methods and study series	21
1.9 Thesis structure.....	22
2 Chapter 2: Literature on scarcity	24
2.1 Overview	24
2.2 Impact of scarcity on behaviour	25
2.3 Theories of scarcity	29
2.3.1 Overview	29
2.3.2 Commodity Theory	30
2.3.3 Reactance Theory.....	32
2.4 Scarcity in marketing.....	33
2.4.1 Scarcity principle in marketing.....	40
2.4.2 Scarcity communication without scarcity appeal	40
2.4.3 Scarcity communication with scarcity appeals	41
2.5 Ephemeral / ad scarcity	43
2.5.1 Overview	43
2.5.2 Social Media Marketing (SMM)	46
2.5.3 Ephemeral marketing and scarcity in marketing	48

2.6	Developing the core model.....	51
2.6.1	Model of ad scarcity.....	51
2.6.2	Role of attention in advertising	52
2.6.3	Scarcity effect and attention.....	54
2.6.4	Role of ad recall in advertisement	56
2.6.5	Scarcity effect and recall	57
2.6.6	Conceptual model: Impact of scarcity effect on attention & recall.....	59
3	Chapter 3: Moderators	61
3.1	Fear of Missing Out (FOMO)	61
3.1.1	Overview	61
3.1.2	FOMO and scarcity marketing	62
3.2	Social Media Intensity.....	64
3.3	Timer	68
3.3.1	Timer induced advertising	68
3.4	Other possible moderators	72
3.4.1	Scarcity and assumed expensiveness	72
3.4.2	Scarcity and competitive arousal	73
3.4.3	Others.....	74
3.4.3.1	<i>Consumer's awareness of the brand</i>	74
4	Chapter 4: Spillover.....	79
4.1	Spillover effect in psychology	79
4.2	Spillover effect in marketing.....	80
4.3	Different advertising strategies and spillover effect	83
4.4	Spillover effect and brand relatedness	84
4.5	Spillover effects in social media.....	86
4.6	Spillover effect in social media marketing.....	89
5	Chapter 5: Methodology.....	93
5.1	Paradigm	94
5.2	Ontology.....	94
5.3	Epistemology.....	94
5.3.1	Positivism	94
5.3.2	Interpretivism.....	96
5.3.3	Pragmatism	97

5.3.4	Critical Realism.....	98
5.3.5	Epistemology summary.....	98
5.4	Research approach.....	99
5.5	Research strategy.....	100
5.6	Research paradigm, approach and strategy for this thesis	101
5.7	Research designs.....	102
5.7.1	Experimental design.....	102
5.7.2	Cross-sectional design.....	102
5.7.3	Case study	103
5.7.4	Action research	103
5.7.5	Longitudinal research.....	103
5.8	Research methods	103
5.9	Research validity	105
5.10	Research outline	107
5.11	Ethical Considerations and Summary	109
6	Chapter 6: Study 1.....	110
6.1	Introduction	110
6.2	Experiment design	111
6.3	Experiment procedure	112
6.4	Ad stimuli and audio distraction	113
6.5	Participants of the study.....	114
6.6	Exclusion	114
6.7	Methodology.....	114
6.7.1	Measures.....	114
6.8	Pre-analysis	116
6.9	Mediation results	118
6.10	Background audio (Supplementary analysis).....	120
6.11	Discussion.....	120
6.11.1	Complimentary analysis	122
6.12	Contribution	122
6.13	Limitations and future research.....	124
6.14	Recommendations for future research.....	126
6.15	Conclusion	127

7	Chapter 7: Study 2.....	128
7.1	Introduction	128
7.2	Hypotheses	129
7.3	Experiment design	129
7.4	Experiment procedure	130
7.5	Ad video stimuli	132
7.6	Measures.....	133
7.7	Manipulation check and exclusion.....	135
7.8	Ethics.....	135
7.9	Sample.....	136
7.10	Pre-analysis	136
7.11	Model used:	137
7.12	Testing the core model H1-H3	139
7.13	Moderating effect (H4-H6).....	141
7.13.1	FOMO (H4)	142
7.13.2	Timer (H5)	143
7.13.3	Social Media Intensity (H6)	145
7.13.4	FOMO and Timer.....	146
7.14	Qualitative validation of phase	153
7.14.1	Research design	153
7.14.2	Ethics	153
7.15	Key findings	154
7.15.1	Ad scarcity effect (H1-H3)	154
7.15.2	FOMO H4.....	156
7.15.3	Timer H5.....	157
7.15.4	Timer might cause cognitive load on the viewer?	158
7.15.5	Social Media Intensity H6.....	159
7.15.6	Moderate interactions	160
7.16	Discussion.....	162
7.17	Contribution	166
7.18	Limitations and future research.....	168
7.19	Conclusion.....	169
8	Chapter 8: Study 3.....	170

8.1	Introduction	170
8.2	Hypothesis.....	171
8.3	Experiment design	171
8.4	Spillover video ad stimuli	172
8.5	Manipulation check and exclusion.....	173
8.6	Sample.....	174
8.7	Measures.....	174
8.8	Ethical considerations	175
8.9	Pre-analysis	175
8.10	Mediation results	176
8.11	Covariates	178
8.12	Discussion.....	178
8.13	Contribution.....	181
8.14	Limitation and future research	183
8.15	Conclusion.....	185
9	Chapter 9: Contributions, Limitations, Future Research and Conclusion.....	186
9.1	Introduction	186
9.2	Scarcity, ephemerality & digital Media.....	186
9.3	Impact of study on psychology of scarcity.....	187
9.4	Boundary conditions: FOMO, timer and Social Media Intensity	188
9.5	Possible mediators	189
9.6	The spillover effect.....	191
9.7	Practical implications	192
9.8	Contributions	194
9.9	Limitations & scope of future research	195
9.9.1	Lack of ecological validity.....	195
9.9.2	Inability to identify the relation between recall level and purchase intent	196
9.9.3	Limited study of personality traits and factors	196
9.9.4	Use of unrelated ads	197
9.9.5	Failure to study length of retention of recall.....	198
9.9.6	Ad length.....	198
9.9.7	Revisiting ads.....	198
9.9.8	Self-report measures.....	199

9.10 Overall conclusion	199
10 References	201
11 Appendices.....	257
11.1 Appendix- 1: Study 1	257
11.1.1 Survey 1.....	257
11.1.2 Survey 2.....	264
11.1.3 Advertisement.....	266
11.2 Appendix- 2: Study 2	267
11.2.1 Questions	267
11.2.2 Survey Flow	268
11.3 Appendix- 3: Study 3	305
11.3.1 Questions	305
11.3.2 Survey Flow	345
11.4 Appendix- 4: Qualitative Study	347
11.4.1 Consent form	347
11.4.2 Interview form and steps	348
11.4.3 Interviews Timeline.....	350
11.4.4 Questionnaires of Qualitative Study to measure FOMO and SMI level.....	351
11.5 Appendix- 5: Academic Publication	361

List of Figures

Figure 1-1: Conceptual model to study the impact of scarce vs non-scarce ad on ad recall and attention level of consumers	17
Figure 2-1: Types of Human-Induced Scarcities.....	26
Figure 2-2: Conceptual model to study the impact of scarcity effect on attention and recall level of consumers.....	59
Figure 3-1 Main model with the moderators	72
Figure 5-1: Framework of Inductive Reasoning	99
Figure 5-2: Framework of Deductive Approach.....	100
Figure 6-1: Procedure	113
Figure 6-2: Conceptual Model	117
Figure 6-3: Framework.....	119
Figure 7-1: Timer	131
Figure 7-2: Procedure	132
Figure 7-3: Ad Specifics.....	133
Figure 7-4: Model 4: Conceptual Diagram.....	138

Figure 7-5: Model 7.....	139
Figure 7-6: Model 11.....	139
Figure 7-7: Mediation Analysis.....	140
Figure 7-8: Model 7.....	142
Figure 7-9: FOMO.....	143
Figure 7-10: Timer.....	144
Figure 7-11: Social Media Intensity.....	145
Figure 7-12 Model 11.....	147
Figure 7-13: First Model 11.....	147
Figure 7-14: Second Model 11.....	149
Figure 7-15: Third Model 11.....	151
Figure 8-1: Flow of experiment.....	172
Figure 8-2: video ad had with two pictures with a red and a white sedan car.....	173
Figure 8-3: Conceptual Diagram: Model 4.....	176
Figure 8-4: Framework.....	177

List of Tables

Table 2.1: Perception for attractiveness of the product.....	30
Table 2.2: Summary of types of scarcities, as studied in literature.....	34
Table 2.3: Conditions of Product Availability adapted by (Verhallen & Robben, 1994).....	45
Table 2.4: How social media informs purchase decisions of individuals across different age groups, adapted from (Chaffey, 2020).....	47
Table 3.1: Key Moderators.....	71
Table 4.1: Types of Spillover Effects (Borah & Tellis, 2016).....	81
Table 4.2 list of hypotheses.....	92
Table 5.1: Methodology Outline.....	93
Table 5.2: A summary of main principles of positivism research philosophy (Soleymani, 2017).....	95
Table 5.3: Basic Differences between Positivism and Interpretivism (Soleymani, 2017).....	96
Table 5.4: Major features of research philosophies.....	98
Table 5.5: Types of methods for data collection (Saunders et al., 2012).....	104
Table 5.6: Different types of validity in research.....	105
Table 5.7: Summary of methodological choices.....	107
Table 5.8: Summary of research phases and methods utilised to address the research questions.....	107
Table 6.1: Mediation Analysis.....	119
Table 7.1: Table of Measures.....	134
Table 7.2: Multicollinearity test.....	137
Table 7.3: Mediation Analysis.....	140
Table 7.4: FOMO.....	143
Table 7.5: Timer.....	144
Table 7.6: Social Media Intensity.....	146
Table 7.7: Indirect effect results.....	148

Table 7.8: Indirect effect results of Second Model 11	150
Table 7.9: Table of indirect effect results	152
Table 7.10: Measures of responses on various criteria	154
Table 8.1: Mediation Analysis	177

1 Chapter 1: Introduction

This thesis examines a relatively new phenomenon on social media called ephemeral advertisements. Ephemeral advertisements (also known by the shortened terms ‘ads’ and ‘adverts’) last for a small, fixed duration, and once finished cannot be retrieved. This thesis argues that the fact they cannot be retrieved makes them “scarce,” and this impacts the level of attention given by viewers and their subsequent ability to recall. This phenomenon is tested through a series of experiments in which the potential effect of these scarce (or ephemeral) ads is assessed, as well as boundary conditions and spillovers of these effects. The following provides an introduction to the thesis.

1.1 Ephemeral ads

Ephemeral media is defined as rich media content in the form of videos and images that viewers can access for a short time (Trounce, 2018). The rise of ephemeral social media has caused a major shift in how social media is viewed (Billings et al., 2017), making time an essential feature that has been suggested to influence different cognitive behaviours of viewers, including the fear of missing out, trust, immediacy and social pressure (Chen & Cheung, 2019). The concept of ephemeral ads gained importance on 8 July 2011 when Snapchat was launched, which, like other social media technologies, provided people with the option to exchange messages, pictures, and videos. However, this social media platform came with a new feature, known as ‘snaps,’ such that one can share a video or image with a friend which will last for only 10 seconds. After this, it vanishes, never to be seen again. This disappearing content is known to arouse viewers, and became successful in creating value (Dang, 2019). The true value of such Snapchat posts is arguably because they are scarce, lasting only for a small duration and are then not available for viewing by anyone, even the sender. This feature that enables scarce content gained significant popularity, and it became so successful that companies started featuring scarce ads on Snapchat (Vorhaus, 2020). Furthermore, the popularity of scarce user posts and ads was soon imitated by the other social media platforms, like Facebook and Instagram e.g. within the feature called “stories” (Newton, 2017). Recently, Allen (2021) found that the consumers' perceptions about ads have undergone a major change, as they tend to associate excessive ads with a negative image of the brand.

Critically, the thesis argues that it is not the short duration of the ad which drives its success but the fact that viewers know that once watched the ad may not ever be seen again. For this thesis, ephemeral ads are indeed scarce ads (ephemeral/scarce ads defined as the ad content that can be accessible for temporary period only and cannot be viewed again) and these terms will be used interchangeably. Research on ad scarcity is in itself scarce. In other words, no academic studies have directly examined whether scarcity of an ad itself positively impacts consumer consequences, unlike the plethora of studies into other forms of scarcity within the marketing domain.

1.2 Scarcity marketing and ad scarcity

There have been so many instances when we encounter the phenomenon of scarcity in real life, which makes us experience the feeling of deprivation (Cannon, Goldsmith & Roux, 2018). Marketers exploiting scarcity is not a novel idea and has occurred since the inception of the discipline. Many scholars have examined scarcity within marketing. Existing literature studied the impact of different scarcities, like demand-scarcity, supply-scarcity and time-scarcity, on consumer behaviour (Gierl & Huettl, 2010). However, all these forms of scarcity have been studied in the context of the consumer behaviour towards goods or service being sold within the ad, not the ad itself. Scarcity could be broadly defined as the idea that an item, a service, or even a feature is rare, and therefore might be unavailable at all times. The three main forms of scarcity discussed by marketers are outlined below. These concepts will be introduced briefly in this chapter, with a more comprehensive examination of the relevant literature in chapter two.

1.2.1 Demand side scarcity

Scarcity is viewed as the "presence of limited resources and competition on the demand side" (Mittone and Savadori, 2009, p.453). Scarcity for goods/services is defined in relation to their non-availability (Gierl and Huettl, 2010). That is, it is characterized by the willingness to pay for the producer surplus (Lynn, 1992). Shah et al. (2015) further purports that scarcity poses an impact on the perceptions of people; helpful in creating business opportunities because it is suggested that scarcity align certain behaviours closely with traditional economic predictions.

1.2.2 Supply side scarcity

Product scarcity is caused by market forecasting and production planning mismanagement, bottlenecks in supply, and marketing strategies for restricting the supply of goods so that market enthusiasm is created, generating higher demand for products (John et al., 2018). Product scarcity is said to impact the price, promotion on sales, popularity of products marketed and consumers' purchase behaviours (Wright et al., 2013).

1.2.3 Time-based scarcity

Similarly, another type of scarcity of products is caused by time. Inman et al. (1997) find that product scarcity is also caused due to availability for a small period of time. Svenson et al. (1993) asserts that time scarcity also impacts the consumer behaviours in terms of influencing the ability of the people to source and process product-related information, as when the consumers are faced with time pressures, they consider this scarcity of time when making the purchase. Soysal et al. (2012) also supports this finding and claims that when the consumers perceive that any offers or products are available for a particular time period, the purchase willingness of the consumers and the related market performance are significantly influenced.

Recently, the effect of scarcity has been applied by marketers in social media in understanding and influencing positive consumer cognition and behaviours (Jang et al., 2015). This study examined the effect of using scarce messages on people's consumption behaviour for limited edition products (e.g. "Once the ad you will be shown on the next page is over, you will **NOT** be able to go back to view the ad again!"). The effect of scarcity was explained first from the notion by Knishinsky (1982), who asserts that scarcity leads to creating a sense of urgency among the consumers, leading to an increase in intention to purchase and resultant satisfaction

The concept of scarcity is studied widely from the perspective of product quantity and time. However, no studies have considered the impact of an advertisement's scarcity itself (i.e. an ad that can be viewed once but never again) and the effect on the attention and recall of the ad's viewers. This is the primary research gap that this thesis aims to fill.

Despite the existing literature on scarcity in psychology and economics and its implementation in understanding consumer purchase of goods/ services behaviour in marketing, no research has been duly undertaken to extract the essence of ad scarcity and its impact on different cognitive behaviours, like recall and attention, of the consumers. Recall is defined as a construct of memory popularly used to test the cognition levels of the consumers (Barry & Howard, 1990). Recall is tested in previous marketing studies, like Hernández-Méndez and Munoz-Leiva (2015) and Kuisma et al. (2010) who concluded that advertising features like animations, orientation and colour positively influences the awareness and recall levels among the customers. The study by Tomm & Zhao (2017) claims that time scarcity caused the loss of previous instructions pertaining to future actions execution, thereby claiming that scarcity leads to prospective memory errors, i.e. recall.

Attention is termed as the antecedent of the advertisement processing by consumers (Aaker et al., 1992). Ad attention is characterised by holding the attraction of the consumers towards any visual advertisement for any product. The research by Hernández-Méndez and Munmoz-Leiva (2015) signifies that different design features like colour, animation, orientation etc. attracts the consumers and creates higher awareness. The study by Li and Zhang (2007) studied the impact of type of advertising media and exposure rates on the attention and perception of the tourists. Furthermore, the research by Tomm & Zhao (2017) ascertains that scarcity of resources, like money and time, influences the cognitive system which in turn effects the attentional information trade-offs.

This thesis makes the argument that it is not merely the short nature of ephemeral adverts on social media that is behind their success but the fact that they are, by their very nature, scarce (i.e., can only be seen once). For example, opposed to their non-scarce counterparts, for example Facebook ads that appear in newsfeeds that can be revisited often by going to brand pages. Specifically, it is proposed that scarce vs. non-scarce ads draw greater attention because there is knowledge the ad can only be seen once, and this increased attention leads to greater recall. This is illustrated in the conceptual model below that illustrates the fundamental process under investigation by this thesis:

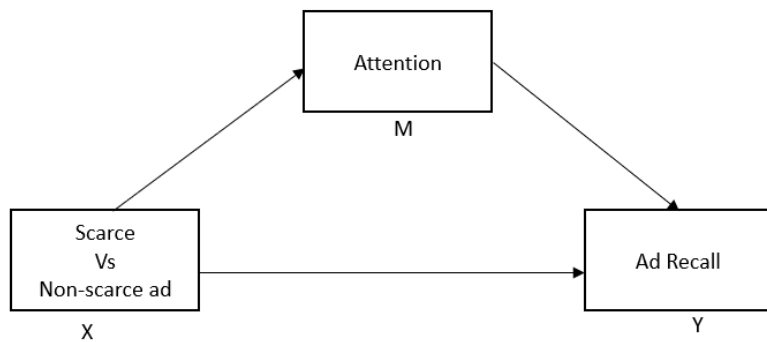


Figure 1-1: Conceptual model to study the impact of scarce vs non-scarce ad on ad recall and attention level of consumers

The thesis, therefore, studies the impact of scarcity on the recall and attention of the viewers. It is important to re-iterate the focus of this thesis is not on the duration of the ad, but the scarcity element wherein the ad has the potential to be viewed once for a limited time and may never be available to be viewed.

1.3 Boundary conditions for ad scarcity

The second aim of the thesis is to explore boundary conditions for the possible positive effect of ad scarcity on attention and recall. The boundary conditions explored fit in two subcategories – personal traits and external platform factors. Specifically, the examination of the former focusses on fear of missing out (FOMO) and social media intensity (SMI) and the latter on presence or absence of a visible timer.

Fear of Missing Out (FOMO): Is defined as “pervasion that others might be having rewarding experiences from which one is absent” (Przybylski et al. 2013, p.1841) There are numerous studies that tested the FOMO factor in marketing. For instance, the study by Alt (2015) found that high FOMO levels is correlated with high social media engagement. Similarly, Trnkova et al. (2015) also showed that anxiety created from FOMO is directly correlated with the usage levels of mobile phones. It is measured within this thesis using a pre-existing instrument developed by Przybylski

et al. (2013). It is considered that FOMO is related with the level of scarcity, since scarcity creates a sense of insufficiency or shortness of supply, which triggers the person's fear of missing out the already insufficient product, or advertisement.

Social Media Intensity (SMI): is defined as "the extent to which a person is actively engaged in social networking activities" (Ellison, 2007). Several studies have claimed that the condition of social media intensity is significantly associated with social media marketing outcomes (Ellison, 2007; Kumar et al., 2016). Specifically, it is known to enhance brand awareness (Stojanovic et al., 2018), and brand perception (Kumar et al., 2016), due to the fact that higher social media use creates high brand awareness owing to higher access to information, which is important for making brand perception. Furthermore, it is assumed that SMI may impact the relationship between scarcity and attention, as when the people with higher usage of social media platforms are aware about scarcity of ads or products, they tend to pay higher attention toward the ad (Stojanovic et al., 2018).

Timer presence: The use of timer signifies the countdown or the duration of the ad to indicate the length of the ad. The use of timer in the ads is a common feature, as when people use social media sites like YouTube, they can view a time-based ad that last for a few seconds (Firat, 2019). A past study by Venmahavong (2017) shows that the viewers are presented with a countdown warning using an installed timer in an advertisement, they will adapt to the expectation of an incoming ad, thereby affecting the effectiveness of the advertisement. It is also assumed that the presence of timer may impact the relationship between scarcity and attention, as when the consumers are encountered with a scarce timed ads, it may grasp their attention more. Potential interaction between these boundary conditions will also be explored by this thesis.

1.4 Spillover effect of ad scarcity

Lastly, this thesis further studies the potential for a spillover effect (change in the beliefs about something resulting from an evaluation associated another thing) of a scarce ad (Raufeisen et al., 2019). Spillover effects have been studied in the context of marketing by many scholars in the past. For instance, Seno & Lukas (2007) explored the spillover effect of the celebrity on the image of the brand they endorse. Similarly, the spillover effect has been tested to understand customer

behaviour in the cases of brand extensions, co-branding, sponsorship and country of origin (Sichtmann and Diamantopoulos, 2013; Xiao and Lee, 2014; Mathys et al., 2016; Woisetschläger and Michaelis, 2012; Herz and Diamantopoulos, 2013). These studies, thereby, signify that the spillover effects are important phenomena to be explored by marketers as they can have an influence on customer behaviour. However, there is no existing research to understand the spillover effect of a scarce ad on the subsequent ad viewed by the viewer. Thus, to explore this view, the third aim of the research is to examine the potential spillover effects of viewing a scarce ad before a non-scarce ad. Thus, the thesis examines whether there is potential to increase the attention span of viewers when they see a non-scarce ad just after viewing the scarce ad. That is, it examines whether the increased attention arising from a scarce ad spills-over the subsequent non-scarce ad.

1.5 Significance of research

The thesis intends to provide a theoretical and practical contribution to the field of marketing. The findings will help understand the behavioural aspect of social media viewers when it comes to viewing ads and content that are scarce. This knowledge will be valuable for Information Systems scholars who are interested in the impact of social media content. The primary contribution of this thesis is to add knowledge of the impact of scarcity of ads on the attention and recall of the ad, which is relevant in marketing. Advertisers face on-going and constant pressure to capture the attention of consumers. Attention is therefore a critical resource, and ephemeral adverts play an interesting role within this culture. It is therefore crucial for studies to examine how ephemeral ads distinguish themselves in a highly competitive ad market. The secondary contribution of the thesis is to support important boundary conditions to the effect of scarce ads, which can be considered in relation to scarce content more broadly. The third intended contribution is support for the existence of a positive spillover effect of viewing scarce content on the attention given to subsequent views of non-scarce content.

1.6 Scarcity in economics

The term scarcity was defined as 'the possessions of being in excess demand at zero price' (Black, et al., 2012). This refers to the fact that during stability, the cost of scarce products should be positive or in other words, all supplies within a market are scarce. However, the commodity theory

discussed in the sections below contradicts the aforementioned microeconomic theory and proposes the notion that demand curve is likely to shift in the opposite direction of the supply curve. To simply state this, if the supply of the product or good increases then the demand will decrease and the vice versa, substantiating the inverse relationship. Thus, the statement regarding demand curve being independent of the changes in supply is not valid (Lynn, 1987).

Moreover, David Ricardo in his ground-breaking work 'On the Principles of Political Economy and Taxation' discriminated between commodities that were found to be scarce and reproducible. For instance, (Ricardo, 1817) lists scarce goods of rare and peculiar quality that can be produced from a specific origin and hence are in a very limited quantity. Furthermore, he argues that scarce commodities are likely to devise their value of exchange depending on the demand for their offerings. Additionally, since the amount of labour cannot alter the supply of scarce products, their value is totally dependent on the wealth and ability of those who desire and demand such commodities (Ricardo, 1817).

Thus, this perception regarding scarcity is based on the logical occurrence of scarcity. Additionally, the main assumption of modern economics is that the resources are scarce but there are unlimited wants and needs because of the greed of the human nature. This condition is referred to as the 'economic problem' or 'scarcity'. Therefore, in order to counter scarcity, the economic features are forced to decide regarding the production of the goods and their consumption. Moreover, since this is a hypothesis, the economists are occupied with the assumption that political economy of supply and demand is associated with scarcity. Furthermore, resource scarcity comes under the domain of environmental economics. In this matter, if the marginal costs escalate the leftover reserves are likely to alleviate, in other words it would mean geological scarcity. However, it must be noted that market price does not fluctuate or escalate promptly then the resource is less scarce.

1.7 Attention economy

Attention economics is a method of information management that treats human attention as a scarce resource and uses economic theory to tackle various problems. Assume that an economy is a mechanism and logic by which a society commodifies and trades limited resources. In that

instance, according to (Marazzi, 2008), the 'attention economy' characterizes human attention as a scarce yet quantifiable commodity. This is the techno-cultural milieu in which contemporary Western societies operate, and the 'web-native' generation lives, according to (Goldhaber, 1997) and other critics. As content has become more accessible and readily available, attention has become the limiting element in information consumption human attention is a resource that is both valuable and scarce (Conwdcentric, 2014). The terms "attention economy" and "attention markets" have become widespread, particularly in the media and technology industries (Mathew, 2015). Firm like Facebook and Google, which have become two of the most critical companies globally, rely almost entirely on attentional marketplaces as a business model.

Given the importance of attention as commodity and drive for marketers to capture this, this research focusses on ad scarcity as a means to which attention may be better grabbed in an competitive economy. Advertisers are constantly struggling to stand out in today's information environment. Advertisements that fail to capture even the smallest amount of attention are ineffective. As a result, advertisers strive to think of creative ways to attract consumers' attention. Changes in the attention ecology have had a significant impact on what Gamson and Wolfsfeld (1993) regard as the essential social movement aims of mobilization, validation, and scope enlargement. The influence through various processes almost always involves changes in attention gathering and dissemination channels.

1.8 Methods and study series

To understand and test the effect of scarce ads on consumer outcomes the thesis is divided into three different studies, each complementing each other. The first study will examine the impact of ad scarcity on the attention and recall levels of the viewers. The main premise of the study is to test whether knowledge that a print of an ad is scarce increases attention and recall. Specially within a controlled laboratory experiment (2 x 1) under a cover story, participants are shown a print ad which in the scarce condition the ad is taken after 7 seconds, and in the non-scarce condition they were told to give the ad back once they are done with it. There was an irrelevant food tutorial audio playing in the background when the ad was given to act as a proxy to attention by creating distraction.

Following the first study's findings, the second study aimed to replicate the findings of the prior study with a video ad. This study also tests the three boundary conditions outlined above within an online survey experiment. It is an online 2 x 2 experiment with the inclusion of two personal scales as continuous moderators via Qualtrics website. The key factors tested in this study include the use of personality traits of fear of missing out, social media intensity, and external factor by incorporating a countdown timer in the ad. Thus, by adding more constructs to the study, the thesis will provide a wider understanding of the viewers' behaviours of social media advertisements. Then, the results of this specific study were qualitatively validated by acquiring responses related to the subject from some participants. Qualitative interviews are conducted as a confirmation and exploration exercise following the second study, this supported the arguments that scarcity of ads positively impacts the attention and recall levels of the viewers. It also discussed matters related to the personal traits and the external factor.

Lastly, the third study conducted in which the impact of scarcity of one ad on the subsequent ad (termed as spill-over effect) is studied using 2 x 1 experiment. It discusses whether there is an impact of a scarce ad on the next ads that the viewers see, how long the impact lasts, and under what conditions this effect holds. This study examines how far showing a scarce ad before a normal ad impacts the viewer's attention in viewing the normal ad. When the viewer is aware that an ad is scarce, they are more attentive to the scarce ad. However, whether this behavioural aspect impacts viewing the subsequent normal ad, which may not be scarce, is unknown.

This thesis is mainly using experimental design. Because similar to psychological experiments as Spirtes and Glymour ask, why can't patient preference be utilized to affect treatment? Not just because there may be a causal interaction between patient preference and treatment outcome, but also because patient preferences cannot be used to decide treatment assignment in the experiment (2000). Experimentation is a necessary tool to understand the causation between two events.

1.9 Thesis structure

The thesis presents the three studies which investigate the three major themes extracted from the research aims. The first study explored the main model, which tests the scarcity effect on recall mediated by attention. The second study replicated the first study but with testing possible

moderators that might help explain the scarcity effect on attention. The third study explored the spillover effect in marketing in the context of scarce ads. Each chapter highlights the importance of a marketing concept, and evaluated vital theories in marketing. The thesis starts with the literature review. There is then a chapter on the role of moderators, along with an explanation of the selected moderators undertaken in this thesis. It is followed by a chapter on methodology, including defining the research paradigm, epistemology, research designs, research methods and research validity. Next, each of the three studies are presented as individual chapters. Finally, the research concludes with a discussion of the contributions, limitations and scope for future research.

2 Chapter 2: Literature on scarcity

2.1 Overview

Scarcity as a basic concept is relatively straightforward. Despite scarcity's seeming simplicity, it is in fact complex. A lack of something means that the resource is scarce. In other words, it means we cannot obtain that specific object because of its limited supply, and we are either required to pay more or look for an alternative, provided its existence (Kumar, et al., 2016). However, the concept of scarcity exists beyond the economic notion of scarcity's impact on supply and demand; perhaps scarcity is also likely to influence the decision-making process of humans as well (Mahoney, 2002). Moreover, since humans are more inclined towards their need for uniqueness, the aspect of scarce marketing is likely to establish this distinction (Roy and Sharma, 2015). Thus, scarcity is highly relevant in the context of marketing. There are many previous studies that show that the ads, which are high on scarcity appeal, influence the purchase intentions and value perceptions of consumers (Aggarwal, et al., 2011; Milosavljevic & Creff, 2008; Lynn & Harris 1997; Lynn, 1992; Lynn, 1987). Evidences related to similar instances are generally found during Black Friday shopping, auctions and discount day sales (Aggarwal, et al., 2011).

This thesis makes use of three separate studies, with individual hypotheses to illuminate the nuances of scarcity and ephemeral adverts. Study 1 investigates the following hypothesis to explore the relationship between scarce ads and attention: H1: A scarce ad (vs non-scarce ad) positively affects ad attention; H2: Ad attention positively affects ad recall; H3: Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad recall. Study 2 investigates the following hypotheses, while also replicated hypotheses 1 to 3 in study 1: H4: The positive relationship between scarcity and attention is greater for high (vs. Low) FOMO individuals. the association between Scarcity and Attention; H5: The positive relationship between scarcity and attention is greater for ads with a timer present (vs. absent) moderates the association between Scarcity and Attention; H6: The positive relationship between scarcity and attention is weaker for high (vs. low) Social Media Intensity individuals. Intensity moderates the association between Scarcity and Attention. Finally, the last study, study 3, investigates the following hypotheses: H7: A scarce ad (vs non-scarce ad) has a spillover effect on the attention towards a subsequent ad; H8: Spillover ad's attention positively affects ad recall; H9: Spillover ad's attention mediates the positive relationship between the scarce ad (vs non-scarce ad) and ad recall.

Therefore, in accordance with the relevant hypotheses addressed in this thesis, this chapter introduces the theoretical concepts around the idea of scarcity, and its place in marketing research and investigates the following types of scarcity, namely demand scarcity, supply scarcity and time-based scarcity.

2.2 Impact of scarcity on behaviour

Scarcity is a major feature of economic behaviour. Generally, there are two distinct types, exogenously or environmentally induced and endogenously or human-induced. Both of these divisions highlight the restriction of consumer's freedom and in order to alleviate the limitation or probable loss, the consumers use the defence mechanism of wanting the product with certain limitations on it; be it time-scarcity or demand/supply scarcity (Oses-Eraso et al., 2008). However, it is vital to understand that scarcity, regardless of it being any form and type, is likely to elevate the perceived value of the goods and services (Suri et al., 2007), thereby positively impacting consumer's purchase intentions as well leading towards increased satisfaction and reduced fear of losing out on something quite valuable (Heshmat, 2017). Furthermore, scarcity seems to have a positive influence on the inclinations of the consumers but the impact is only when they rely on the market forces of demand and supply creating scarcity (Verhallen and Robben, 1994). Therefore, if the perception of scarcity is not linked to the market forces of demand and supply and is merely assumed to be accidental, there is an absence of the impact of scarcity on preferences (Lee et al., 2016).

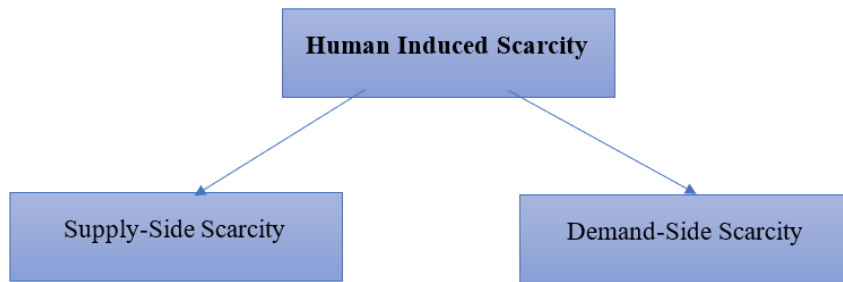


Figure 2-1: Types of Human-Induced Scarcities

Overall, in a retail market, human induced scarcity is likely to be aggravated through the market forces of demand and supply (Gupta, 2013). Hence, a supply-induced scarcity occurs when the suppliers or retailers deliberately control the movement of market offerings and restrict the consumers from obtaining their desired options (Gupta, 2013). Apart from that, demand-induced scarcity is when, instead of restricting the supply, there is stock depletion because of an influx of consumer desirability. Both of these forms of scarcity are human-induced; however, while the prior is controlled by the retailers and suppliers, the latter is controlled by the consumer (Gupta, 2013).

From a marketing perspective, scarcity is attributed to demand and supply as mentioned by Aguirre-Rodriguez (2013). Scarcity could be attributed either to the limited supply of a product or its high demand (Gierl & Huettl 2010). Supply-related scarcity (SRS) messages communicate a product's availability shortage, which can add to value, quality, or exclusivity (Van Herpen et al. 2009). The desire for uniqueness in product and feelings of self-prestige are linked to the SRS messages (Kim, 2018). Linking scarcity to the supply-related challenges, Aguirre-Rodriguez (2013) proposed that manufacturer and retailer advertisements convey SRS appeals when manufacturers produce insufficient quantities of a new product to meet initial demand and then distribute a competitive number of units to individual retail stores. Demand-related scarcity (DRS) messages highlight product availability shortages due to high demand, depicting product popularity (Wu & Lee, 2016). Unlike supply shortage driven scarcity, the extraordinary consumer demand related scarcity is a free market phenomenon, and demand-forecasting methods are used to anticipate such high demand for products (Fisher et al. 1994). As product demand and supply

are linked to product value (Esper et al. 2010), we have seen that scarcity is linked to both product demand and supply characteristics. Thus, it is important to investigate the theoretical foundation around scarcity and product/service value.

Scarcity marketing exists on the principle that people want what is difficult to obtain (Worchel, Lee & Adewole, 1975). Communicating restrictions on product availability is a common advertising tactic targeted at motivating consumer purchasing intentions by stirring scarcity perceptions. This threatens consumers' perceived freedom to obtain the 'scarce product' (Aguirre-Rodriguez, 2013). Scarcity is a fundamental concept in economics (Verhallen & Robben 1994), known to enhance the perceived value of products and opportunities (Lynn & Bogert, 1996). This is not a new concept, as the Commodity Theory explains scarcity effects and associates unavailability of the product with its value (Brock 1968). People often desire a unique and distinctive product (Snyder & Fromkin, 1980). The concept of scarcity can differ in relation to its spatial complexities. For example, people in modern industrialized society countries often take resource availability for granted (Adams et al., 2012; Côté 1993). Whether it is due to economic challenges related to over-production or under-consumption, scarcity plays an important role in economics. The rise of consumerism in the post-war period and later years is linked to the scarcity of valuable products and services (Mehta & Zhu 2015).

Scarcity is often used to create a sense of urgency among buyers resulting in increased rapid buying and enhanced purchasing satisfaction of products and services (Aggarwal et al., 2011). Time limited or quantity limited scarcity message tactics are employed to create a sense of perceived scarcity in product offerings, such as a one-day promotion (Stock & Balachander 2005) and price promotions (Suri et al. 2007). Inventory stock-centric promotions such as limited quantity promotion or limited edition promotion are among the preferred methods by retailers to increase sales (Fritchie & Johnson 2003). Scarcity effect can induce product purchases by triggering consumer inferences about product quality (Swami & Khairnar, 2003) and/or product desirability (Lynn 1992), as well as consumers' desire for uniqueness (Verhallen & Robben 1994), desire for status (Veblen 1899), or behavioural freedoms (Brehm 1972). Products that have limited availability can induce consumers to evaluate those products more favourably, as the customer

generally buys into the argument that valuable products are scarce. Hence consumers understand scarce products as valuable (Jung & Kellaris 2004).

However, the question remains as to why scarcity works as a technique in marketing to successfully influence customer behaviour. The answer is contained within the emotional and cognitive effects that are produced by scarcity techniques in the consumer.

Humans all around the world are found to have a universal need to fulfil their requirements and demands that have not yet been met. In this manner, cognitive exhaustion becomes apparent because the constant pull of urgent desires and offers begin to take a toll on cognitive and mental resources. On the other hand, scarcity elevates this by demanding continuous trade-off decisions which in turn distorts one's perception of future (Aguirre-Rodriguez, 2013).

Trade-off is also referred to as 'opportunity cost' which is the cost of choosing the next best alternative or the cost of losing out on another market offering (Shah & Mullainathan, 2015). Therefore, scarce marketing situations cause individuals to deal with the persistent and continuous trade-off decisions because not everybody can acquire everything they wish for. For instance, a specified time duration for your child's event as well as your business meeting means that you have to miss one. Similar is the case with market offers, consumers are likely to experience guilt and distress regardless of the offer they take up (Brannon & Brock, 2001). Likewise, individuals that are less likely to have a financial cushion have the tendency to deal with trade-off in every purchasing opportunity (Gierl et al., 2008). However, it must be noted that constant trade-offs have a detrimental impact on the cognitive resources of an individual thereby leading towards alleviated self-control and cognitive attentiveness which in turn causes inefficient decision-making skills where the consumers are more vulnerable to fall prey to various marketing tactics and strategies (Shi & Xhumnumpan, 2020).

This phenomenon can also be explained in terms of 'decision fatigue' where making a decision could end up being extremely difficult and hard due to the depletion of cognitive resources. Moreover, because mental resources are not viewed with a naked eye, consumers fail to see the detrimental impact on their mental characteristics because the lack of consciousness takes a toll on

their basic cognitive functions, which are further reduced due to cognitive load. Hence, the end result of depleted mental resources leads towards increased susceptibility of the consumers to become unable to control their impulses or consciously make small purchase decisions, thereby resulting towards irrational and unreasonable trade-off decisions which are further manipulated by marketers and advertisers.

According to multiple studies, decision fatigue that is induced through scarcity may result in overlooking the potential consequences, which may arise in the near future (Zhou et. al, 2020; Kruglanski & Webster, 1996). This happens mainly because when consumers are likely to face continuous trade-off, they fail to exhibit rational thinking and instead disregard future costs. Therefore, humans have learned to be more vulnerable towards ‘delay discounting’ that refers to the willingness to take over lower payoff in the present as compared to an improved reward in the future. Concurrently, consumers are also likely to become the target of ‘planning fallacy’ in which individuals are likely to persuade themselves to get done with the task right away instead of waiting for it in the future. Therefore, a detrimental impact of the scarcity mind-set is that our natural reactions could be disproportionate to the actual response increasing scarcity because of the limited capacity of an individual to adequately end up making a decision.

2.3 Theories of scarcity

2.3.1 Overview

Scarcity in the domain of social psychology is discussed in two major theories. The first theory is referred to as the ‘*Reactance Theory*’ (Brehm & Brehm, 1981; Clee & Wicklund, 1980) while the second refers to ‘*Commodity Theory*’ (Brock, 1968). Reactance theory suggests that when an individual perceives a potential threat to their liberty, they are likely to go through the feelings of psychological reactance, which encourages them to re-establish their freedom, increasing the value of the scarce subject. On the other hand, the commodity theory refers to scarcity in marketing as a valuable and unique product or service which one desire to obtain. Both theories have an influence over the prospect of scarcity and will be interpreted further in this section. They are influential in informing the current research because each theory explains part of the scarcity in marketing. However, the current study goes further than these theories in order to capture ephemeral advert specific nuances that further explain the importance of scarcity.

2.3.2 Commodity Theory

This theory proposes that commodity is likely to be cherished and treasured to the extent that it will end up being scarce. It emphasizes the psychological functioning that reacts to the aspect of scarcity. According to this theory, consumers are likely to assess a product or service as more striking and worthy of purchase when it is in the limited quantity, or in other words is ‘scarce’ (Brock, 1968). On the other hand, theorists believe that when a product is available in abundance, people are less likely to find it attractive. Furthermore, suitable research in this domain has suggested that the product will be perceived more attractive when it fulfils the following criteria:

Table 2.1: Perception for attractiveness of the product

Criteria	Authors
1) The number of suppliers is restricted	(Bozzolo & Brock, 1992)
2) The seller/retailer has imposed restriction on the availability of the product	(Brock, 1968)
3) The customer is expected to wait instead of getting the product according to will	(Brock & Mazzocco, 2004)
4) The customer is likely to make additional effort in order to access the product	(Lynn & Harris, 1997)

Additionally, this theory also highlights that consumers are not expected to feel the scarcity impact over every commodity. To experience the phenomenon of scarcity requires that commodities must be perceived as desirable, that they must be acquired from one person to the next, and lastly, they must be able to be owned by the person who is desiring them (Lynn & Harris, 1997). Therefore, this theory is likely to emphasize and interpret the fundamental aspects of scarcity in marketing so that consumer reactions towards scarce commodities could be adequately comprehended.

Nonetheless, it does lack in explaining the distinctive features of behaviour that are linked to the entire process of encouragement (Worchel, 1992). The distinction between both the commodity and reactance theory is mainly the emphasis on different variables. For instance, the extent of freedom impacting the overall consumer response. Moreover, it must be noted that various behavioural theorists have the point of view that reactance theory is likely to supersede this theory in the aspect of determining the consumer behaviour and the effect of scarcity (Brock & Mazzocco, 2004)

Moreover, the explanation of commodity in this theory provides commodity theory itself an all-encompassing domain that emphasizes the factors that are likely to attract the marketers. In essence, all goods and services are referred to as commodities (Brock, 1968). Likewise, promotions and discounts can also be linked to the theory as they are likely to transfer in the manner of the provision of utility from the seller towards the potential consumers (Byers, 2018). Hence, the feature of 'value' can be directly linked towards 'desirability'. Retailers and marketers have always looked for ways to drive demand and create excess demand, which is why this commodity theory's forecasts regarding the scarcity effects over the perceived value is likely to assist them with their motives (Chen & Sun, 2014).

The integration of scarcity effect in consumer behaviour can be accessed through the restriction of products and services and having selected distribution of the products and services from exclusive outlets and restriction on order size are amongst the most applied tactics by marketers in order to imply the aspect of scarcity (Brehm & Brehm, 1981). Overall, commodity theory is quite relevant regarding its psychological influence regarding the restriction of goods elevating desirability (Brock & Mazzocco, 2004). Initially this theory did not consider the factors leading towards scarcity effect on the perceived value, but it did suggest that there is a possibility for scarce commodities to be more desirable than abundant commodities. As mentioned above, the scarce commodities are only expected to lead towards feelings of desirability if they fulfil the criteria mentioned in (Table 2.1) (Brock, 1968).

2.3.3 Reactance Theory

Reactance theory emphasizes consumers' reactions towards the perceived loss of liberty or autonomy. This theory highlights the prospects of endangerment for an individual's liberty and right to choose which is eventually alleviated, leading towards the expression of psychological reactance (Wicklund, 1974). Psychological reactance refers to an individual's motivation which is guided solely towards protecting their own liberty and autonomy to choose (Brehm & Sensenig, 1966). Eventually the aggravation of motivation is then impacted on the elevated behaviour and desire to overcome the restriction imposed by a third party; this also increases the perceived desirability of the product or service (Brehm & Brehm, 1981). In other words, the restriction on the availability of either a product or service, or both, is directly linked with the perceived loss of autonomy, which in turn activates psychological reactance leading towards escalation of attraction and desirability towards the restricted commodity (Markus & Schwartz, 2010). Due to this, the individual is likely to experience emotions and other factors that will motivate them to obtain their desired product, which is restricted.

For instance, in a situation where an individual is presented with two options but is only allowed to choose the latter one, they will be more inclined towards the first option just for the sake of restoring their freedom to choose. Thus, the first option will become more desirable due to the perceived motivation and distinctiveness of the product (Crawford et al., 2002). However, there are instances where the consumers may react negatively if the product or service has restricted access and as they go through the negative feelings, they will be motivated to move in the opposite direction in order to deviate from the threat imposed on their freedom (Min, 2003). Thus, when the individuals experience pressure to choose a resembling substitute product, there is a chance that they could completely avoid the substitute and go for a completely opposite product just for the sake of liberating themselves. This is referred to as the boomerang effect. Additionally, the arousal experienced as a result of the reactance may motivate the individuals towards variety seeking features which may be indirectly linked to the prospects of regaining their liberty (Stiller, 2011).

2.4 Scarcity in marketing

In a marketing industry, scarce advertisement and the notion of scarcity overall is mainly used to initiate a sense of urgency amongst the potential consumers with marketing campaigns and offers that psychologically impact the audience by stimulating possible anticipation of regret (Belanche, et al., 2017). Overtime, the traditional markets and advertiser campaigns have also utilized scarcity, which has proven to be successful to drive consumer demand and elevate revenue generation of the retailers and marketers (Ennis-O'Connor, 2019).

Scarcity in marketing is majorly successful due to individual perception of scarcity because knowledge regarding a restricted market offering is often viewed by the consumers to be more important and significant as compared to abundant product and services (Hsieh & Chen, 2011). Generally, the phenomenon of scarcity has been solely used for the purpose of marketing a physical product or service, but due to the surge of technological advancements, this conceptualization has transitioned towards advertisements that have become more appealing to the viewers (Chu, et al., 2016).

The following table illustrates the different types of scarcity in marketing, each of which will be explored in this section of the chapter. It also illustrates how the current research on ephemeral adverts is the first of its type, and therefore significant in the field of marketing.

Table 2.2: Summary of types of scarcities, as studied in literature

S.No.	Citation	Name of Journal	Type of scarcity	Context	Method	Key findings
1	Shi, Li and Xhumnumpan, 2020	European Journal of Marketing	Both demand and supply scarcity	food, beverages, clothing, music, consumer electronics, and automobiles	Systematic Review using 66 research papers published in business and management journals between 1970 and 2017.	Identifies key factors of product scarcity and how they influence both consumers and the market
2	Aggarwal, Jun and Huh, 2011	Journal of Advertising	Supply and time scarcity	Wrist Watches	experimental conditions (the quantity constraint and the time constraint)	As compared with time scarcity messages, limited quantity scarcity messages created a greater sense of competition and thereby generated higher purchase intentions.
3	Gupta and Gentry, 2017	The International Review of Retail, Distribution and Consumer Research	Supply scarcity	Fashion products	21 face-to-face interviews with fast fashion store managers, consumers, and an industry expert.	Consumers in perceived scarcity conditions exhibit buying behaviour like urgency to buy, which further leads to deviant and competitive behaviours like in-store hoarding and in-store hiding.
4	Bae and Lee, 2005	Asia Pacific Advances in Consumer Research	Supply scarcity	Internet shopping mall	group of 294 subjects in the 3x2x2 experiment manipulating scarcity message type	The results show that a scarcity message is more effective than a non-scarcity message on the consumer's purchase intention in the Internet shopping mall. And the effect of a scarcity message on the consumer's purchase intention is found to be moderated by product involvement and consumer's product knowledge. Furthermore, the effect of scarcity message on the consumer's purchase intention is found to effective when the level of product involvement or consumer's product knowledge is low.

5	Chen and Cheung, 2019	Computers in Human Behaviour	Time scarcity	Social media use	Survey questionnaire among Taiwanese adults using social media containing questions to confirm the relationship between FOMO, trust, immediacy, social pressure with gratification and engagement with ephemeral content, and Need for Closure.	The factors- FOMO, trust, immediacy, and social pressure play significant roles in determining users' gratification. Also, it is found that the mediating effect of gratification was found to be crucial for enhancing users' engagement with ephemeral content in social media.
6	Roy and Sharma, 2015	Journal of Advertising	Demand and supply scarcity	Fictitious retailer	Participation from a total of 251 undergraduate students (125 females, mean age 23.48 years) from a large Australian university, to test their attitude towards a shown advertisement and brand on nine-point scale.	Participants with lower levels of Need for uniqueness (NFU) show a greater impact of demand (versus supply) scarcity appeal on their attitudes and purchase intentions; whereas participants with higher levels of NFU show a greater impact of supply (versus demand) appeal.
7	Oses-Eraso, Udina and Viladrich-Grau, 2008	Environmental and Resource Economics	Supply scarcity	Resources (unnamed)	capture the role of abundance and scarcity in the appropriation strategies of subjects interacting in a common pool resource setting	Resources that are initially more abundant do not have a greater survival rate. The level of initial resource scarcity is important in determining initial appropriation strategies, particularly by inducing more caution in appropriation strategies than resource abundance.

8	Suri, Kohli & Monroe, 2007	Journal of the Academy of Marketing Science	Demand scarcity	Tour package	<p>A 2 (price level: low vs. high)×2 (scarcity: present vs. absent) between subjects' design was used to design a study for learning effect of perceived scarcity on price levels of a tour package. Scarcity in the study was manipulated by making the tour package available once in the summer (scarcity present) or every weekend throughout summer (scarcity absent). Forty-nine undergraduate students (52% females, 48% males) participated in the study for extra credit. The study was conducted in ten separate sessions lasting around 15 min with four to six participants per session.</p>	<p>The study found that perceived scarcity influences consumers' processing of price information. Under scarcity, consumers' perceptions of quality and monetary sacrifice exhibit different response patterns, depending on the relative price level and consumers' motivation to process information.</p>
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9	Mukherjee & Lee, 2016	Journal of Advertising	Demand and supply scarcity	Digital world (online store in Japan) dealing in consumer electronics	Study of 2 (scarcity appeal: absent vs. present) x 2 (expectation of scarcity/demand: low vs. high) was designed between subjects ANOVA to understand consumer responses to new products. Four hundred and fifty residents of the United States were recruited using Amazon Mechanical Turk and participated online for a small payment.	The effect of scarcity appeals on product evaluation is moderated by consumers' expectation of scarcity, such that scarcity appeals have a positive effect when expectation of scarcity is high but not when it is low.
10	Gupta & Gentry, 2019	Computers in Human Behaviour	Supply Scarcity	fast-fashion brands (Zara, H&M, and Forever 21)	Four hundred and twenty-seven surveys were collected from students of large Midwestern University, to measure perceived scarcity, urgency to buy and in-store hiding, in-store hoarding.	Under the conditions of perceived scarcity, consumers tend to exhibit behaviours like in-store hoarding, and in-store hiding, due in part to the increased urgency to buy.
11	Tomm & Zhao, 2017	Journal of Vision, The Association for Research in Vision and Ophthalmology	Time Scarcity	Resources (time)	The study comprise of three experiments (N=227) to demonstrate that people under time scarcity failed to detect time-saving cues as they occur in the environment.	The conclusion states that scarcity impairs the online detection of beneficial information in the environment, as well as the execution of prospective memory cues. Failures of prospective memory and online detection are particularly problematic because they cause forgetting and neglect of beneficial information, perpetuating the condition of scarcity.

12	Jang, Ko, Morris & Chang, 2015	Psychology & Marketing	Time and supply scarcity	Limited edition luxury products (watches, automobiles, beer, yogurt, and shampoo)	Study employed a 2 (scarcity messages: LTS vs. LQS) × 2 (LE product types: conspicuous vs. non-conspicuous) between-subjects design with a control condition (no scarcity message)	LTS and LQS messages have different effects on consumers' brand evaluations, and contain important consumer-oriented outcome variables, such as Purchase intention and Word of mouth recommendations across different types of LE products.
13	Kristofferson, McFerran, Morales, & Dahl, 2017	Journal of Consumer Research	Time and supply scarcity	iPhones	The paper utilises a series of 7 studies, using students as participants, for studying the multiple behavioural aggression measures, identifying the process that drives when and why consumers may turn to violence and identify contexts when scarcity promotions will not lead to aggression	A scarcity cue that highlights other people as competition, such as a limited-quantity promotional ad, can heighten the perceived threat other consumers play in obtaining the target good, activate a physiological response associated with aggression, and lead to aggressive behaviour even outside of the competitive context
14	Eisend, 2008	Journal of Advertising	Supply scarcity	Premium sunglasses (Karl Lagerfeld) offered at H&M	Experiment constitutes 114 undergraduate students attending marketing classes at a German university, who were given printed scenarios to manipulate scarcity, and different measures were tested using questionnaires.	Impact of perceived value on purchase intention is mediated by consumers' perceptions of personal susceptibility and the susceptibility of others.

15	Aguirre-Rodriguez, 2013	Journal of Advertising	Demand and supply scarcity	Fast Food	<p>Study 1: participants account for 93 undergraduate students, and are given supply or demand related scarcity appeal conditions, and study took place in a behavioural research lab at individual computer stations. The appeal condition relates to a fictitious new food item promotion at Taco Bell.</p>	<p>Results indicate that supply scarcity appeals trigger less persuasion knowledge activation than demand scarcity appeals</p>
					<p>Study 2: test the moderating role of message specificity in the persuasive effects of SRS and DRS appeals</p>	<p>Supply scarcity appeals are less credible when stated specifically, because the audience will focus on central, product-related information, reducing the credibility of peripheral, supply scarcity information. In contrast, Demand scarcity appeal credibility remained generally low across message specificity conditions, and DRS appeal perceived deceptiveness remained generally high across message specificity conditions</p>

2.4.1 Scarcity principle in marketing

There are various studies that utilize the concept of scarcity, but to date there is no specific and unified definition of this concept. However, scarcity is distinguished between communication of scarcity with and without scarcity (Aggarwal, et al., 2011). An advertising appeal refers to the general message and nature of the commercial. Scarcity appeals on the other hand refers to the fear, rationality, and emotions etc. as the main components of appeals (Kumar et al., 2016). In other words, scarcity appeal can be explained as a means of communication with an underlying message of scarcity (Gabler, 2013). Nonetheless, there are also types of scarcity that can be communicated without the essence of appeal, which are discussed in detail as under:

2.4.2 Scarcity communication without scarcity appeal

2.4.2.1 Shelf based scarcity

Shelf-based scarcity refers to the concept of limited quantity which is created through the depletion of stock level and it is not explicitly informed as a scarcity appeal (Parker & Lehmann, 2011). Instead of verbalization, the marketing literature denotes shelf-based scarcity through the visual representation of the shelves within a retail environment. However, some studies are inclusive of shelf-based scarcity in a verbal aspect as well (Aggarwal, et al., 2011). In this type of scarcity, the freedom of choice is restricted temporarily because there is a perception for the scarce products to be re-stocked in the meantime. Furthermore, the temporary unavailability of the product is mainly viewed through the empty shelf in which case the consumer either moves onto the substitute product or waits for the shelf being restocked because they know that the product is normally present and is likely to be made available soon. Additionally, in shelf-based scarcity, the products are available for a limited time. This type of scarcity is different than the stock-out condition because the depletion is not permanent and the customer expects the shelves to be replenished (Ma et al, 2014).

2.4.2.2 Fast fashion retail store scarcity

The features of scarcity are quite apparent in fast-fashion retail environment amongst popular brands like Zara, H&M and Primark (Gupta, 2013). Similar to shelf-based scarcity, fast fashion

retailers do not explicitly notify regarding scarcity appeals but the stocks are usually made in limited supply and are restocked for a minimal period, thus the customers perceive the sense of urgency because they perceive that they would eventually miss out on the goods if they do not hurry and purchase it as soon as they can (Bae & Lee, 2005). The fast-fashion retail strategy encompasses frequent updates of the products with limited renewal cycle as the stocks will be changed at a faster pace (Gupta & Gentry, 2016). However, the main difference between shelf-based scarcity and scarcity in fast-fashion stores is that even before the products are actually scarce in fast-fashion, the consumers have the scarcity perception regardless of the product's availability or unavailability. Furthermore, scarcity appeals are aggravated by the sellers through the utilization of sign boards and advertisements labelling 'get it before it ends' or 'hurry up' which in turn increases the feature of perceived scarcity amongst the customers at the time of purchase (Park et al., 2019).

Additionally, (Gupta, 2013) further looked into the impacts of seller-induced scarcity throughout fast-fashion retail environment while considering elements like traits, genders and states consisting of hedonic shopping motivation, need for uniqueness and competition on outcomes like urgency to buy, in-store hiding and hoarding (Balachander & Stock, 2009). The findings indicated that the perceived scarcity is likely to have a positive influence over in-store hoarding and hiding, but it will only have an indirect influence on the customer's urgency to purchase (Gupta & Gentry, 2016). Moreover, the effect of perception of scarcity in regard to urgency to purchase was mediated through the anticipation of regret. The hedonic shopping motivation, competitiveness and need for uniqueness acted as moderators between scarcity and variables of outcome (Hamilton et al., 2019).

2.4.3 Scarcity communication with scarcity appeals

Scarcity is also likely to be highlighted through the features of an appeal like the utilization of limited-edition symbols and signs on packages or advertisements (Balachander & Stock, 2009). As discussed, shelf-based scarcity encompasses the unavailability of products, which will eventually lead to a limited time stock out of the offerings in the near future (Gupta & Gentry, 2016). Nonetheless, the customers are aware that the products will be re-stocked soon. On the other hand, scarcity appeals entail features of limited-edition products, that is the stocks is

available only for the limited time for which the promotion is there, and will not last forever (Herman, 2000). Therefore, scarcity appeals are different from scarcity without an appeal because there is a presence of appeal and there is difference expectation of the customers regarding the future availability of the product (Wu et al., 2006).

2.4.3.1 Limited supply scarcity

Limited supply scarcity is also referred to as 'Supply-Driven' scarcity. Amongst various examples, the most common example of this type of scarcity is in the form of 'Limited Edition' products and services (Aggarwal, et al., 2011). This type of scarcity can also be caused by excessive demand, which in turn is called 'Demand-Driven' scarcity. Limited editions are one way of integrating scarcity appeals in marketing (Balanchander and Stock, 2009). Luxury brands and fast-fashion brands are quite well-known for limited editions (Chen& Sun, 2014). For instance, Louis Vuitton's limited-edition offerings are replicated by Banana Republic, H&M etc. becoming a marketing tactic which is followed to date. Offering limited edition products allows marketers to target their niche and attain adequate WOM (Word of Mouth) campaigns, which leads to additional competitive advantage (Aggarwal, et al., 2011). Moreover, limited edition offerings are perceived to be more effective, especially when the quality of the products is low or when the customers are exclusively demanding for high-quality products (Balanchander and Stock, 2009).

Various brands apply these limited or special edition tactics on their offerings in order to attract the customers by making them perceive the value of the good and services (Jang, et al., 2015). Additionally, the limited-edition products were first introduced in the arts sector where the artists applied this strategy in order to secure profits for their work. Therefore, this strategy has been transferred towards the marketing sector where retailers utilize it for a plethora of offerings due to its widespread success (Bennet & Kottasz, 2013). Hence, in order to attract consumers for the goods, retailers are likely to utilize scarcity phrases like 'limited to only 500 offerings worldwide'.

Additionally, this also emphasizes how brands are likely to use it as a marketing strategy for the introduction of new product (Balanchander and Stock, 2009). On the other hand, limited edition offerings are already anticipated as scarce and by reinforcing the features of scarcity through

explicit communications, they end up increasing the value and appeal of the product (Jang, et al., 2015).

2.4.3.2 Limited time scarcity

Time is another important component of scarcity and is often described as a critical resource of scarcity. The majority of consumers are more than likely to purchase the products in the presence of limited time or time scarcity (Aggarwal, et al., 2011). Time-related scarcity refers to the opportunity where the product or service is only available for a specified amount of time. Therefore, the introduction of time-pressure on the consumer is found to have a significant impact on their purchase intentions (Bae & Lee, 2005). In marketing literature, various studies have explored the presence of time elevating the prospects of selling, which in turn is also applied in advertising of specific brands and their offerings (Ackerman & Gross, 2003). Hence, in order to explicitly communicate time scarcity, retailers and advertisers are found to place time-restrictions on their offers and products in order to gain a reaction from their customers (Bennet & Kottasz, 2013).

2.5 Ephemeral / ad scarcity

2.5.1 Overview

The aspect of scarcity is to create a sense of urgency within the buyer, which is more apparent when the offerings are coupled with limited time to purchase the product or service, creating an 'urgency to purchase' (Aggarwal, 2011). The concept of urgency to buying can be explained by the customer's need and desire to purchase the product as soon as possible which in turn restricts their own freedom to mitigate or differentiate between their needs and wants (Gupta & Gentry, 2017). Other research has described urgency to purchase as a feeling or sentiment to start and end an action within the near future (Gupta & Gentry, 2017). On the other hand, it can also be understood as a state of desire, which supersedes an impulse decision (Swain et al, 2006). Therefore, an individual who has been targeted by scarcity marketing is likely to have an increased urge to buy without postponing the decision in order to consider more products or seek advice (Newbold, 2017).

Moreover, internal and external cues are known to influence one's buying decision. Internal cues are linked to the emotional and mood states of the person whereas the external states refer to the environment controlled by the marketers and other sensory features (Hetts, et al., 2000). According to researchers, the implementation of scarcity in marketing is mainly used to persuade consumers as it indicates potential competitiveness and loss of something valuable. Therefore, if an individual obtains a scarce product or service, it is similar to the implication of winning a competition (Li et al., 2010). Generally, the consumer's evaluation of the products or service is due to the escalation of demand and limited supply. Moreover, the aspect of scarcity is not solely applied in product (i.e., limited supply), it is also largely employed in advertisements where the individuals are shown time bound adverts and are expected to retain the information (Lennon et al., 2011).

The scarcity of time is linked to the implied restriction on the duration of advertisement or the overall market offering (Carmicheal, 2019). Similar to the features of product scarcity, time scarcity is also found to produce similar behavioural features such as fear, which is often linked with anticipation of regret for not catering to the information presented (Li et al., 2010). Therefore, advertisements that have been stimulated with time scarcity are found to improve purchase intentions and perceptions of the products advertised (Lee et al., 2016). However, it must be noted that despite the tendency of scarcity-based appeals in both advertising and marketing, there is still limited inference regarding the influence of individuals on these strategies (Mowen, 2004). Furthermore, scarcity-based advertising is also likely to elevate potential competitive arousals in the customer, which in turn impacts purchase decisions related to scarce products and services (Swain et al, 2006).

Apart from the unavailability of the products and services, there are different types of scarcity conditions defined in the literature, which are as follows:

Table 2.3: Conditions of Product Availability adapted by (Verhallen & Robben, 1994)

Type of Availability	Explanation	Behavioral Mechanism
Unavailability	Pertaining to natural reasons or codes of practice	Respectively Reactance and Agitation
Restricted Availability	Available for specific individuals	Reactance and Frustration
Limited Availability	Pertaining to market situation	Uniqueness striving evaluation of cost and conformity reasoning
Conditional Availability	Availability with respect to meeting certain requirements	Evaluation of behavioral and social cost

Scarcity is present in different aspects in business. Overall, the scarcity is mostly utilised in the discipline of marketing for influencing customer purchase decisions. However, it makes customers more vulnerable to new product offerings and promotions that are exhibited through digital platforms (Gierl et al., 2008). The increased influence of scarcity has led towards more researchers in this domain; however, due to the vast approach, the nature of scarcity has become indistinct (Swami & Khairnar, 2003). However, the issue is that there is an absence of distinguishing features amidst the customer’s interpretation of the representation of scarce instances (Ishfaq et al., 2016). This causes the different scarcities, demand, supply and time, to be ambiguous.

As mentioned before, the effects of scarcity have been largely explored in the literature. However, new and cutting-edge research focuses on the concept of scarcity in the context of advertisement. The influx of technological advancements has forced various retailers to move online and to market their products to an integrated audience (Suri et al., 2007). The availability of scarcity in advertisement messages is likely to improve consumer’s perceptual analysis (Anderson, 2015). In other words, messages that have elements of scarcity are likely to appeal more to the customers where they are focused towards solving the mystery and process the messages more attentively (Aggarwal et al., 2011). Furthermore, other researches also suggest that scarcity messages do not only improve the probability for purchase decisions but they also heighten the prospects of customer’s willingness to pay the asked price. Similarly, Swain (2006) studied the impact of restrictions on promotions like limited time-frame in order to influence the consumers decision to

purchase. The outcomes of the study highlighted that while time restrictions may alleviate the intention to purchase due to reduced evaluation of the overall offer, they also tend to improve the purchase intention by devising a sense of urgency which is often linked with foreseen regret if the offer will not be availed (Markus & Schwartz, 2010). Furthermore, the impact of scarcity in mass media is likely to have a third-person effect, which in turn is likely to elevate the prospects of purchase intention. Moreover, when people are put in a position that entails scarce product descriptions, then they are more than likely to consider their perceived influence on self along with the influence on others around them (Eisend, 2008).

2.5.2 Social Media Marketing (SMM)

Social media is viewed to have a significant impact on marketing, as it has been the gateway for ephemeral marketing (Carmicheal, 2019). Initially social media was introduced as a platform for connection and communication; however, it became so much more (Taylor, 2019). Different businesses and marketers utilize this platform to expand their offerings and spread their message across in a suitable, yet flexible, way (Anderson, 2015). Amongst various marketing forms, the most effective is when marketers simultaneously use traditional and social media marketing together (Balachander & Stock, 2009). Given the fact that Social Media Marketing (SMM) has a beneficial influence on the overall business performance, various retailers and marketers are diverting their attention here in order to both advertise and sell their products online (Gupta & Gentry, 2017).

Nowadays a wide variety of social media platforms are used for the generation of online content. Moreover, there are various social media sites to support such activities like Facebook, YouTube, Twitter, and Snapchat (Chen et al., 2011). Marketers make use of a plethora of social media tools like recommendations, ratings and reviews just for the sake of communicating with potential customers online. On the other hand, online users are encouraged to exchange information through these platforms and gain social support (Ridings & Geffen, 2004). Moreover, online reviews are one domain that have been introduced through social media platforms, customers are likely to provide their insights into market offerings that in turn elevates the product value and brand loyalty, thereby motivating other potential customers to purchase the same products (Nambisan,

2002). Eventually, positive and negative reviews lead to Word of Mouth (WOM) that further assists people with their purchasing decisions (Bronner & Hodge, 2010). According to research, customer reviews are perceived as honest and true. For instance, Amazon utilizes its customer reviews for the purpose of attracting new customers and this cycle continues. Furthermore, online recommendations are another feature which has improved social media marketing where the customers are likely to depend on other customers recommendation regarding a product as compared to the recommendations or information generated from the vendor themselves (Pan & Chiou, 2011).

Similarly, online customers are treated by the advertisers in the same way they treated in traditional markets, by following them and suiting their preferences (Anderson, 2015). Businesses in every domain have been deeply impacted by the rise of social media as well as the surge of online advertising industry (Gupta & Gentry, 2017). While the space of social media was solely developed for communication and connection, it has now transitioned into an ultimate space for advertisers to attract and manipulate potential customers and increase their purchase intention (Goldstein & Suri, 2011). Moreover, social media platforms are so strongly integrated that advertisers have the advantage to connect with a plethora of users with minimum effort (Anderson, 2015). Nowadays, marketers and advertisers are working collectively to tap into customer behaviours and preferences through the utilization of technological advancements for the sake of gaining more customers and raising the revenue (Forbes, 2020).

Table 2.4: How social media informs purchase decisions of individuals across different age groups, adapted from (Chaffey, 2020)

AGE	Global	16-24	25-34	35-44	45-54
Discovering brands/products through social media advertisements	27%	31%	29%	27%	23%
Discovering brands/products through social media recommendations	24%	26%	26%	24%	21%
Researching products online through social media networks	43%	50%	46%	41%	33%
The online preference of others increasing customer's purchase intention	23%	27%	26%	23%	19%

The presence of 'buy' button increasing the probability of purchasing	13%	14%	16%	14%	10%
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2.5.3 Ephemeral marketing and scarcity in marketing

The technological advancements over the years have allowed various businesses to utilize digital platforms like social media as a medium to market their offerings (Anderson, 2015). The use of social media has also led to digital marketing in order to reform and transition the conventional marketing practices and reach more customers in less time (Wakefield & GreggBennet, 2018). Therefore, it is only right to assume that social media has been a major source of exposure and traffic, thereby leading to an influx of sales and growth of different business platforms (Wakefield & GreggBennet, 2018). Ephemeral marketing is a concept, which is being persistently used by current marketers to attract and retain various customers and target markets through increasing exposure of their offerings and gaining more attention. In other words, ephemeral is referred to *'something that lasts for a very short time'* (Carmicheal, 2019). Therefore, ephemeral marketing is mainly understood as a means of marketing which the marketer utilizes to showcase their products and services for a restricted time-frame so that the limited representation of their offerings can capitalize on FOMO (Marinucci, 2018). Similarly, this methodology is not solely adopted by online marketers, it has been quite prevalent in offline stores and high-street marketing as well (Mehra et al., 2018). Even though there have been short or ephemeral advertisements historically, the term ephemeral marketing is often associated with social media ephemeral marketing.

Bayer et al. (2016) defines ephemeral content as communication artefacts, which last for a limited time period, and can include text, pictures and videos. It is further asserted by Ogara, Koh & Prybutok (2014) that ephemeral content is similar to face-to-face communications in which the message is synchronously delivered to the engaged audiences without storing any interaction records. For instance, the stories on Instagram signifies ephemeral content since it vanishes 24 hours after being posted (Read, 2018).

Moreover, the ideology of scarcity marketing is solely focused on the availability of a limited amount of a supply of either a product or service which can be categorized on the basis of limiting the availability of the offerings to a specified time or alleviation of the production over all (Gierhl

et al., 2008). More often than not, the marketers are more inclined towards opting for both the measures at one time in order to have a greater influence on the potential customers and their brand value (Chen & Sun, 2014). The principle of scarcity marketing is to test the customer's ability to resist the temptation of not being able to go back to the desired product or service according to one's feasibility, which is why this desire is taken advantage of during scarcity marketing where the demand is created through enticing the potential customers to purchase the market offerings (Hamilton et al., 2019). In other words, scarcity marketing is also a way to create hype and build up customer excitement to attain the end product or service (Abendroth & Diehl, 2006).

When Snapchat was launched, it introduced two major features to its users; the ability to send a post to your friends that will expire in less than 10 seconds, and the ability to post a video or a picture in the story mode that will expire after 24 hours. This concept was successful to the point that every major social media platform today uses ephemeral expiring media between users and introduced the 24-hour story feature after it was introduced by Snapchat (Villaespesa & Wolkowych, 2020).

Scarcity as a concept is a state of mind. If you know this content will disappear after 1 week, will you be interested in viewing it? What if it will disappear after 24 hours? What about 10 seconds? The user should know before viewing the content, how scarce it is in order to decide which level of attention to give to it. Ephemeral marketing and Snapchat are usually interconnected so much so that most of the time, when researchers discuss either concept, the other is also mentioned with it (Anderson, 2015). It can be noticed from the name of Anderson's study "Getting acquainted with social networks and apps: *Snapchat and the rise of ephemeral communication.*" Some snapchat 24-hour stories for social media influencers can be long, such as a review of a product. However most scarce ads are generally ephemeral, hence ephemeral marketing. As far as this study is concerned, both scarce ads and ephemeral ads are the same thing.

TV advertisements could be arguably considered scarce. When an ad appears on the TV or the Radio, the ad might appear again, or it might not. However, that is not a feature, instead it is the nature of the specific electronic device, either the TV or the Radio. Therefore, all the ads were scarce, and the non-scarce group did not appear in the same media form for comparison. Only until

recently different types of ads started to appear in social media for researchers to compare. Hence, if scarce ads increase attention and recall during the experiments, then this phenomenon might help explain why TV and Radio ads were popular around the world during the 20th century.

Furthermore, another principle of scarcity marketing is based on a simple phenomenon; fear is likely to instigate people to act. This notion will be comprehensively discussed later on (Shi & Xhumnumpan, 2020). However, fear is known to motivate the customers to act before they can consciously approve of their actions themselves. In the aspect of marketing, FOMO is a major contributing factor towards increased purchase intention of the customers that the marketers utilize through multiple features of their product placements (Hodkinson, 2019). For instance, Disney Vault is well-known to have restricted access to their classic stories, the vaults are open a few times for the re-release of specific titles and in order to get a copy of the movie, one is required to do so in that specific time-frame or miss the opportunity overall. This phenomenon is likely to make customers purchase products in a haste, even when they don't need it; therefore, the marketers create the demand and then supply the respected products (Byers, 2018).

In the literature, scarcity effects on value perception have significant empirical support in research and practice (Lynn 1992). Aggarwal & Vaidyanathan (2003) show that time limiting promotional offers had a positive effect on demand. Scarcity messages often raise a product's perceived value, and consequently, influence the consumer's purchasing intentions (Aggarwal et al. 2011). Cialdini (2009) suggests a link between scarcity and the competitive nature of buyers. When restrictions are placed on a product's promotional offer, the offer itself becomes scarce and a resource in itself. The motivating effect of such an offer goes beyond its monetary value (Schindler 1989). Being able to take advantage of a limited promotional offer creates a sense of intelligent buying by customers (Babakus et al. 1988). Grabbing a bargain becomes more like winning (Bawa & Shoemaker 1987), specifically where the bargain provides utilitarian as well as hedonic experiences (Garretson & Burton 2003). Thus, the hedonic experiences have a positive impact on product value as the demand structure of the product will increase and also its sales (Mehra, et al., 2018).

From a marketing perspective, consumers experience more enhanced feelings if a discount could be attributed to financial savings or economic benefits to consumers. In case of a limited quantity scarcity, beneficiaries take greater personal credit for the saving (Carmicheal, 2019). The effect of scarcity messages will be moderated by marketing, such as limited quantity scarcity messages enhance the appeal of symbolic brands without lowering their value (Aggarwal et al. 2011). Eisend (2008) shows that marketing ads with scarcity appeals that enhance value perception in turn increase attention. Further studies in the area of value perception and scarcity show that attention and ultimately recall plays a key role in brand selection.

This section addressed the major theoretical literature surrounding scarcity, including its economic and behavioural components, and ephemeral marketing that exists to date. The major dilemma is that of limited resources and unlimited wants that gives rise to scarcity. However, while certain scarcity is natural, scarcity in marketing is derived through demand and supply induced methods. The main goal of scarcity marketing is to develop a sense of urgency amongst the customers and to manipulate their cognitive resources for the sake of elevating intention to purchase. To date, the academic literature on scarcity has not investigated ephemeral ads themselves. This is a significant opportunity for researchers and marketers alike because of the major innovations and changes in the way consumers receive and interact with ads based on the rise of social media and new platforms for marketing. The next chapter is dedicated to developing the core model, including introducing the concepts of attention and recall, and what factors influence or affect these.

2.6 Developing the core model

2.6.1 Model of ad scarcity

To understand the effect of the scarce ads, this thesis addresses the relationship of ad scarcity on ad attention and recall. The previous section emphasized the prevalence of scarcity in the domain of marketing, where different types of scarcity highlight the potential strategies used by various advertisers and marketers around the world. Accordingly, this section addresses the role of attention and recall in advertising, as well as factors that may increase or affect these two concepts.

2.6.2 Role of attention in advertising

Attention is fundamental to advertising (Nilsson, 2006). For effective communication to get commercial messages through to potential customers, advertisers must gain the attention of consumers. Bundesen (1990), in his seminal theory of visual attention, proposes that attention is directed to consciousness. Johnston & Dark (1986) describe attention as a phenomenon through which there is a consistent appeal to some intelligent force or agent. The concentration of human consciousness is vital for gaining attention (Eysenck & Keane 2013). Caples (1997) and Reid et al. (1998) put originality as the key to advertising effectiveness because it captures consumers' attention making advertisements more unforgettable.

Attention is defined as a stimulus into the consciousness of humankind, and it is a process that instigates humans to notice an object or an event (Mack & Rock 1998). Such a stimulus can be an advertisement that draws the attention of consumers to brands. The process of getting attention is vital to advertising managers and creative directors in creating the perception of a brand (Nilsson 2006). Eysenck & Keane (2013) define perception regarding sensory experiences acquired through information. The more you 'focus' on things and events, the more your mental capacity is filled. According to the traditional information theory, attention is attributed to the limited allocation of mental capacity based on task priorities (Eysenck & Calvo 1992). The nature of the task is vital regarding specifying the mental workload and resources that create attention (Hsieh & Chen 2011).

The capacity theory describes attention regarding a limited mental resource in any given time. If mental capacity is preoccupied with other thoughts, decidedly lesser mental resources would be allocated to attention on the task. In other words, attention is inversely proportional to cognitive load. According to the visual attention theory, there are bottom-up and top-down factors directed to attend in any visual scene. Object salience is included in bottom-up factors and observers knowledge in top-down factors (Treisman & Gelade 1980; Wolfe et al., 1994). The orientation of consumers influences attention due to the learning once they are exposed to bottom-up factors (Donk & Soesman 2010). Task driven and top-down factors dominate once the directed attention to objects decreases due to bottom-up factors (Parkhurst et al. 2002). Top-down factors are associated with task driven and goal orientation (Theeuwes 2004). These factors are significantly relevant in an advertising context (Milosavljevic & Cerf, 2008; Pieters et al., 2004). Stimulus-rich

ad features get consumer attention quickly as it is a bottom-up factor, also termed as pre-attentive (Treisman & Gormican, 1988).

Despite the importance of attention in ad effectiveness, the research in attention, and particularly in the marketing and management field, is quite limited (Janiszewski & Bickart, 1994). Much of the research on attention is done on cognitive capabilities (Finn, 1988) and time studies involving advertisements (Pechmann & Stewart 1990). In unengaging circumstances, people perceive time as passing slowly as compared to the situations in which they are deeply involved and engaged with tasks. Less attention is given to time restrictions in cases where a person is engaged in higher attention seeking tasks (Zakay 1989).

Capturing audience attention is critical to communicate a brand and its image. There is a minimum level of ad content to communicate a message for a product to be recognized by a person (Nilsson 2006). Visual research is focused on developing and capturing attention through manipulating various advertisement properties including pictures, headlines, colours, flickers and flash (Kroeber-Riel 1979). Attention in advertisements are often explored in terms of colours (Nagy & Sanchez 1990), graphics orientation (Treisman & Gormican 1988), size of ad or the visual object (Wolfs et al. 1994), motion of objects through sensory perception or animation (Dick et al. 1987), or depth and surface and material characteristics (Nakayama et al. 1986; Enns & Rensink 1991). To avoid mental capacities being overloaded with inputs impeding attention, selectivity is essential for the enhancement and processing of information that could dominate consumer's consciousness (Milliken et al. 2000). It is often the case that conveying of an advertising message actually require a short span of time and even creating unintentional attention in case of known brands and better recall (Krugman 1986).

Viewing ad content with varied information and styles requires distinct mental resources and cognitive capabilities to be able to remember the ad (Hsieh & Chen 2011). For example, in comparing text reading with pictures viewing, it was found out that reading text drains more mental resources and hence there are fewer chances of a recall. Habituation is another phenomenon that results in humans paying less attention to an accustomed mental stimulus (Cacioppo et al., 2007). Habituation, however, exhibits better recall. In a constant with a repeating ad scenario, the attention

inertia is gradually reduced. Attention inertia is the change of cognitive stimuli invested in an object over repeated ad events (Burns & Anderson 1993). In a claim-related ad, such as those referring to scientific or anthropological research, recall advantage is higher than the non-claim-related ad (Bolls et al. 2003). Recent sports ads, including characters with controversial attributes, instigate viewers' thought process and hence they have better recall advantage. Treisman & Gormican (1988) specified elements of visual saliency to attract attention to objects within a visual field. Elements include orientation, object alignment, color and luminance (Wilson et al. 2015). Attention strength of an individual can be altered through targets and distractors by manipulating the elements (Shiffrin et al. 1981).

2.6.3 Scarcity effect and attention

Attention is viewed as a crucial component of the advertising industry. Marketers activate viewer's attention for the sole purpose of attaining effective communication (Byers, 2018). Therefore, attention stimulates one's consciousness (Eyesenck, 2013). As a result, studies have emphasized the fact that advertisements that have original content are more likely to attract consumer's attention as compared to unreal content (Aguirre-Rodriguez, 2013). Furthermore, attention is perceived as a stimulus which increase's one's awareness towards a specific thing or an event, therefore advertisers utilize such instances to draw consumer's attention towards the market offerings Bae & Lee, 2005. On the other hand, attention is quite imperative for the purpose of creating brand perception; the more an individual will attend to a stimulus, the more mental capacity will prioritize that message (Eyesenck, 2013). Attention is usually used as a mediator in studies that objectivise higher attention.

Furthermore, the concept of selective attention is often referred to in the aspect of marketing. While every marketer aims to capture the attention of potential customers, every individual only has the capacity to retain a specific amount of information, and as a result, the most communicable content is attended to which includes both visual and verbal cues (Abendroth & Diehl, 2006). On the other hand, attention often deters due to excessive cognitive load, specifically where audiences are subjected to a plethora of content on social media, hence, it results in reduced retention. As a result, selectivity is another crucial element in order to avoid cognitive load that would in turn impede

attention thereby dominating one's consciousness and effective decision making (Yeo & Park, 2009). Similarly, if an advertisement contains several distinct features and styles, it will require increased cognitive capabilities and mental resources just to address the distinct patterns that may activate increased attention (Alijani et al., 2010). However, reading texts is likely to use up more mental resources that may lead towards alleviated recall, whereas habituation, where an individual is required to pay less attention, leads toward better recall (Ackerman & Gross, 2003). Additionally, if an advertisement has repetitive context, is claim related or has controversial attributes, it is likely to have increased recall because it instigates more attention (Harms et al., 2017).

Generally, attention is explored as a mediator in terms of scarcity in marketing. Moreover, a significant amount of research in the domain of advertisement has been emphasized over the prospect of attention amongst customers. Testing the viewer's attention have been used often in advertising experiments (Simola et al. 2011). For instance, the size of the advert, illustration and colours are likely to positively correlate with recognition (Hanssens, 1980). Nonetheless, it must be noted that the measures for recognition used in the prior research are not that adequate; however, they are likely to explain the features of scarce advertisement that stimulate one's attention. Other than that, the concreteness of information is another attention inducing property in advertisement where it has been hypothesized that bright and colourful information is likely to have more influence over the customer's purchase decision as compared to non-vivid information as the prior is likely to remain in memory for a longer time duration (Hamill et al., 1980). Similarly, concreteness is predicted to retain attention and is usually referred to as the factors leading towards the vividness of information.

Furthermore, while scarcity has always been a famous marketing strategy, in order for those tactics to work, the customers have to be persuaded before the offer ends. As a result, marketers utilize different content for gaining attention and persuasion. In order to gain attention, the customers must be entertained and provided adequate cues to increase their awareness. In order to persuade, the information is presented. However, it must be noted that consumers have reduced attention spans these days mainly due to the dynamic nature of online media (Aggarwal et al., 2011).

Nonetheless, manipulation of various elements could have an adverse impact on attention. Subsequently, the advertisement field entails of scoring increased attention and influences through the use of financial benefits where consumers are presented with multiple cues for the purpose of stimulation of their attention (Ku et al., 2012). On the contrary, advertisements are also challenged on the basis of their authenticity and whether they are presenting information on the basis of originality. Marketers and advertisers alike are keen to emphasize increasing advertising effectiveness which could simultaneously adversely impact one's creativity (Aguirre-Rodriguez, 2013). Therefore, I propose the following hypothesis that tests ad scarcity vs. attention:

H1: A scarce ad (vs non-scarce ad) positively affects ad attention

2.6.4 Role of ad recall in advertisement

Ad recall is a measure of advertisement effectiveness that is significantly linked to how well a consumer remembers an ad. Consumers who can remember an ad are more likely to buy the product. From a marketing perspective, ad recall is very important to generate value from the resources invested in an advertisement. Studies have explored the interaction between the advertisement and media related factors on recognition and recall of brands. Krugman (1986) states that recognition involves low-attention to an ad, whereas, recall is closely related to advertising. Recognition and recall can be deployed to measure advertising effectiveness.

Recall is linked to remembering text or sound related events while recognition is linked to graphics/pictures. Memory for words is relatively low with a high level of forgetting. Recognition, on the other hand, is measuring pictorial memory. When measuring recognition, an individual who has been exposed to an advertisement (the target ad) is presented with a number of irrelevant or phoney advertisements of which one is the target ad. The primary purpose is to see if the subject recognises the target advertisement. This is relatively simple as opposed to when testing recall since right-hemisphere memory for pictures is exceptionally high with much less forgetting (Krugman 1986). Alfred Politz's research (1962) has shown that different media vehicles can generate distinct communication effects responsible for ad recall.

An example is the PARM study (A study of Printed Advertising Rating Methods) meant to investigate advertising, and in particular, differences between recognition and recall of ad. This study showed several linkages between recall and recognition. Krugman (1986) proposed that those who recognise an ad can also recall subject to attention. There is a limited amount of information that can reach short-term memory where messages are stored temporarily and used for various mental processes as per demand (Eysenck & Keane 2013). Even though both recall and recognition can be used for measuring advertising, more work has been done academically on recognition as the primary measure.

Human cognitive capacity to process and store information in memory is quite limited (Shiffrin et al. 1981). For an appropriate recall, a person must have enough available cognitive capacity for deciding and storing an ad message. It is important to note that particular features of an ad may overload viewers' cognitive capacity, causing a decline in recall (Geiger & Reeves 1993; Paul et al. 2003). When there is not enough cognitive capacity available for processing an exposed ad, mental resources are borrowed from other cognitive tasks, thereby causing performance decline (Perner et al. 1999). Brand familiarity tends to reduce the amount of attention to advertisements and prompt better recall. Consumers spent less time on ads for familiar brands as compared to unfamiliar ones (Pieters & Wedel 2004). Creativity is an important aspect for practitioners and academics in the advertisement field. Much of advertising and creativity research focuses on linking creativity to advertising efficacy, including recall (Lehnert et al. 2013) and recognition (Baack et al. 2008). Academic research has examined visual complexity effects on attitudes and other downstream effects under forced, long exposures (Peracchio & Meyers-Levy 1994) but has not established its attention effects. Besides, such research has used a multiplicity of definitions and subjective measures of complexity (Geissler et al. 2006), which hampers generalization.

2.6.5 Scarcity effect and recall

Recall is another major variable, which is likely to be affected as a result of scarcity in advertisement (Gurses & Okan, 2014). The significance of recall can be understood by the fact that consumers have the tendency to purchase those marketing offerings that they remember from an advertisement. Therefore, the marketing perspective highlights advertisement recall as the sole

driver for generating brand value and customer retention (Sanchez & Alley, 2016). Similarly, various researches have explored this phenomenon alongside recognition, where recognition is association to low level of attention towards an advertisement and recall is association towards increased attention (Krugman, 1986). Tests on recall are also done to identify the factors that affect it (Cohen & Faulkner, 1986). Scarcity in an advertisement is usually viewed as a product or service where the consumers are informed regarding limited supply. However, scarcity of advertisement is not widely addressed in literature, which is why it is imperative to understand how scarcity of marketing advertisements influences the recall level of consumers/ viewers of those advertisements.

Every human has a limited capacity for cognitive processing therefore recall is correlated with the availability of cognitive capacity, which then decides upon prioritizing the message (Baddeley, 1992). However, if an individual is provided with cognitive overload then the tendency to have appropriate recall is reduced. Therefore, marketers work towards devising strategies for the purpose of creating adequate brand awareness and positioning them effectively because brand familiarity uses reduced mental resources thereby leading to better recall (Shah, et al., 2015).

The surge of information leaves customers feeling overwhelmed with the number of marketing messages and emails. As a result, there is no assurance whether they perceived the messages because of the large amount of information (Harms et al., 2017). Hence, content recall must be emphasized for the purpose of allowing customers to remember the main message of the advertisement (Gupta & Gentry, 2017). Content recall is important because of the competitive industry nowadays where several brands are competing against each other in order to increase their revenue and customer retention (Hongcharu, 2017). Therefore, in order to influence the purchase intention, marketers must improve their content recall through communication tools (for e.g. Advertising, Sales promotion, Interactive marketing and Direct selling) and message strategies. Communication tools can assist them with a synergistic effect for the purpose of delivering the message at the right time, to the right place, for the right people. On the other hand, message strategies can be utilized to design and address a new campaign with revised themes because visual

cues have a great impact on one's attention and recall (Hongcharu, 2017). Hence, I propose the following hypothesis that tests ad scarcity vs. recall:

H2: Ad attention positively affects ad recall

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2.6.6 Conceptual model: Impact of scarcity effect on attention & recall

The present research will be using the core model as mentioned below:

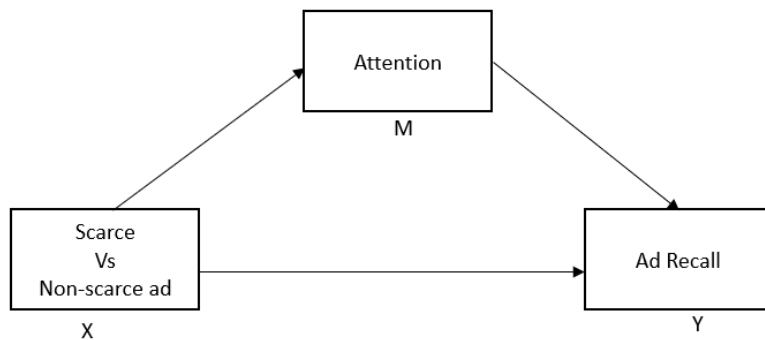


Figure 2-2: Conceptual model to study the impact of scarcity effect on attention and recall level of consumers

In his seminal theory of visual attention, (Bundesen, 1990) stated that attention is linked to consciousness as they both are likely to alert the brain to receive a stimulus. On the other hand, attention in advertisements is often assessed through colours, orientation, and graphics alongside the size of the visual objects, sensory perception, and animation (Ackerman & Gross, 2003). Moreover, scarce advertisements are found to make use of particular motions and visual cues in order to alert the audience and attain increased attention. Similarly, researchers like (Hsieh & Chen, 2011) have found that usage of different styles and information leads towards increased cognitive abilities leading to increased recall. Similarly, scarcity effects in advertisement and marketing lead towards increased intention to purchase if there is positive perception of a brand and healthy customer relationship (Aggarwal et al., 2011).

Therefore, there seems to be a positive link between scarcities related to advertisement and recall in which scarce conditions are likely to lead towards increased recall. On the other hand, attention is also deemed to be a significant antecedent in terms of assessing recall because attention is associated to different internal and external features of cognitive abilities (Chung & Muk, 2017). As a result, recall of advertisement is related to attention in advertisement because only when a customer attends to an advertisement and is conscious of it, he/she manages to retain and recall the contents of that specific advertisement (Shah et al., (2015). Hence, recall of an advertisement is crucial for the purpose of generating value and interacting with other factors related to marketing and consumer's intention to purchase (Aggarwal et al., 2011). Hence, to test this effect, I propose the following hypothesis:

H3: Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad recall

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3 Chapter 3: Moderators

The main model focuses on scarcity's effect on the mediator (Attention), however, it does not explain why the effect is happening. Hence the study utilizes three major moderators, namely fear of missing out (FOMO), social media intensity (SMI) and visible timer on ads, to help explain the effect of scarcity of attention. In this chapter, each moderator is explored as well as its relationship to the broader conceptual study.

3.1 Fear of Missing Out (FOMO)

3.1.1 Overview

The 'Fear of Missing Out' also referred to as FOMO is a modern-day phenomenon which has generated consideration over the years (Taylor, 2019). However, while the conceptualization is becoming renowned nowadays, its existence is linked to pre-historic times, including since the emergence of humans (Sanz, 2015). Therefore, the environment today has transformed significantly over the years. The practices which were followed before hardly conform to now, the changes are reflected in every domain of life (Gupta & Gentry, 2016). For instance, nowadays people interact and communicate with each other through different digital platforms, while earlier they would depend on each other for mutual support and aid (Boyd & Ellison, 2007). The introduction of the internet as a communication tool led towards the development of social media platforms. Therefore, since the majority of the population is integrated on such platforms, whatever they read online is likely to trigger the onset of FOMO. By means of example, this can be something quite ordinary such as looking back at activities that they have missed while they were away (Clark, 2015).

Several researchers agree with the notion that people are likely to go through the most painful experience if it involves damage to social connections because it has been proven that individuals go through a similar neural processing when they deal with either physical injury or social rejection (Eisenberger, 2004). Therefore, from this we can deduce that brain is likely to process the loss in the same way it processes pain. Hence, the individuals are likely to be motivated to not go through similar instances at all (Elhai et al., 2016). Earlier on, people who would be left out from social groups for hunting were said to suffer from detrimental consequences which would in turn

adversely impact their survival. Therefore, while things have drastically changed, the nature of human is still the same (Frith & Frith, 2007). Nonetheless, it is not the same as life and death situation but not being active on social media platforms and missing out on important discussions, activities and events has proven to have a detrimental impact on one's social and psychological well-being (Clark, 2015). Furthermore, the humans' opportunistic behaviour has progressed over time. Previously it was solely focused on one's desire to fulfil their materialistic needs of getting the first product off the shelf, and nowadays such instances are being reflected similarly online. Thus, FOMO still depicts a similar human state of being hyper-vigilant, similar to what one feels when they are striving to survive (Sanz, 2015).

Current marketers have been extensively utilizing the notion of 'missing out' in a plethora of offerings, thus this feature is known to have an economic basis. However, there are no specific definitions pertaining to the explanation of FOMO. Thompson (2011) proposed an inference regarding this notion as being an 'all consuming' feeling that you are missing out on what your peers are doing or have something that is better than yours. On the other hand, Przybylski et al. (2013) defines FOMO as an unavoidable feeling with the belief that others are probably having a better experience from the thing one couldn't get their hands on.

3.1.2 FOMO and scarcity marketing

It was not until recent times that FOMO became associated with the use of social media. According to Przybylski et al. (2013), the surge of FOMO was highlighted through the widespread utilization of social media platforms like Facebook and Twitter alongside the trend of digital marketing which eventually gave birth to similar instances of online advertisement (Fang et al., 2020). On the other hand, individuals are found to use such digital platforms to communicate to others and have social ties. Therefore, those who have depleted levels of psychological need satisfaction are likely to be more vulnerable to the adverse impacts of FOMO (Hodkinson, 2019). Hence, marketers have been increasingly opting for the assessment of FOMO through different offers and marketing tactics so that they can target their audience through the prospects of FOMO (Przybylski et al., 2013). For instance, brands are actively using FOMO by motivating people to engage in activities that make

them feel left out or by showcasing instances that are deliberately implying the feature of ‘missing out’ thereby developing a need for integrating into similar things (Karapinar et al., 2019).

Additionally, brands are also likely to offer unique experiences exclusively for the sake of aggravating feelings of FOMO which will in turn encourage others to choose a similar offering (Herman, 2000). On the other hand, (Reagle, 2015) suggested that the prevalence of FOMO nowadays is mainly due to the competitiveness of individuals against each other where they are overly consumed with social comparison that is in turn impacting their state of well-being (Bae & Lee, 2005). Similar to the aforementioned statement, FOMO is continuously being supported by digitalized platforms that have made the movement of messages fast-paced, therefore everybody is likely to be cautious of missing something or the other (Taylor, 2019). Additionally, modern-day technologies like mobile gadgets have further strengthened the integration of similar instances. Thus, the conceptualization of FOMO is greatly influenced by social cues. Nonetheless, it must be noted that FOMO is not solely confined to envy and anxiety driven influences, it is also becoming a personality characteristic where individuals have an opportunistic tendency to avail every possible offering (Abendroth & Diehl, 2006).

FOMO is largely opted for the purpose of deriving commercial demand and appeals whereas it is also considered as an individual trait of the consumers (Hodkinson, 2019). Consequently, the FOMO sales are solely dependent over the responses of the customers, which is why it is imperative to adequately understand and interpret the response mechanisms of the consumers in order to map onto instances of FOMO over scarcity (Hodkinson, 2019). Furthermore, scarcity marketing is perceived to emphasize on the fear of losing out if the customer’s do not take an immediate action mainly because a decreasing quantity of a product or service leads towards increased value (Hodkinson, 2019). Hence, the social media platforms nowadays are heavily utilizing scarcity marketing and FOMO on different online platforms so that the marketers manage to create a psychological fear for their own benefit. As a result, FOMO is found to be extremely influential in terms of inducing scarcity effect amongst advertisements on various digital platforms. However, FOMO are considered to significantly increase the stress level of users, according to a report released by the Australian Psychological Society (Clark, 2016).

Scarcity marketing and FOMO are used together because the fear of missing out motivates people to eventually purchase the desired product (Anderson, 2015). The features of FOMO and scarcity are likely to operate collectively because when a person has anticipation of scarcity of a product, they automatically respond towards it with anticipation anxiety and their instinctive reaction is to purchase before they end up regretting their decision (Heshmat, 2017). Furthermore, the utilization of digital marketing and online platforms for shopping is making these instances become more prevalent and widespread. Hence, the e-commerce websites are properly utilizing their opportunity to target those who are conveniently purchasing from the comfort of their homes (Newbold, 2017).

Given scarcity ads, are inherently those which if attention is not paid the consumer may miss out as they will disappear, the effect of scarcity should be greater for those individuals who are inherently higher in FOMO than others. In other words, people who have a propensity to be fearful for missing out on opportunities, will be more fearful when they know an ad is scarce and thus pay more attention.

Hence:

H4: The positive relationship between scarcity and attention is greater for high (vs. Low) FOMO individuals.

3.2 Social Media Intensity

'*Social Media Intensity*', essentially how intensely a person uses social media is proposed here as a moderator to the relationship between ad scarcity and attention (Ellison et al., 2007). Social media platforms usage and marketing within have experienced rapid growth over recent years (Roberts & David, 2019). On a general basis, Americans are likely to spend around an average of 23 hours on online platforms throughout the week, out of which majority of their time is spent on social media sites (Chaffey, 2020). Therefore, using the advancements of technology and proliferation of social media channels by potential customers, marketers and brands are always on a lookout to utilize this space for pitching sales and advertising for attracting customers (Chung & Muk, 2017). Additionally, since the majority of the customers want brands to be accessible, they acquire information through social media, which is then used for placing an order and purchasing the final product (Anderson, 2015). Apart from just the efforts of the brands, other tactics like

celebrity endorsements, discount offers and online utilities are further used for engaging with customers and creating a friendly environment (Ackerman & Gross, 2003). Furthermore, since brands are quite active online through customer service platforms, the customers are always on the lookout for limited point of sales and offers (Chung & Muk, 2017).

Amongst various social media channels, 73% of the users use YouTube, 68% use Facebook and other social media platforms like Instagram (35%), Pinterest (29%), Snapchat (27%), LinkedIn (25%) and Twitter (24%) also have a widespread audience base (Chaffey, 2020). Furthermore, social media has also led to a paradigm shift in the advertising sector where the advertisers have been moving towards digital channels since traditional channels are not desirable by the masses (Anderson, 2015). Currently around 33% of the spending of the brands in the United States are directed towards advertisements on digital platforms, which has substantially increased from around 24% in the earlier years (Clement, 2020). Therefore, the growth of social media platforms has been adversely impacting the growth of television advertisement alongside print media as well (Boyd & Ellison, 2007). Furthermore, since profitability is shifting towards digital platforms, globalization of social media has been encouraging new businesses to establish online alongside which various businesses are looking forward to increasing their social media spending (Carmicheal, 2019). Currently, social media spending is around 12% of the entire marketing budget and in the upcoming years, the spending is expected to reach around a quarter of the entire budget. Alternatively, different types of brands are predicted to increase their spending on social media. For instance, B2C products (Business to Customer) platforms will increase by 61%, whereas B2B brands (Business to Business) are also likely to increase their spending for products and services by 89% and 58% respectively (Chaffey, 2020).

Social media usage intensity differs from across users, some users will use it infrequently with social media less central to their lives while others will be the opposite. Social media usage intensity (herein social media intensity) is most often measured using an adaption of Ellison's Facebook Intensity Scale (2007). The instrument goes beyond measure of frequency or duration of use. It also assesses the person's level of attachment to the site and its "integration into individuals' daily activities" (Ellison et al., 2007). The instrument is composed of 8 measures of Facebook Intensity, six of which are statements which a participant is asked to rate ranging from

1 (strongly disagree) to 5 (strongly agree) while two are questions pertaining to the total number of Facebook friends and the time used in Facebook per day. The last two questions can be open-ended or closed-ended questions. An average of the rating is then computed to assess the Facebook use intensity. This scale could be used with most similar social media applications that are similar to Facebook. If we change the questions to include Instagram, for instance, it will still test the intensity scale of an Instagram user, or Snapchat. Hence it could be safely called, Social media intensity scale. This thesis proposes that ad scarcity will impact attention of users based on their level of social media intensity. Specifically, it is proposed that high intensity users will be less responses to ad scarcity translating into lesser attention compared to low intensity users that will respond with greater attention. The following provides a two-fold rationale for this, first based on the association between social media intensity ad overexposure and second, on evidence that that increased social media usage is linked to split attention.

Overexposure to ads

Consumers are now exposed to thousands of commercial messages every day due to increasing clutter and media fragmentation (Gritten 2007). These messages come from guerrilla media campaigns, subviral marketing online, brand installation, and consumer-generated media such as blogs, podcasts, and online social networking sites, in addition to traditional media such as television and newspapers (Gritten 2007; Schultz 2006a). As a result, consumers have increasingly become information editors, using technology to filter out content and advertising messages that do not interest them (Gritten 2007).

Being exposed to large amount of ads can potentially reduce the attention given to these ads. According to Schultz (2006a), it is a response to oversaturation of messages or commercial clutter in both traditional and nontraditional media, such as the Internet. He advises that people build shields to block out the growing clutter and prevent marketers' "push" advertising messages.

According to Cho (2013), social media has a much higher amount of push ads compared to traditional media outlets which can disrupt users' web page browsing. When Consumer Web page viewing is disrupted, viewers are distracted from the editorial integrity of the Web page, and their search for wanted information is intruded upon. For example, consumers may believe that navigating the Internet to find desired content is difficult because Internet adverts disrupt or intrude

on their overall search for information, leading to a retreat from the source of interference (i.e., ad avoidance). This puts the viewer in a “fed-up” state when it comes to viewing social media ads and lead them to pay less attention and focus on their main objective. Given high social media intensity users (vs low) spend more time on social media they will therefore be inherently exposed to more advertising, thus are less likely to pay attention to ads in general and scarce ads are not an exception.

Social media effect on Attention

Social media effect on attention have been a subject of interest for researchers who study student’s performance. Academic performance relies on the ability to pay attention to and concentrate on the task at hand (Anastopoulos and King, 2015; Fleming and McMahon, 2012). Inability to maintain attention can affect academic performance by preventing the learning of necessary knowledge and skills, making it difficult to organise, and causing poor time management (Anastopoulos and King, 2015; Fleming and McMahon, 2012). Attention is characterised in terms of time management and the learning environment. An individual's capacity to attend to the academic subject at hand, not pay attention to other distractions during the task, and eliminate distractions is characterised by their ability to regulate time and study environment. It entails students' capacity to successfully manage their time and their surroundings in order to achieve their academic objectives (Kwon et al., 2018; Richardson et al., 2012).

According to research, there is a link between excessive social media use and attention issues (Karpinski et al., 2012). When they were working on something useful, high multimedia users had a harder time sifting out undesirable distractions like notifications (Ophir et al., 2009). As indicated by participants' grade point averages, the ease of access to these "technology" impaired students' capacity to adequately sustain their attention and digest material at a deeper level (GPA; Junco, 2012; Junco and Cotten, 2012). Per the research, establishing a study environment that is free of excessive usage of social networking sites is necessary (McCardle et al., 2017; Nasrullah and Saqib Khan, 2015; Ophir et al., 2009). Those who were able to successfully manage their time and create a studying environment that was free of distractions had higher GPAs than students who were unable to do so (Kitsantas et al., 2008).

Hence, high use of social media applications can lead to poorer attention or having split attention. Considering this in-line with the negative effect increased ad exposure has on attention, the following hypothesis is proposed:

H6: The positive relationship between scarcity and attention is weaker for high (vs. low) Social Media Intensity individuals.

3.3 Timer

3.3.1 Timer induced advertising

The technological advancement and rise of internet have given birth to numerous marketing tricks and strategies, one of which is the use of '*Timers*' in advertisements on multiple social sites like Facebook and YouTube (Howard, et al., 2007). The presence of timer is often associated with the visual representation of scarcity as it is a non-verbal sign towards the probable duration of a presentation, which may in turn increase attention of majority of the viewers. Moreover, the presence of a timer allows the viewers to view the progress and measure it against the remaining time (Ku, et al., 2013). As different moderators mentioned above, timer has an influence over the perception of scarcity because it appears to show an advertisement as time-bound and restricted where the consumers can choose to ignore it or pay more attention to it, thereby leading towards assessing the effectiveness over recall of advertisement (Koster, et al., 2014). Overall, amongst various factors affecting scarcity in advertisement, the role of attention and recall also play a major role in determining the impact of scarcity effect and the role of consumer's psychological understanding (Alijani et al., 2010).

The presence of timers in advertising videos is a modern-day phenomenon that has emerged due to the rapid growth and dynamic nature of in-stream commercials where the video advertisements are played during or after consumers watch videos pertaining to their preferred contents (Goldstein et al., 2011). Therefore, the timers in the commercials and advertisements on different social media platforms are mainly used as a source of driving urgency which is a way of inducing impulsiveness in the buyers thereby pushing them and encouraging them to make the purchase decision (Byers, 2018). Needless to say, there are a plethora of strategies to drive online sales but the influx of video

advertisements to engage consumers has led towards the introduction of timers on advertisements (Charlton, 2016).

Timers have the possibility of inducing a psychological response in the viewer. Countdown timers are a form of visual cue that implicitly informs the consumers to take an action within the time-frame, giving consumers less room to think and actually process the decision (Goldstein et al., 2011). This count down timer could last from a few seconds to a couple of hours, depending on the size and type of market offer (Charlton, 2016). The strength and influence of such timers have been widely noticed by marketers, which is why they utilize it to add an extra level of urgency in the minds of the customers, which in turn positively impacts their purchase intention (Light, 2019). Countdown timers on the other hand are known to provide customers with precise information but they also stimulate expected FOMO due to the sense of missing out on something valuable if they do not act on it now (Reagle, 2015). Furthermore, advertisers know the exact places to position such timers, they mainly place it on e-commerce sites and product pages which are likely to drive the most traffic consisting of potential customers. For instance, customers with high FOMO who are shown an advertisement with a timer tend to grow more attentive with every passing second as they fear losing out on the accumulated information (Flom, 2017).

Time urgency

Sometimes known as "time pressure," denotes a lack of time (Landy et al., 1991), and it has been shown to influence judgment and decision-making (Dhar and Nowlis, 1999; Mogilner et al., 2008; Rastegary and Landy, 1993). As the task grows more urgent, it may appear to be more significant (Cialdini, 2009). As a result, constrained time constraints increase task attention, incentive to analyze future information, and task completion (Suri and Monroe, 2003; Zhu et al., 2018), which may explain why setting deadlines is a method for assuring task completion (Waller et al., 2001). Consumers may utilize promotion expiration dates to estimate how much effort to put into purchasing, similar to a marathon runner who uses the finish line as a reference point to decide the best strategic pace (Markle et al., 2018). The principle of declining sensitivity explains the phenomenon: approaching the reference point, the value function grows bigger (Health et al., 1999; Thaler, 1985). This line of thinking has implications for how goal progress and motivation

are related. In the specific goal condition, Wallace and Etkin (2018) discovered that accumulating goal progress improved subsequent motivation because it should make the value function steeper closer to the focal reference point. As a result, when people use the remaining distance to the goal as a reference point, the goal feels closer as the deadline approaches. To put it another way, as deadlines approach, action becomes more critical. The resource-scarcity idea is readily understood and applied by marketers (Mukherjee and Lee, 2016; Yoon and Vargas, 2010, 2011). Previous research on scarcity has shown that a limited-time promotional offer has a significant impact on purchase intent (Aggarwal et al., 2011) and increased coupon redemption approaching the expiration date (Inman and McAlister, 1994). Scarcity appeal does, in fact, cause favorable inferences about the goods because of the temporal constraints (Mukherjee and Lee, 2016). Incorporating this line of research into the contemporary environment, we hypothesized that using temporal scarcity in marketing promotions (e.g., "Call now," "Sale ends tomorrow") could help people achieve their goals faster. Near-term deadlines produce a sense of urgency and pressure to buy fast (e.g., Aggarwal et al., 2011; Spears, 2001), boost willingness to buy, and reduce the desire to look for better offers (e.g., Aggarwal et al., 2011; Spears, 2001). (Aggarwal and Vaidyanathan, 2003). Deadlines can be useful in a variety of situations, including online auctions (Ariely et al., 2005; Kim et al., 2019).

Furthermore, since advertisers are usually seeking brand recognition and recall, a time-based advertisement is likely to stimulate the pre-set goals of attaining high market exposure and purchase intention. According to a study that viewed advertisements in the form of endogenous (function of reading speed) or exogenous (function of timer and random assignment) found that there is likely to be a strong and casual inference in terms of recognition and recall of advertisement if the exposure is up to one minute alongside diminishing marginal effects with durations that go beyond this time (Aggarwal et al., 2011). Moreover, advertisements placed during the loading of web pages are likely to lead towards marginal increase in terms of recognition as compared to advertisements that come second in sequence. Nonetheless, exposure time of the advertisement is presumed to have a significant effect on both the recall and recognition of the content (Goldstein et al., 2011). Following the above logic, the presence of a timer within a scarce ad, should increase the scarcity effect of this ad on attention because this adds a further element of time pressure.

Formally:

H5: The positive relationship between scarcity and attention is greater for ads with a timer present (vs. absent).

The following contain the moderators used in the model.

Table 3.1: Key Moderators

Construct	Definition	Representatives
Fear of Missing Out	'A psychological trigger in the domain of marketing that encompasses of feelings of anxiety and anticipated regret in case of missing out on important events, offers and information'	(Hodkinson, 2019)
Social Media Intensity	'The extent to which an individual is likely to use social media platforms and engage with other members as consumers'	(Gupta & Vohra, 2019)
Timer Induced Advertising	'Timers induced advertising are a form of visual cues that implicitly inform the consumers to take an action within the time-frame, giving them less room to think and actually process the decision'	(Goldstein et al., 2011)

Hence the model including the moderators is as following:

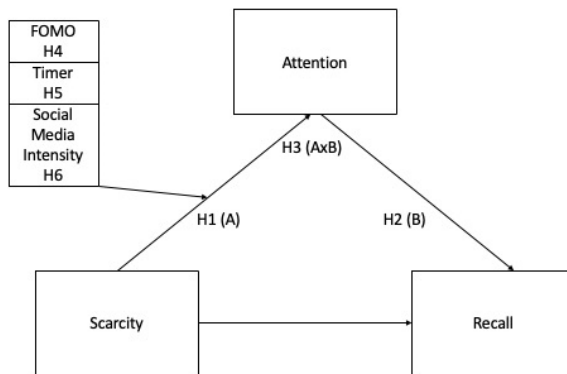


Figure 3-1 Main model with the moderators

3.4 Other possible moderators

This study utilises the moderators, namely, FOMO, Social Media Intensity and Timer in our study, owing to their importance on advertisements and existing literature gap. The study aims at exploring the scarcity of the advertisements, and not the scarcity of products and services. The selected moderators are considered appropriate and relevant in studying the ad scarcity, and therefore, justifies their choice.

3.4.1 Scarcity and assumed expensiveness

Scarcity's elevation leading towards desirability is expected to be mediated by the sole belief that things that are limited or scarce are likely to be more costly than those that are available in abundance. The anticipated price increase is positively correlated with the scarcity of the commodity (Lynn & Bogert, 1996). According to (Verhallen, 1982), accidental scarcity is likely to generate a little impact on the perceived expensiveness as compared to the scarcity which is caused as a result of supply or demand. Thus, scarcity is only expected to impact the choice of the customers when it is caused as a result of market situation (Verhallen & Robben, 1994).

Chen & Sun (2014) found that the alleged scarcity of the video games did lead toward supposed expensiveness. Moreover, the impact of alleged scarcity over the intention to purchase through alleged uniqueness of the product or service is expected to have more influence as compared to assumed expensiveness alone. Nonetheless, both the mediators are found to have a positive impact on the perceived value of the end products (Wu et al., 2012). Additionally, (Wu & Hsing, 2006) devised an integrated model for the purpose of assessing the way of scarcity effect in relation to the purchase intention of the consumers. The model was successful in revealing that scarcity is likely to increase the value through various factors; directly by improving the quality and indirectly by price-quality relations. However, it must be stressed that not every researcher argues that scarcity infers expensiveness (Abendroth & Diehl, 2006). For instance, Mittone & Savadori (2009) suggested that the quantity scarcity does attract consumers but it also elevates the subjective worth of the product, whereas the market value remains the same. Moreover, Abendroth & Diehl (2006) evaluated whether the restriction on the buying power would lead towards elevated perception of market price but the results showed that the consumers were rather indifferent towards the cost, which were not impacted as a result of the restriction. Furthermore, it is also known that perceived expensiveness is amongst the inferences that potential consumers make but it is also highlighted that perceived expensiveness is likely to mediate the impact of scarcity through the consumers' expectations of the quality of the product alongside the expense of the product or service (Wu & Hsing, 2006). Hence, it is a mediator for a product or a service, which will not be suitable for the objective of this research.

3.4.2 Scarcity and competitive arousal

Competitiveness is known to play a vital role in the process of decision making, especially pertaining to market situations of scarcity. The nature of competitiveness is often evoked when the product or service is demanded by multiple consumers while there is limited supply wherein only one or a small proportion of the consumers can have it (Ku, et al., 2012). Therefore, if a consumer is successful in attaining the scarce product, they are likely to feel as if they have succeeded the competition (Knowles & Linn, 2004). Furthermore, it is also suggested that scarcity is a crucial aspect for originating consumer competitive arousal, this is also referred to as the mental and emotional state pertaining to the competitiveness of the purchase situation with the predominant

belief that in order to achieve the goal of attaining the final product, everybody has to compete against each other (Nichols, 2012).

If the competitive arousal of the consumer is activated then it is likely to influence the decision-making ability of the consumers, which may adversely impact their ability to consciously consider other options and depend on their heuristics in order to reach an agreement (Parker & Lehmann, 2011). On the other hand, research has also emphasized that when the products are advertised with scarce messages for instance 'only 2 per store, hurry up', it is more likely to trigger the competitive nature of the consumers eventually impacting their judgement (Nichols, 2012). Therefore, scarcity messages lead to increased performance anxiety and instigates a feeling of perceived rivalry and competition against everybody who is willing to get their hands on the end product meanwhile increasing the desirability as well (Aggarwal et al., 2011). Nonetheless, the marketers must always be aware of the individual differences due to which every marketing tactic and strategy may impact the consumers differently. Perhaps, competitive arousal is likely to be a valid mediator towards the scarcity appeal of the product (Gupta, 2013). The prevalence of competitive arousal as a result of scarcity is higher in females than men because it is usually viewed that women tend to hoard on limited items or hide them so that they are not accessed by others for the sake of avoiding anticipation of regret (Malhotra, 2010). This condition is also related to the actual product or service, therefore will not achieve the objective of this research.

3.4.3 Others

Brand awareness, strong prior preferences, and product involvement have been predicted to alleviate the efficiency and effectiveness of the original scarcity as well as the messages of scarcity appeal that emphasize promotional and discount offers. According to Parker & Lehmann (2011), shelf-based scarcity is more influential when the consumers have low levels of prior preferences, specifically under situations when there is an absence or congruence between promotional offers.

3.4.3.1 Consumer's awareness of the brand

Product awareness is considered as a major feature of a purchase decision that is often initiated through adequate knowledge and experience of the same or similar product (Parker & Lehmann,

2011). Apart from the intention to purchase, this is also likely to have a great impact on the response, assessment of promotion, and the perception of the consumer because they are more likely to be consciously aware about the pros and cons and potential substitutes (Huang, 2011). Therefore, the purchase intention of consumers for the purpose of scarce products is reliant over the perception of the origin of scarcity alongside their brand familiarity. Hence, a situation of unfamiliarity with a popular brand or product urges them to make use of bandwagon reasoning which refers to a reasoning that is based on peer pressure. Apart from that, brand familiarity provides the consumers with the space to disregard popularity cues because they are less likely to depend on other's choice. Therefore, the aspect of familiarity mitigates between the perceived quantities scarcities over the intention to purchase. Furthermore, (Bae & Lee, 2005) stated that quantity scarcity message has a greater influence when the consumer has low knowledge of the product whereas (Huang, 2011) found that brand familiarity acts as a positive moderator between the time scarcity effects over purchase intention in online shopping environments.

3.4.3.2 Consumer involvement and prior preferences

The perception of consumer involvement refers to the extent of association between an individual's need, perception of worth and interests regarding a specific product (Zaichkowsky, 1985). According to (Huang, 2011), a consumer, product, stimulus and the context are amongst the characteristics that are likely to impact the degree of consumer involvement. The notion of consumer involvement can be assumed by the potential interest shown by a consumer towards a product. If the consumer perceives a product as desirable, then he or she will naturally move towards it for the purpose of acquiring information and making the final decision. Consequently, if the consumer involvement is not apparent, then they will not spend much time over it. According to (Ward, 2007) the dependence on scarcity as a heuristic is mainly viewed in situations that cater to low-involvement as compared to high-involvement choices. Moreover, Bae & Lee (2005) proposed that the impact of quantity scarcity message over the consumer's intention to purchase is likely to be more in the case of low product involvement. Therefore, the logic behind this notion is that since the consumer involvement reflects consumer attention and the level of concentration, the importance of a product will in turn positively correlate with their purchase intention (Huang, 2011). On the other hand, Parker & Lehmann (2011) suggested that in the context of shelf-based

scarcity, the consumer's prior preferences strongly alleviate the effect of shelf-based scarcity over preferences. Moreover, the effect of a message alongside a time barrier or countdown is likely to be more when there is low product involvement as compared to high product involvement (Bae & Lee, 2005). Likewise, according to (Huang, 2011) the impact of pressure generated as a result of a timer or a countdown in online advertisements is negatively moderated through involvement of the consumer; therefore, if the consumer is highly involved, the effect of time pressure would be weak and vice versa (Ahluwalia et al., 2000).

3.4.3.3 Cognitive Closure

Need for Cognitive Closure (NCC) is basically referred to as the requirement to have a firm and adequate explanation in contrast to being subjected towards an ambiguous situation (Houghton & Grewal, 2000). According to (Kruglanski & Webster, 1996), people are likely to be categorized on different levels through their need for cognitive closure. This aspect is relevant to the nature of online advertisements mainly because the strength of NCC operates as a function of desire, which mediates between the processing of costs and benefits related to a message (Kosic et al., 2004). Therefore, people who have high NCC are likely to express feelings of rigidity, impulsiveness and cognitive irritation, which will further adversely impact their processing. This situation and condition of the consumers is generally experienced if they are provided incomplete or suspenseful information through online tags and posts (Choi et al., 2008). Therefore, people with high NCC are prone to take decisions impulsively for the sake of their own comfort. As a result, they become more vulnerable to scarcity effects in different domains of marketing whether it is online or offline, (Kruglanski & Fishman, 2009). Furthermore, NCC is not only limited to situations that challenge one's information processing, but in the presence of time constraint on advertisements or market offerings, the individuals are likely to go through a similar state. The fact that individuals who have high NCC seek closure are likely to engage more in impulsive buying and FOMO as a result of their predispositions (Kosic et al., 2004).

3.4.3.4 Scarcity and regret/satisfaction

There have various studies regarding the need for cognitive closure alongside various cognitive factors that are likely to impact the decision making of a consumer. Nonetheless, the researches

have also successfully highlighted the significance of emotions and how they influence decision-making as well as purchase intention (Loewenstein et al., 2001). However, while numerous studies have solely emphasized pre-purchase processes, the scarcity induced regret/satisfaction on the other hand emphasizes the reactions after a decision has been made (Loomes & Sugan, 1982). However, consumers usually go through anticipated regret, especially when they come across a purchase opportunity that has restrictions. For instance, time scarcity over promotional discount offers. On the other hand, the theory of regret proposes that consumers who are more likely to anticipate regret will utilize promotional offers. Nonetheless, Teng & Huang (2007) explored that longer time limit is less likely to influence consumer's tendency to make use of promotional offers. While this notion supports scarcity effect, it also highlights a theory of regret because longer time duration provides the consumers with more time to ponder over their feelings of regret.

Other than that, there are few studies that have found a mediating effect between anticipated regret and scarcity's effect over desirability for the product or service. Moreover, Simonson & Tversky, (1992) figured that the consumers are more likely to intend to purchase items available on promotional prices as compared to instances when they are offered a product without discount. Additionally, Abendroth & Diehl, (2006) noted that limited purchase opportunity is often linked to short-term regret when associated with non-purchase is far more than the perceived satisfaction linked to the purchase. Moreover, Swain et al., (2006) and Teng & Huang (2007) recognized the existing mediating presence of anticipated regret. However, Teng & Huang (2007) concluded that anticipated regret is more likely to be apparent when the individual is involved in the product on a personal level. Furthermore, when time restriction over a specific offer is low, consumers are more likely to go through lower levels of satisfaction. Thereby, marketers have widely approved of the fact that high involvement products should not be offered with low time restrictions. Apart from that, on a logical basis, when consumers are presented with less time to process their feelings of regret, they are more likely to decide quickly as compared to instances when they are provided with more time to make a decision. In such scenarios, the time restriction provides the consumer with possible FOMO which in turns leads towards acceleration in purchase (Aggarwal et al. 2011). Similarly, last minute purchases are also likely to experience a surge, especially when there is availability of coupons with a limited expiry date as the consumers will feel anticipated regret, linked with loss (Inman & McAlister 1994).

This section highlights potential mediators and moderators that are significant for the purpose of studying the scarcity effect on recall. Two personal traits have been explored; first FOMO remains a major factor encouraging consumers because vendors market their product in such a way that consumers are bound to think like they are missing out on something quite valuable, which may lead to anticipated regret. Likewise, this thesis explores Social Media Intensity (SMI) and its relationship with recall and attention in ephemeral marketing. Also, an external factor has been explored which is the visible Timer of online video ads. FOMO, SMI, and Timer are appropriate for exploring the nature of scarcity in ephemeral ads because they related directly to the scarcity of the ad itself and not associated mainly on the scarcity of the product or service, which is the objective of this thesis. While there are other possible moderators and mediators that may affect ad attention and ad recall, these are not sufficient to examine the relationship with the ephemeral ads themselves. Instead, they are more appropriate for examining the relationship between scarcity and products or brands.

4 Chapter 4: Spillover

The previous chapters discuss the effect of scarce ads on recall and the boundary conditions that might affect the role of scarcity on attention. However, these chapters did not discuss if this effect can extend further to ads with different conditions, namely non-scarce ads. Hence this chapter will focus on the spillover effect from several different angles.

4.1 Spillover effect in psychology

Spillover effect is interlinked with psychology because it is incorporated in different ways. By the means of an example, it can be utilized through the platform of science and medicines (Liu et al., 2016). For instance, when experts and influential personalities recommend different marketing offerings to make people smart and healthy, or when educated professionals like doctors and teachers educate others in association to their professional expertise (Chen et al., 2018). The aforementioned characteristics of spillover effect in psychology are likely to elevate credibility as well (Lewis & Nguyenm, 2015). However, while in the past experts were quite influential in successfully achieving spillover effect, now other individuals are also becoming renowned for using this feature, including celebrities. It must be noted that where scientific approach emphasizes on the credibility of spillover effect, influential people like celebrities emphasize over the features of sympathy and attractiveness to generate spillover effect (Hsieh & Wei, 2017).

Thus, as a result, consumers are also found to be greatly influenced by spillover effects, and marketing tactics have been widely directed towards this phenomenon. However, consumers are less likely to be influenced by experts because the façade is quite apparent (Borah & Tellis, 2016). Consumers are perceived to have reduced identification with experts because of the discrepancy in appearance alongside the reality of life (Raufeisen et al., 2019). It must be noted that spillover effect is achieved when there is similarity between two situations or contexts. Therefore, individuals with similar realities are likely to have a better spillover effect because they easily identify with each other (Hsieh & Wei, 2017).

Several researchers have identified the presence of spillover effects to competitor products within advertising. Spillover effects over different products are observed to vary based on the image of a

specific brand and the customer's perception regarding the quality of the product are found to correlate with the products that have a mutual brand name (Ahluwalia et al., 2001). Business organizations that have a positive brand value are more likely to take advantage through positive spillover at the hands of different products with the same brand name. However, if the marketers continue extending their product line to achieve increased demand, then they may be able to adequately deal with competition but it may also backfire over the organizations' profitability and survival in the end (Dellarocas et al., 2007). The spillover effect of marketing tactics and popularity amongst different brands has resulted in mixed views because of the presence of moderating features consisting of brand loyalty and awareness of the product (Ahluwalia et al., 2001). A better understanding of the spillover effects can be gained through accessibility—diagnostic model, which proposes that the spillover effect related to online product reviews is likely to occur when the details can be accessed and diagnosed for different products (Janakiraman et al., 2009). Therefore, according to this model, if there is a linkage between brands, then the accumulated observations can be effectively used interchangeably.

4.2 Spillover effect in marketing

The function of advertisements is to inform and educate potential consumers regarding the presence of new market offerings, and to provide specific information regarding the features and price of the products for the sake of increasing brand image and exerting influence on customer preferences (Hsieh & Wei, 2017). No matter what the case, the main goal of advertisements is to increase the prospect of revenue and sales, which in turn is likely to positively impact the market share. There are various markets that are likely to demonstrate spillover amidst various organizations, which means that the investment in advertising of one firm has a direct impact on the overall performance of the other firm (Lewis & Nguyen, 2015). Therefore, different reasons pertaining to the spillover effect in advertising have surfaced. For instance, advertisements that are spread out over the market is likely to gain more demands, which will in turn lead towards positive spillovers (Huang et al., 2020). In other functional markets, a surge in advertisement is likely to cause an increase in demand for one market offering, and in turn reduce the demand for another that refers to negative spillover (Sun, 2002).

Table 4.1: Types of Spillover Effects (Borah & Tellis, 2016).

Types	Explanation
1) Positive Spillover Effect	When changes in one behavior impacts changes in following behavior. For instance: When consumers are likely to recycle products in response to the increase in bag tax.
2) Negative Spillover Effect	When changes in one behavior are completely unrelated to the prior context or situation. For instance: When economy of one area suffers as a result of detrimental impact on economy of another area.

From an economic perspective, spillover refers to an occurrence that is caused due to another occurrence in an unrelated context. Externalities of economic activity are non-financial spillover effects. For example, smells from plants have negative spillover effect on the neighbours whereas a beautified flower garden is likely to have a positive spillover effect (Bowden et al., 2017). Similarly, the economic benefits achieved through an improvement in trade are perceived to be the spillover effects that are expected as a result of alliances of different regional states (Janakiraman et al., 2006). Therefore, in an economy where markets are less likely to succeed, the failure is more likely to impact the behaviour of demand and supply of the stakeholders in different markets which could potentially leads to variations in their effective demand or supply from estimated demand or supply (Sun, 2002). Other than that, spillovers are also introduced through information. For instance, when more information regarding an individual lead to increased information about people related to that individual, the accumulated information assists towards reducing any irregularities in final information. This is also known as positive spillover, which is often seen in literature pertaining to economics and finance (Lewis & Nguyenm, 2015).

Spillover effects emphasize the extent over which a message is likely to impact one's opinions regarding the characteristics that are not overtly mentioned in the message. Ahluwalia et al., 2001 found that consumer awareness is the key towards positive spillover. If they are unaware regarding a product or a brand, negative information is more than likely to spillover in relation to the target characteristics that are absent for the time being, in comparison to positive information which will not be spilled over. However, if the consumers favour the product or the brand, then a spillover for positive details will occur as well (Sahni, 2016). Hence, commitment is the key to minimizing negative information regarding a brand, but marketers must be aware about the tendency of positive information to spillover rather freely (Janakiraman et al., 2006). On the other hand, it is also likely for an individuals' negative behaviour within a marketing alliance to lead to a spillover effect (Votola & Unnava, 2006). When considering two different negative characteristics of immorality and incompetence it was determined that a negative spillover effect is likely to occur if there is a direct connection with the negative act. It was also highlighted that in spokesperson alliance, moral failures are prone to cause more deterioration and disruption in the marketing world as compared to competence failures (Votola & Unnava, 2006).

Furthermore, a substantial increase has been noticed in organizations dealing with cause-related products. A duopoly model of competition was considered between two different products in order to determine what product an organization would link to a cause (Krishna & Rajan, 2009). There was a presence of both; a utility benefit through cause marketing along with a spillover benefit over other goods. Spillover effect is also predicted to increase the sales of other products available within an organizations' portfolio (Borah & Tellis, 2016). Therefore, the research concluded that cause-marketing did lead to spillover effect on other products, which massively increased both the sales and profitability of the organization's products (Krishna & Rajan, 2009). Strong spillover effects improve the organizations' ability to attract advantageous products to the cause as compared to no cause marketing which in return assists in improving customer and brand loyalty in the long run (Janakiraman et al., 2006).

A variety of research studies have assessed the variables related to communication of strategic brand alliances in relation to measure the spillover effect of similar alliances over customers

perception regarding the brand. Nowadays, social media plays a major role in creation of brand communications and alliances (Bowden et al., 2017). The aspect of inter-brand communities provides the organizations with the capacity to establish improved brand value and customer retention. Hajjat (2016) conducted an experiment over identifying and assessing the impact of inter-brand communications through the use of social media on spillover effects. The evaluation of spillover effects of inter-brand communications over consumers brand perception indicated that there was a positive spillover effect of inter-brand communications in relation to brand perception and belief. However, it was also determined that familiarity and awareness of brand is important for the customers to successfully go through a spillover effect. Nonetheless, there is still a lack of research in this subject matter, and in order to attain adequate insight over inter-brand communications and spillover effects in marketing, researchers must solely focus on such variables (Sun, 2012).

4.3 Different advertising strategies and spillover effect

Seeded Marketing Campaigns (SMCs) encompass organizations making certain products available to specific customers to motivate them to promote and spread the product through word of mouth. Seeded marketing is becoming a preferred way of establishing marketing communications due to its efficiency and effectiveness. The research conducted by Chae et al. (2017), emphasized the impacts of seeded marketing campaigns to assess the influence of word-of-mouth spillover effects amongst different brand levels. About 390 SMCs amongst 192 different brands were accumulated to empirically assess the spillover effect. The results indicated the presence of several spillover effects signifying that SMCs can be used to increase word of mouth but the marketers must also be aware about the spillover effects related to word of mouth over different brand levels (Chae et al., 2017). Furthermore, seeding is likely to elevate discussions about the specified products amongst groups of consumers that belong to non-seed groups, thereby adversely impacting the word-of-mouth instances regarding other products belonging to the same brand. Overall, marketers are encouraged to use SMCs to stress upon online word of mouth strategies that can be used to emphasize a specific product and divert potential customers away from other competitive products (Sanchez et al., 2020).

Ingredient branding refers to the use of multiple brands to market a single product which entails progressive benefits because there is a higher chance for marketers to attract an increased market share and product differentiation. The establishment of a link between two brand names can lead towards dualistic results, consisting of weakening and strengthening brand value of multiple brand names. Researches examining the impact of behavioural spillover with cobranded tactics throughout different consumer segments who differ on the basis of their brand loyalty determined that behavioural spillover does play a major role. However, the behavioural spillover effect is unlikely to be present in customers that are or were non-loyal of the host and ingredient brands (Roberts & David, 2019). It is crucial for online retailers and marketers that are engaged in online selling to detect and categorize the products which customers are likely to look for and buy collectively (Russell & Petersen, 2000). Similarly, current research in the marketing domain have also highlighted a better understanding of cross categorical impacts resulting from different marketing activities that exhibit how determinants of marketing practice like price or promotion of a single product is hugely influenced through the demand across or within category products by the customers (Zhu & Zang, 2010). The managerial practices are also influenced by consumer decisions that are interrelated on similar products which is why current marketing strategies need to accommodate the rising cross-product linkages (Russell & Petersen, 2000).

4.4 Spillover effect and brand relatedness

Marketers are known to use a variety of strategies to maintain the competitive advantage of their products. They also develop and promote brand relatedness within their existing brand portfolios in order to elevate the marketing efficiency by linking positive spillover effect based on brand equity (Hefti & Heinke, 2015). However, establishing linkage between different brands is also likely to risk negative spillover effect which will eventually prove to be detrimental for the success of the business (Ghose, 2003). An emphasis was laid over the organization and development of relatedness within a brand portfolio so that spillover effects could be addressed and interpreted accordingly (Lei et al., 2008). In the present times, it is almost impossible to isolate certain brands from other similar brands within a portfolio; therefore, the consumer's perception is likely to be influenced by other variables (Jones, et al., 2019). It is largely assumed that the external variables are more likely to have a positive result. For instance, when an effect related to an established

brand spills over to other related brands (Bowden et al., 2017). However, there are also implications for the marketers if there is a risk of harm or adverse impacts of a particular brand. Nonetheless, brand relatedness has been determined as a strong factor correlating with the prediction of a spillover effect. Overall, the scale of spillover amidst different brands doesn't only determine the strength of a brand but also directs other related brands towards specific actions (Lei et al., 2008).

Spillover effect mainly occurs due to the mental association of the customers that are much more than what is actually being advertised. It is a way to make the customers aware about related products and brands that are not present within that time frame but become substantially important (Kumar, 2005). Hence, running online advertisements on social media is likely to increase the sale leads of other competitors. If the same impact occurs on a daily basis then it is likely to harm the competitive advantage and make customers prefer other brands related to each other (Anderson, 2013). There is also a high probability of competitor's sales superseding that of the advertiser's sales because competitors that have similar product ranges are assumed to be of similar quality which is notable in consumer perceptions and beliefs online (Sahni, 2016). Therefore, advertisers must be aware about different tactics to overcome the problem by shaping their contents differently and focus on the aspects of value addition to attract the customers. Moreover, the emphasis must be laid onto different features that attract the competitors by maintaining brand and customer loyalty (Felix et al., 2017). Hence, an increase in sales is more than likely to be observed if the customer's preferences are valued and they are shown that the advertisers are far better than their competitors. Marketers can also play a significant role in alleviating spillover by multiplying their advertisement displays so that customer engagement is also increased (Anderson, 2013). While low frequency advertisement on social media platforms is expected to improve the sale and profitability, high frequency advertisements assist in a major improvement to overcome spillover and achieve sales (Anderson, 2013).

Brand relationship quality (BRQ) refers to the customer's relation and perception regarding a brand along with the features of acceptance and loyalty (Hsieh & Wei, 2017). If there is a presence of strong brand relationship quality then the customer is likely to have enhanced judgment regarding brand extensions as well. Various studies have highlighted the significance of BRQ in

leading to spillover effects in future association and linkages between the brand and customers which will assist in continuing a lasting brand loyalty as well (Kim et al., 2014). On the other hand, customer perception has a vital role to play in their purchase behaviour within online advertisements. While scarcity is known to keep the engagement high, the promotion and its type are also amongst the important aspects that impact over the spillover effects. Moderation of the spillover effect can be achieved by social distance promotions and concept promotion of online markets (Wang, 2018). The online marketing platform has been evolving due to the convenience and feasibility of customers to look for their desired products and purchase it without any hassle. The influx of social media advertisements has also given birth to product information generated through users themselves, which is classified as 'word of mouth' also referred to as product reviews (Dimoka et al., 2012).

4.5 Spillover effects in social media

Spillover effect is basically a marketing tactic which is used for the purpose of advertising and assists towards developing an association between different market offerings. In the present day, the marketers and advertisers are exceeding customer's expectations by emphasizing over numerous marketing tactics to impress potential consumers and establish brand loyalty and customer retention. Hence, social media is thought to have played a major role because spillover effects are more common online than offline. Given the fact that the viewers are going through multitude of information back-to-back, there is a high probability for developing associations midst different features of different market offerings (Sun, 2002). By means of example, advertisements on Facebook have a greater ability to induce purchase intention because as compared to other social media networks, Facebook has a large number of traffic of consumers all around the world. Apart from that, spillover advertisements assist towards increased retention and recall of information for future instances where the consumers are in a similar situation. Moreover, spillover effects are often strategized through increasing the traffic on a specific site that ensures that marketing tactics are appropriately managed and applied. Correspondingly, the influx of technological advancements has positively influenced different channels of advertisements where marketers are attracting various consumers. (Hsieh & Wei, 2017).

Social media platforms like Facebook have been actively engaging in scarce advertisements that are likely to maintain a spillover effect. The spillover effect over other similar products is noticed to be maximized when the advertising frequency is low (Chae et al., 2017). Therefore, if the intensity of advertisement starts to multiply, the competitor products will have a reduced advantage and the advertiser may attain more customer acknowledgement. Additionally, scarcity appeals are being massively used by advertisers which not only evokes increased attention but also improves the positive impact over scarce advertisements (Lee et al., 2016). Moreover, spillover effect is also quite evident in online product reviews over variables consisting of complimentary or substitutive products, products belonging to same or other brands and the usage of specific medium for online purchases. Eventually, it was deduced that the substitute products have a negative basis during purchasing whereas the complimentary product adds onto the experience (Kwark et al., 2016). There was also increased adverse spillover effect related to substitute products belonging to other brands as compared to those belonging to same brand. Lastly, negative spillover effect was also found for consumers using mobile devices against old-style personal computers (Kwark et al., 2016).

Likewise, electronic word of mouth (E-WOM) is being observed over online platforms, especially twitter. However, there is still little known about the competitive spillover impacts within the entire phenomenon. (Chae et al., 2017), argues continuous advancements in technology has put the entire marketing sphere on an edge, where every marketer is juggling through multiple factors in order to maintain their own competitive advantage (Thompson et al., 2019).

Spillover effect is mainly found in mature and fast-moving brands within the market. For instance, Pepsi and Coke are amongst the most prominent fast moving consumer goods (FMCG) brands that were further analysed and highlighted that there are several factors that are not still clear in relation to their impact on sales. Nonetheless, a significant indication of competitor spillover effect was observed but it is subject to change depending over the variation in content amongst other brands (Sanchez et al., 2020). Digital advertising has several branches and digital native advertising is amongst them that is interconnected with its context (Harms et al., 2017). Collaborations of online advertisements vary amidst advertisers and online publishers from reduced contextual integration to an increased integrated platform for native advertising. Nowadays, with the online market

growing more competitive, several brands have shifted towards social media platforms, which makes it necessary for the advertisers to decide an adequate way for having brand prominence for their advertisements (Wojdyski & Evans, 2016). Advertisements that are prominent consist of brand identifiers but digital native advertising deals with low brand visibility. Consequently, the low brand prominence could render the entire advertisement to go downhill and lead to negative evaluations from potential customers that will eventually be strengthened through spillover effects. However, digital native advertising has also been found to have better effectiveness depending on its integration with persuasion knowledge theory that entails of specific messages influencing potential customers (Thota et al., 2012).

Overall, spillover effect refers to a change in belief system regarding a single offer in association to another linked offer, which causes spillover effect. Therefore, spillover effect is assumed to be major driver of market success that has the potential to elevate brand extensions, sponsorships and celebrity endorsements (Bowden et al., 2017). Social media has successfully managed to pave its way to become a significant marketing channel for different organizations. The nature of social media has also led towards strong branding as a result of Social Media Marketing (SMM) for both small and medium sized enterprises (SMEs). For instance, in the fashion industry, the existence of large brands are likely to have a positive spillover effect over the reputation of private label brands. Therefore, business to business (B2B) social media marketing has been perceived to have a substantial impact in stirring brand competition in different competitive industries (Hsiao, et al., 2020).

Besides that, spillover effect in marketing has the tendency to impact the extent to which an advertisement is likely to influence the potential consumer's cognitive resources especially when the characteristics of a specific market offering are not explicitly stated. Additionally, various researches have emphasized on both positive and negative spillover effect, therefore, when potential customers are provided with inadequate information then they are more likely to experience negative spillover effects. On the other hand, if they have appropriate information, they will be able to cater to positive spillover effects (Janakiraman et al., 2006). , marketers and advertisers alike are increasingly utilizing different approaches to impress customers for the sake of developing positive brand image. Apart from that, due to the surge of internet resources and

scarcity in advertisement, customers are becoming more vulnerable to the latest marketing tools. Hence, increased online marketing has led organizations to analyze and interpret individual behavior in association to spillover effects. Therefore, not only customers, but employees and different stakeholders are being observed to increase organization's productivity as well so that they can conveniently meet market demands. As a result, this phenomenon has been quite prevalent in various settings (Ahluwalia et al., 2001).

4.6 Spillover effect in social media marketing

Social media marketing is one of the most used strategies by business with varying sizes. Timely placement of advertisement on social sites allows the business to reach and communicate with a widespread audience that isn't bound by geographical borders, and the number of audiences is likely to multiply with time, leading towards increased exposure and profitability (Hsiao et al., 2020). Technological tools make it easier to customize advertising platforms on social media regarding the type and time of display. Furthermore, online marketing can be used to shortlist target audiences and a full-fledged market research can also be conducted without over exertion of other resources (Felix et al., 2017). Social media advertising tools can also be appropriately used to enhance marketing tactics and attract potential customers to develop and retain brand loyalty and equity. Social media being one the most prominent industrial marketing mediums provides small and medium enterprises with the opportunity to have equal exposure and brand performance as their competitors. For instance, in the online marketing tactics for fashion industry, there is a significant influence of the interactions over the popularity and awareness of the brands. It was also concluded that there is a positive spillover effect on the attractiveness and approval of private label brands due to the presence of well-known national brands. The prior statement can also be extended to a better understanding of the influence of social media marketing over Business to Business (B2B) in relation to engaging brand competitiveness within different industrial sectors (Hsiao et al., 2019).

The digitalized economy in the modern times has been going through a paradigm shift due to the presence of abundant information, which is a prevailing phenomenon. A specific site or a published newspaper contains a plethora of information nowadays, which was hardly ever

available to people previously (van Reijmersdal et al., 2015). Marketers are spending a handsome amount of money in online advertising, which in today's scenario is a substantial demand for surviving the industry. However, there are internal constraints that are faced by the customers related to their physiological and psychological determinants emphasizing on the features of attention and memory. Therefore, the accumulation of previous shortcomings along with the abundant information is likely to move towards scarcity of attention (Hefti & Heinke, 2015). Additionally, managing and dealing with the issue of lack of attention is one of the major issues for businesses all around the globe because a huge chunk of their success is solely dependent over the customers being able to interpret and perceive what is actually being communicated to them (Sanchez & Alley, 2016). Perhaps, the complexity of the problem regarding attention can be better explained through the significant heterogeneity in one's thinking patterns that make it difficult for customers to not get distracted or diverted amidst the influx of information and details addressed to them (Sutcliffe & Namoun, 2012). Hence, it is crucial for the advertisers to be aware of the targeted audience and the possible outcome of the advert. On the other hand, the consumer is responsible to deal with their own thoughts related to their choice amongst various options. Cognitive functions and behavioural cues are also found to influence the purchasing behaviour and the spillover effect over other advertisement. Attention and memory work simultaneously. If a viewer pays attention to the advertisement then it is likely to be retained in their working memory for the meanwhile (Sanchez & Alley, 2016). Overall, the information presented on the internet simultaneously impacts the consumers with limited attention however, flashy and well-positioned data are more than likely to attract audience towards them through the aspect of visual attention (Hefti & Heinke, 2015).

Furthermore, there is also an influence of additional online-to-store medium along with spillover effect over the ideal choice for a retail channel. Meanwhile emphasizing the spillover effect, it is important to know that the retail channel chosen by the customer greatly impacts the profit of both the online retailer and the manufacture of the product, alongside the surplus of the customer (Li et al., 2019). According to research, under the spillover effect, there is evidence of asymmetric impact amidst online-to-store channel over the manufacture and retailer of the product. In case of the intensity of spillover being close to the intermediate range, the retailer may go on with the online-to-store medium and if the intensity of spillover is somewhat high or low, then the manufacturer

must do so as well. Thus, if the intensity of spillover is below medium then both the manufacturer and retailer can establish the channel and profit collectively. The consumer is also likely to gain increased utility through online-to-store purchase if the intensity of the spillover is on the moderate level. Therefore, the marketers and online advertisers can make use of the information to deal with an interconnected network of online-to-store channel and spillover effects within their retail management (Chen et al., 2018).

All in all, spillover effects are crucial components of marketing and advertising operations that can either be positive or negative. For instance, marketers can benefit with their advertisements - if one product is positively associated by the customer then the next product advertisement may also benefit through it (Sahni, 2016). Spillover effects are all encompassing, they don't solely act on products but a specific course of action and organizations as well. It can also be thought of as an over flow from one point to the other. They are known to play a significant role in social media advertisements like on Facebook, where the placement of advertisement may lead to multiple actions from the other end (Borah & Tellis, 2016). Direct purchases, greater exposure, and increased traffic on the site are just few of the factors that make marketers prefer this route towards selling their products (Lewis & Nguyenm, 2015). Furthermore, it can also allow potential customers to spread the advertisement through their word of mouth (WOM), (Chae et al., 2017), linking more customers to the website through search engines and link-sharing thereby affirming spillover effects. However, the organizations dealing with online marketing must cater to the requirement of analysing and evaluating spillover effects as they tend to operate in different ways that will eventually lead to high sales and profitability. Consequently, brand placement strategies must also be highlighted that are likely to improve the effectivity of the entire procedure. Marketers are encouraged to emphasize on the characteristics of the target audience such as their perceptions and beliefs regarding the product alongside a behavioural analysis to succeed (van Reijmersdal et al., 2015).

This section focuses on the aspect of spillover effect in marketing. From an economic mind-set, spillover is referred to an occurrence that is caused due to another occurrence in an unrelated context, whereas in marketing situations spillover is likely to carry forward from one market offering to another. However, we have stressed on spillover effect in the form of online market

advertisements in order to build an association between scarcity marketing and potential mediators and moderators that are likely to impact consumer’s behaviour. The surge of online advertisement has given rise to multiple advertisement tools in which countdown timers are found to instil a sense of urgency as well. Moreover, spillover effect is quite prevalent on different social media platform due to the surge of advertisements online. Furthermore, spillover effect is also integrated with psychological features of the human race, which marketers utilize to market their offerings and maximize their revenues. Therefore, I propose the following hypotheses that tests if scarcity effect (discussed in h1-h3) spillover to the subsequent non-scarce ad. Formally:

- H7: A scarce ad (vs non-scarce ad) has a spillover effect on the attention towards a subsequent ad
- H8: Spillover ad’s attention positively affects ad recall
- H9: Spillover ad’s attention mediates the positive relationship between the scarce ad (vs non-scarce ad) and ad recall

The literature review provided an examination of scarce ads and their effect on consumer’s attention and recall. The effects of which were yet to be examined by scholars, despite the rise in scarce ads given the huge increase of Snapchat’s popularity. Then this chapter provided literature evidence to the effect of both external and internal factors. And at the end, this chapter examine literature evidence of scarcity effect spilling over to non-scarce related adverts. The table below represents the hypothesizes that are used in the thesis.

Table 4.2 list of hypotheses

	Description
H1	A scarce ad (vs non-scarce ad) positively affects ad attention.
H2	Spillover ad’s attention positively affects ad recall.
H3	Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad
H4	The positive relationship between scarcity and attention is greater for high (vs. Low) FOMO individuals. the association between Scarcity and Attention.
H5	The positive relationship between scarcity and attention is greater for ads with a timer present (vs. absent), moderates the association between Scarcity and Attention.

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H6	The positive relationship between scarcity and attention is weaker for high (vs. low) Social Media Intensity individuals.
H7	A scarce ad (vs non-scarce ad) has a spillover effect on the attention towards a subsequent ad.
H8	Spillover ad's attention positively affects ad recall.
H9	Spillover ad's attention mediates the positive relationship between the scarce ad (vs non-scarce ad) and ad recall.

5 Chapter 5: Methodology

This chapter will outline the philosophical and methodological choices that were made in this thesis. I begin with a discussion of paradigms, ontology and epistemology. The chapter then moves onto the research approach, research strategy, design and methods. The last sections detail the research credibility and outline.

Table 5.1: Methodology Outline

	Discussion
1.	Paradigms
2.	Ontology
3.	Epistemology
4.	Research Approach
5.	Research Strategy
6.	Choice of this Research
7.	Research Design
8.	Methods
9.	Research Credibility
10.	Research Outline
11.	Summary

5.1 Paradigm

A research paradigm refers to a set of common beliefs and arrangements shared among various scientists regarding how issues can be interpreted and directed (Kuhn, 1996). Other theorists like (Bryman, 1988) explained paradigm in terms of a collection of beliefs through which the scientists are likely to impact the common principle of attention, and further develop how the research should be carried out. Furthermore, paradigms have also been proposed as the world's views that provide a road map to the researcher (Creswell & Tashakkori, 2007). Hence, various paradigms exist within the realm of social sciences that direct the researchers to utilise different techniques and rules.

5.2 Ontology

Ontology refers to one's beliefs regarding reality. Researchers are likely to have expectations and conventions about reality, what can be inferred, and how does it exist. Therefore, the ontological questions direct the researcher to know more and access information to solve their assumptions (Richards, 2003). For instance, it emphasises things that are found to exist and everything having its basis in consciousness.

5.3 Epistemology

Epistemology refers to the philosophical study of the origin, human knowledge, and nature. This term first originated from the Greek word 'Episteme' (knowledge) and 'Logos' (reason), and as a result, it is also referred to as the theory of knowledge. Epistemology denotes the stance that we take on knowledge. Overall, epistemology is required to enable researchers to attain knowledge from the world around them (Biesta, 2010).

Hence, various epistemological aspects are associated with different ontological perspectives, a few of which will be elaborated below.

5.3.1 Positivism

Positivism refers to an approach to study a society that mainly depends and relies on scientific evidence that provides an insight into the true features of how a society operates. The notion of

positivism was first introduced in the 19th century by 'Auguste Comte' who emphasised this phenomenon in his work 'The Course in Positive Philosophy' and 'A General View of Positivism'. Along with Comte, Emile Durkheim is another prominent positivist who established the academic discipline of sociology and laid the foundation for social science to develop as a separate branch of sciences (Soleymani, 2017).

Positivism is a philosophy that abides by the prominence of 'factual knowledge', which is solely gained through observation that is reliable. Furthermore, in this domain, the researcher is likely to have a restricted role mainly because he can only collect the data and interpret it objectively. As a result, research implying positivist stance attain observable and quantifiable findings that are valid and reliable (Collins, 2010). Additionally, positivists rely on quantifiable observations that eventually formulate a statistical analysis of the accumulated data sets. Moreover, positivism's philosophy aligns with that of empiricism, where the emphasis is laid over knowledge gained through human experiences. Moreover, positivism, being an epistemological stance, is intrinsically linked to objectivism being an ontological stance. In other words, it consists of an ontological outlook of the world, which encompasses observable and discrete elements alongside events that interact in a regular and observable manner (Collins, 2010).

Similarly, researchers in positivism studies are usually independent as there is no requirement of human interests within the research. Furthermore, according to (Crowther & Lancaster, 2008), positivist studies utilise deductive reasoning, whereas inductive reasoning is usually performed in phenomenological approaches. Therefore, this perspective is found to relate to the fact that researchers are likely to emphasise facts alone, whereas the phenomenological approach focuses on the meaning.

Table 5.2: A summary of main principles of positivism research philosophy (Soleymani, 2017)

1. There is no difference within the logic of inquiry across all sciences
2. The research is likely to have an objective to test and forecast
3. The research requires human senses for empirical observation, whereas inductive reasoning must be used for the development of the hypothesis, which is likely to be tested along the process of research

- | |
|---|
| 4. Science and common sense are two sets of ideas which is why the research findings must not be biased through the inclusion of common sense |
| 5. The science must solely be assessed and evaluated through logic and factual data |

5.3.2 Interpretivism

Interpretivism encompasses the interpretation of different study elements, and it assists in the integration of human interest within research. Therefore, the interpretive researchers believe that the socially constructed or given access to reality is only through social features of the language, shared meaning and consciousness (Chowdhury, 2014). Hence, this perspective is developed in contrast to the notion mentioned above of positivism in social sciences. For that reason, this philosophy focuses on qualitative analysis and subjective reasoning, which are not reliant on statistical analysis and are more in-depth (Myers, 2008).

Furthermore, this notion is linked to the philosophical stance of idealism that combines diverse approaches that oppose objectivism, social constructivism, hermeneutics and phenomenology. Therefore, according to this perspective, the researcher must look forward to differences amongst people that help emphasise meaning, which may utilise different methods to interpret the diverse array of opinions, eventually leading towards a multifaceted view (Black, 2006). On the other hand, the interpretivism perspective also relies on the naturalistic ideology of data collection. For instance, observations and interviews. Similarly, researchers utilising this method may infer secondary data that further develops meaning towards the end of the research (Saunders et al., 2012).

Table 5.3: Basic Differences between Positivism and Interpretivism (Soleymani, 2017)

Assumptions	Positivism	Interpretivism
Nature	Single-Objective	Multiple-Socially constructed
Aim of Research	Explanation (Reliable prediction)	Understanding (Less reliable prediction)
Focus of Interest	General and Representative	Unique and Specific

Expected Data example	How many people think over and perform a specific action	How some people think and perform actions and what issues they deal with
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5.3.3 Pragmatism

The term 'pragmatism' was introduced by William James in 1898, labelled as 'Philosophical Conceptions and Practical Results' at the University of California. As a research philosophy, the notion of pragmatism aligns with solely practical concepts and support actions. Therefore, pragmatists believe that the world is likely to be interpreted in numerous ways, and while there is no unified way to perceive it, people are likely to interpret multiple realities through different point of views. Hence, positivism and interpretivism are two opposite philosophical terms with mutually exclusive models regarding the source of knowledge and nature (McDermid, 2006).

According to the research philosophy of pragmatism, the research question is the most significant research philosophy feature. As a result, pragmatists can integrate interpretivism and positivism features within a single research about the research question's type and context. Therefore, this notion has evident merits because practicality is the essence of research, which is why pragmatism infers rationalisation through which the researchers implement conceptual assessments and denote underlying patterns (Biesta, 2010).

As demonstrated in the (Table 5.4) below, pragmatism, unlike positivism and interpretivism, can integrate multiple research approaches and strategies within one research compared to the other two philosophies. Furthermore, studies utilising pragmatism can apply qualitative and quantitative research methods alongside action methods, enabling them to formulate a mixed-method approach. Therefore, in order for a study to achieve increased validity through the utilisation of multiple research methods, the research is likely to attain triangulation. However, while opting for pragmatism may be time-consuming and expensive, it is still largely used because of its practicality and action-oriented framework.

Table 5.4: Major features of research philosophies

Research Philosophies	Research Approach	Research Strategy	Ontology
Positivism	Deductive	Quantitative	Objective
Interpretivism	Inductive	Qualitative	Subjective
Pragmatism	Deductive/Inductive	Quantitative and/or Qualitative	Objective or Subjective

5.3.4 Critical Realism

Critical Realism (CR) is a philosophical stance that differentiates the 'real' and the 'observable' world. The 'real' world is not observable, which is why it is present in an independent manner from the human constructions (Scott, 2013). Therefore, the 'observable' world is formulated from human experiences and perspectives, and this is the world people are aware of. As a result, the critical realists propose that unobservable structures are likely to cause observable events, and people will only be able to understand the social world once they manage to interpret the structures found to cause events (Easton, 2010).

Furthermore, critical realism as a philosophy of science is based on multiple ontological ideologies. Epistemologically, CR is found to deliver notions that are likely to be applied by researchers over different world phenomena. Hence, it is found to function similarly to philosophies pertaining to the positivist and interpretivist school of thought mainly because CR principles are utilised to reinforce the development of more accurately viewed theories as 'metatheory' than a 'theory' alone. Overall, CR's main premise is that the theory of knowledge or epistemology is distinct from ontology theory (Fletcher, 2017).

5.3.5 Epistemology summary

In summary, this section discussed and elaborated several epistemological paradigms through which research is likely to be formulated. The paradigm's importance lies in the fact that it guides the type of methodology of the research. Generally, as mentioned above, a positivist epistemology is linked with the quantitative research method alongside deductive reasoning (Soleymani, 2017).

On the other hand, Interpretivist uses qualitative research methods alongside inductive reasoning for understanding and interpreting the research phenomenon (Black, 2006). However, it must be noted that research is likely to alleviate its reliability and validity if it solely relies on a single research method (i.e. qualitative or quantitative) (Molina-Azorin, 2016). As a result, pragmatist and critical realist approaches are applicable and useful with regard to the prospects of 'Mixed Methods' research (Creswell, 1999).

5.4 Research approach

There are two approaches for research, inductive and deductive. An inductive approach enables the research to collect relevant data according to the research problem. Once sufficient data is accumulated, the researcher will then attain a holistic view of the data to identify any underlying trends and patterns that will assist in theory development. In other words, the usage of the inductive approach allows the research to begin with several observations, thereby growing from specific to a general set of propositions moving from data to theory. However, while inductive reasoning enhances the probability of flexibility, it is also found to support the development of new theories. Furthermore, it is also likely to allow the researcher to predict future activities. Consequently, inductive reasoning is still incomplete as there have been instances where accurate observations led to incorrect conclusions (Hayes et al., 2010).



Figure 5-1: Framework of Inductive Reasoning

Contrastingly, a deductive approach has an opposite stance where the researcher first initiates a theory to test. Therefore, they move from a general perspective to a specific one. Moreover, deductive approaches are most commonly inferred with scientific exploration where the researcher reviews the prior formulations and phenomenon about the chosen theory, which leads to testing the hypothesis devised from those sets of theories. As a result, deductive reasoning in research enables the researcher to test causal relationships between the variables and concepts employed in

the research and allows for quantitative measurement of concepts. Additionally, it also leads to increased generalizability of the research findings to an extent. However, it must be noted that since the conclusion of this research approach is dependent on the statements, the inadequacy of the prior could alleviate the overall reliability (Heit & Rotello, 2010).



Figure 5-2: Framework of Deductive Approach

5.5 Research strategy

In line with the research paradigm and approach, the chosen research strategy for the present study is quantitative. To be precise, this means conducting statistical analysis of video and physical ads data collected online and through in-lab experiments and providing a quantifiable outcome. This can be achieved in particular by surveying several people obtaining adequate volume of data. Through quantitative research, researchers gain insights into empirical facts from which the relationships between causes and problems can be derived (Crowther & Lancaster, 2008). First, quantitative research could provide sample-based numerical values. However, these research results could be extrapolated to entire populations. In this way, further findings can be derived. In the view of Saunders et al. (2012), the statistical evaluation of quantitative research provides a basis for checking hypotheses and explaining causal relationships.

Furthermore, the research strategy aligns with the positivist epistemological orientation and objectivist ontological orientation, which is more factual with alleviated prospects for bias (Saunders et al., 2012). Here, being aligned with positivist epistemological orientation would mean defining scarcity from the positivist perspective, i.e., the "presence of limited resources and competition on the demand side" (Mittone & Savadori, p. 453). Likewise, being aligned with objectivist ontological orientation would mean perceiving online video ads on social media platforms such as Facebook and Snapchat as tangible objects and the phenomenon of scarcity as

their driving force (Bryman, 2016). They adopt standardized procedures for getting things done. However, an online ad can be thought of as a platform that has a reality that is external to its viewers. Viewers learn and follow its rules and regulations. When they are surfing through social media, they are bound to watch ads. Online ads therefore act as constraining force that act on their viewers (Bryman, 2016).¹

It is pertinent to mention here that although the dominant research strategy is quantitative to attain a collaborative set of data, a qualitative validation will also be conducted, and the resultant codes will be employed to conduct additional quantitative validation. This therefore offers more reliability and validity of data.

5.6 Research paradigm, approach and strategy for this thesis

This thesis is set in the domain of social sciences. One of the most popular paradigms that social science researchers largely use is positivism. As per the literature, to study phenomena of social world, positivism can be a more favourable paradigm, especially in the cases like large-scale social surveys and cross-country social research (Steinmetz, 2005; Ali & Chowdhury, 2015; Hasan, 2016). When the intention is to examine the social phenomena such as scarcity, positivism is more suited and when the intention is to understand the complex actions of social members and to capture the multiple realities of the society, interpretivism is more favoured.

Here, as the aim is to quantitatively determine the effect of scarcity on attention and recall of sample population and to determine relation between different variables, the chosen epistemological paradigm should be positivist. It is because this paradigm can allow us to interpret data from the ads objectively through quantitative methods such as *Regression analysis* and *Partial Least Squares Correlation*. Another main strength and advantage of choosing a positivist approach for the present study is to involve in the vigorous process of setting hypotheses empirical experimentation to examine these hypotheses, deep analysis to analyse the results, and then the capability to codify the findings in a set of predictions.

¹ In his book, Bryman used the concept of organisation and culture to determine how they act as constraining forces independent of the external actors.

Furthermore, as the research paradigm is positivist, the research approach should be deductive. For this, the researcher develops different hypotheses such as the existence of scarcity effect on ad recall alongside ad attention being a mediator between ad scarcity and ad recall; the role played by the moderators (FOMO, SMI, Timer) between Scarcity and Attention and spill over effect of scarcity from scarce advertisement to non-scarce advertisement on recall and attention. Afterwards, data will be collected quantitatively in order to determine whether the hypotheses will be supported or not.

Additionally, to address the researcher's aim, a qualitative validation can assist with the quantitative outcomes' verification and support. The utilization of qualitative analysis can endorse statistical methods and enhance their credibility (Braun & Clarke, 2006). The following section will now elaborate on a few research designs.

5.7 Research designs

5.7.1 Experimental design

Experimental research design is a scientific methodology where the researcher manipulates one or more Independent Variables (IV) applied over one or more Dependent Variables (DV). The IV is therefore altered to evaluate their impact on the DV. This research design is extensively used in social sciences, education, psychology and other related domains mainly because it assists inadequate comparison and establishment of causal relationships that lead towards logic and rationality. Furthermore, due to the usage of laboratory and controlled testing procedures, this research design entails quantitative data, which is followed by statistical analysis like ANOVA. Thus, such quantitative measures have high internal validity and reliability (Cash et al., 2016).

5.7.2 Cross-sectional design

The cross-sectional research design refers to the observations of different groups that are held at one time. It does not include any experimental procedure, which means that there is no manipulation of variables, but instead, it relies on observation, which is then used to describe significant features existing within a realm of any group. However, it is less likely to determine

any association. Therefore, this design helps accumulate information used to form diverse methods to explore the observed relationships (Goldstein & Naglieri, 2011).

5.7.3 Case study

A case study is a research methodology that employs empirical inquiry, which explores a phenomenon. This research design is commonly used within the social sciences domain and is based on in-depth and longitudinal investigations of a single person or a small group/event to investigate underlying trends and patterns. Unlike quantitative analysis, they analyse people and groups through a holistic qualitative set of methods (Ridder, 2017).

5.7.4 Action research

Action research refers to how the action researcher and client collectively work towards diagnosing an issue and designing the solutions. This design assumes that the social world is a diverse platform that continuously changes. Moreover, the positivist approach towards action research is also called classical action research, which takes over a study through a social experiment (Bryman & Bell, 2011).

5.7.5 Longitudinal research

A longitudinal research design is an observational method through which the same subjects' data is accumulated over a long period. Research utilising this method can take as long as a year or a decade (Gaus, 2017).

The choice of the research design for this thesis is to utilise experimental research design mainly because it is adequate for the topic at hand and is likely to complement the chosen research philosophy.

5.8 Research methods

There are different ways data can be collected within research; the Table highlights a few major types.

Table 5.5: Types of methods for data collection (Saunders et al., 2012)

Method	Description
1) Questionnaires	This is the main research method used for collecting data in survey-based research. It consists of a set of standardised questions to collect individual-based data concerning a specific topic. The questions may be open or close-ended, depending upon the type of research.
2) Interviews	Interviews are mainly used to collect data from a small group of individuals with topics that may vary. There are both structured interviews similar to standardised questionnaires and unstructured interviews that are subject to suitability.
3) Observation	Observation allows the researcher to accumulate knowledge regarding a phenomenon as it occurs. Furthermore, researchers are also likely to record observations for interpretations.
4) Secondary Data	This refers to the analysis of data collected by a second source, in other words, data that is already available. Common sources include unpublished or published journals or summaries.

This research will majorly utilise questionnaires to collect data. This research method has been chosen because it is deemed to be most appropriate for attaining accurate data for the research aim that will also help strengthen the outcomes of this research. For instance, experiments allow the

researcher to establish a cause-and-effect relationship with a high level of control instead of a cross-sectional study. Moreover, surveys lead to the formation of an accurate sample and can be filled by numerous people, whereas objective behavioural or physiological data may not be as convenient for concluding, and is time-consuming as well.

5.9 Research validity

For any research to be successful, the validity must be maintained at all times. Furthermore, research validity in a survey refers to the probability of a survey measuring the right elements required to be measured. In other words, it refers to how well an instrument measures what it is supposed to measure. Internal validity is based on the research findings interrelating with reality, whereas external validity is based on those findings' replicability. Therefore, this section highlights different types of validities, see (Table 5.6), and their association to this methodological approach encompassing cross-sectional experimental research design (Bryman & Bell, 2011).

Table 5.6: Different types of validity in research

Types of Validity	Explanation
<p>1) Construct Validity</p>	<p>It refers to assessing the suitability of a measurement tool that is likely to assess the research problem. For instance, to determine the levels of leadership effectiveness within an organisation, questionnaires for the employees can be devised inquiring about their level of productivity (Drost, 2011).</p>
<p>2) Internal Validity</p>	<p>It mainly occurs when a causal relationship between the variables in research is determined. However, it must be noted that other factors or confounding variables may alter the outcome. Moreover, it is linked to the design of an experiment, for instance, the</p>

	utilisation of random experiment of behaviour dealing (Andrade, 2018).
3) External Validity	It refers to the extent of assurance that the causal relationship is reliable and has not resulted through other variables. In other words, it is related to the extent of generalizability (Tebes, 2000).
4) Ecological Validity	It refers to how the research findings can be applied to real-life situations (Tebes, 2000).
5) Reliability	It refers to the extent to which the research methods reproduce similar and consistent results. Therefore, if another study provides similar results similar to the prior study, it is likely to have high reliability (Drost, 2011).

However, there are potential concerns of validity concerning experimental research method. There is high internal validity in experiments mainly because the researcher can introduce control to mediate confounding variables. Furthermore, there is weak external and ecological validity in experimental settings mainly due to the control induced environments that are far from a realistic environment (Lakshmi & Mohideen, 2013).

Overall, it is significant to determine the research's reliability and credibility that is being undertaken by evaluating different types of validity and reliability. However, since this research has employed a quantitative method, different validity types are likely to strengthen the findings (Lakshmi & Mohideen, 2013).

So far, this chapter has emphasised the different methodological choices selected for this thesis. Furthermore, the finalised choices are listed in the (Table 5.7). After this, the research outline will further showcase the different research phases.

Table 5.7: Summary of methodological choices

Choices	Methodologies
Ontology	Objectivism
Epistemology	Positivism
Approach	Deductive
Strategy	Quantitative Method
Interaction	Independent
Priority	Quantitative
Design	Experimental
Method	Experiments, surveys

5.10 Research outline

This thesis encompasses four independent stages of data that are sequentially listed in the (Table 5.8);

Table 5.8: Summary of research phases and methods utilised to address the research questions

	Aim	Addresses	Analysis
Study 1 Experiment (Scarcity Effect on Recall while attention is a mediator) (n=110)	An experiment was performed to explore the scarcity effect on recall alongside attention being a mediator, between scarcity and recall. Therefore, advertisements of both scarce and non-scarce condition were	Answered the hypotheses 1, 2, and 3	Descriptive Statistics Mediation Analysis (Braun & Clarke, 2006) Andrew Hayes Model 4 (Hayes, 2004)

	utilised for attention and recall.		
Study 2 Experiment (Scarcity effect on recall while attention is a mediator with respect to moderators) (n=880) Qualitative validation study (n=10)	This study's aim is the same as study 1's aim; however, with respect to three moderators (FOMO, SMI, Timer) between Scarcity and Attention.	verified the hypotheses 1, 2, and 3. Then answered the hypotheses 4, 5, and 6	Quantitative Analysis Andrew Hayes Model 11, 7, and lastly 4 (Hayes, 2004)
Study 3 Experiment (Spillover effect of scarcity in an online advertisement) (n=291)	To explore spillover effect of scarcity from scarce advertisement to non-scarce advertisement on recall and attention.	Answered the hypotheses 7, 8, and 9	Quantitative Analysis Andrew Hayes Model 4 (Hayes, 2004)

Study 1

This study explores the effect of scarcity on attention and recall, which is why the researcher utilised both scarce and non-scarce advertisements to generate related outcomes. Also, to explore the indirect effect of scarcity on recall mediated by attention. An experiment was conducted to assess the influence of scarcity and descriptive statistics. Andrew Hayes model 4, alongside mediation analysis, was used.

Study 2

This study has two main aims. First to validate the first study, but with the usage of a video ad similar to the ephemeral ads that appear on social media. Second, this study explores different

moderators that might moderate the effect between Scarcity and Attention, specifically timer presence, fear of missing out (FOMO), and social media intensity (SMI). The experimental condition varied amidst timer and no timer on the advertisements. Furthermore, statistical analysis and Andrew Hayes models 11, 7, and 4 were used. Interview quotes were also used to validate the quantitative results in this study.

Study 3

The final phase of the thesis aims to emphasise the spill over effect, which was assessed through an experimental research design to highlight whether the concept of scarcity can be spilled over to a subsequent advertisement. While the effect of scarcity has been proven in the prior studies, this study tested the impact of the spill over effect from a scarce advertisement being carried over to a non-scarce advertisement. To analyse the results, quantitative analysis along with Andrew Hayes model 4 was used.

5.11 Ethical Considerations and Summary

In any methodological design, a researcher must take into consideration what the ethical considerations are to both researcher and the participants. Different types of scarcity techniques have been used traditionally as a mean to increase impulse buying behavior (Li, et al. 2021). Hence, Scarcity of the ad is not an exception. Therefore marketers must take into consideration the dimensions of utilizing scarcity techniques specially on children.

This chapter has addressed the prominent methodological considerations within the thesis. Positivism was undertaken as the choice of paradigm to provide evidence for the conceptual model, which has been outlined in the literature review. The research will take place in three steps comprising of three studies where the phenomenon of scarcity will be constantly addressed through different data sets.

6 Chapter 6: Study 1

6.1 Introduction

This chapter introduces the first study of the present work. The purpose of this study is to investigate the impact of scarce ad (verses non-scarce ad) on ad recall. The study also examines the mediating role of attention, the indirect effect in the possible effect of scarce ads on ad recall, and the ability of a person to recall content from an ad. Specifically, in the case of the between-subject experiment ($n = 121, 2 \times 1$) through attention between recalls. This study expanded the literature on advertising scarcity, emphasized its effect on ad recall, and tested the conceptual model presented in the literature review.

The goal of an advertisement is to capture the user's attention; a person cannot interact with an advertisement without attending to it (Schwartz, 2020). Attention is an important antecedent of recall (Krugman, 1986). Customer's attention helps them to memorize the contents of an advertisement, which further leads to ad recall: the ability of a person to recall the content of an advertisement at some time after the ad is no longer in front of him. The concentration of human consciousness is vital for gaining attention (Eysenck & Keane, 2013). However, manipulation of target and distractor might divert the attention (Proulx & Egeth, 2006). For example, during an experiment, Theeuwes (1992) asked the observers to search for green circles among green squares. Half of the observers were able to find the green circles due to the distraction of squares. Scarcity (disappearance) in the advertisement might help in capturing more attention. Zhao and Tumm (2018) experimented with the relationship between light scarcity and attention. They argue that the scarcity of a resource like light could increase human attention. It should be noted that this experiment is interested in testing the long-term memory recall of the person, and not the short-term memory. To increase the likelihood of the memory moving from the short-term recall to long-term recall one must participate in attention intensive activity (Klimesch, 2015).

There is ample information regarding the concept of scarcity in human behaviour (Inman & McAlister, 1997) and also enhancing product value (Verhallen & Robben, 1994). However, the literature has overlooked the scarcity of ads themselves, a gap that has become more pressing with the increased popularity of ephemeral ads. Traditionally in marketing, the concept of scarcity is

linked to product availability and its related advertisements (Brock 1968; Snyder & Fromkin, 1980). There is a significant gap in the literature concerning the scarcity (disappearance) of an ad. Thus, this study investigated the following hypothesis to explore this phenomenon.

H1: A scarce ad (vs non-scarce ad) positively affects ad attention.

H2: Ad attention positively affects ad recall.

H3: Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad recall.

6.2 Experiment design

In order to answer the previous hypotheses, an experiment has been designed. The experiment period will be divided into three stages, as shown in (Figure 6.1). The first stage will show a dummy survey, the second stage will show the ad, the third stage will continue with the same dummy survey before given the real questionnaire at the end. A generic dummy survey was chosen from Crowdsignal.com (2018) about phone service quality around campus. The main point behind the dummy survey was to divert the attention of the participants from the main survey, which is the ad and the questionnaire that will come at the end (Lavrakas & Traugott, 2019). It was not only to divert the attention of participants but also to keep them engaged and busy (Lyubomirsky et al., 1998). To test whether the participant truly memorized the ad or not, the participant must engage in an activity that requires their attention, which is the purpose of the second half of the dummy survey. The purpose of the experiment was to test if scarcity can affect long-term recall. Therefore, the long-term memory had to be tested, not the short-term one. It is hard to distinguish if memory has moved to long-term or still in the short-term memory. However, studies found that experiencing an event would store this event first in the short-term immediately, but if it was followed by an attention intensive activity, such as the dummy questionnaire in the experiment, short-term memory then moves the event component to the long-term memory (Klimesch, 2015). The lab experiment was conducted in The University of Edinburg Business School (George Town). The venue of the experiment was easy for access by the students and participants outside

the university. A questionnaire was developed to measure the attention and recall of participants. A questionnaire is a common tool used in marketing research for conducting the experiment (e.g., Carr & Hayes, 2014; Yuan et al., 2019). To summarize, the background audio, the dummy questionnaire, the distractions, the ad in the middle, and the physical lab, is to mimic, as much as possible, a real-life situation where a person is presented with an ad while they're distracted by different noises and "attention-grabbers."

6.3 Experiment procedure

This study conducted an experiment of 2x1 between-subject experiment. The experiment was conducted in a lab. The participants were divided into two groups namely scarce and non-scarce groups. The experiment was conducted individually. For example, the first participant entered the lab and was assigned to the scarce group. The second person was assigned to the non-scarce group, to ensure randomization of the participants to the extent possible with such an experiment and the third to the scarce condition and so on. The participants were told that they are participating in a survey regarding phone service quality as said before. The participant entered the lab. The table and chair were placed in the lab. The ad was shown to participants as a physical paper. Both groups are given the first dummy survey. Then in the middle of the survey, there is a question that requires the participant to ask the surveyor for clarification.

In the scarce condition, the ad was displayed to the participants for a limited time to create scarcity in the ad. The time of the ad was approximately the same as ads shown in different online applications that use short (ephemeral) marketing, such as YouTube and Snapchat, hence the ad was shown for 7 seconds. The ad was taken away from the participants after the mentioned time. In the non-scarce condition, however, the surveyor told the participants that they can view the ad and return it whenever they are done viewing it. A background audio was played during the experiment. The background audio was there to distract the attention of participants. It took approximately 15 minutes for 1 participant to experiment. Filling up the Dummy survey and viewing the ad took about 10 minutes. In Survey 2, the real questionnaire was completed in approximately 5 minutes.

In summary, scarcity group members are told that they only have 7 seconds, after which the ad will be taken away from them and they have no possibility of retrieving it.

Non-Scarcity group members are told that they can view the ad and give it back after they are done after 7 seconds or so.

Most participants gave the ad back in less than 7 seconds, where scarcity group almost everyone kept it till the end.

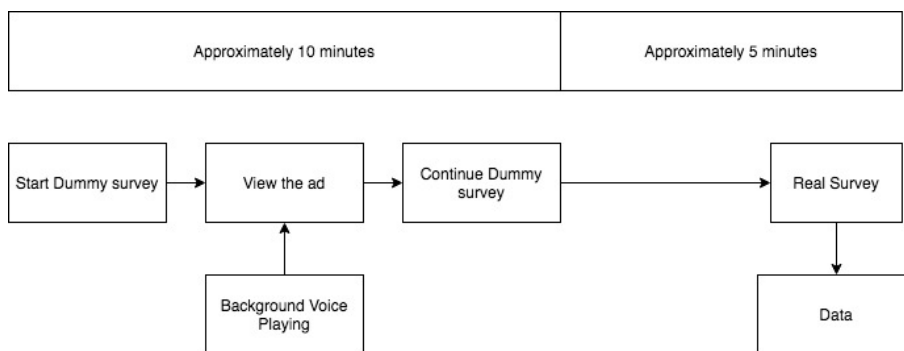


Figure 6-1: Procedure

6.4 Ad stimuli and audio distraction

The print ad shown to participants was for a fictitious Italian restaurant, called “Di Roma”. The ad contained a picture of food, a discount of 20% on food, and a rating of a popular tourism app (TripAdvisor), among other items. The name of the restaurant was chosen as it was easy to pronounce as shown in appendix 11.1.3. While the participant was shown the ad, background audio was played; the experimenter casually watched an online food tutorial, which acted as a potential distraction from attending to the print ad. The chosen video was a generic food tutorial taken from YouTube (Fablunch, 2017). A food tutorial was chosen instead of other forms of videos because the ad was about a restaurant, which adds another layer of distraction. The use of background audio

to distract the participant's attention has been used before in different experiments (Proulx & Egeth, 2006).

6.5 Participants of the study

The researcher approached a student sample at Edinburgh University's George Square for the experiment. The data collection stage took two weeks to complete. 121 participants were recruited for the experiment. All participants participated in the experiment voluntarily in exchange for a monetary reward (£5). Therefore, convenient sampling was used in the current study (Peterson & Merunka, 2014). A student sample is appropriate because the vast majority of ephemeral social media application, such as Snapchat, users are between the ages of 15-35 (Clement, 2019).

6.6 Exclusion

11 participants were excluded for a variety of reasons. Four participants started conversations related to background audio and polluted the experimental manipulation. Three participants found it rude to take the ads away from them, therefore the researcher calmed them and briefed them about the experiment. Another four participants were excluded due to lack of reliability. For example, one person answered a real question in less than 10 seconds and a dummy questionnaire in about 20 seconds. Hence, a total of 11 participants were excluded from the study; they were compensated regardless. The remaining 58 men and 52 women were considered as final participants in the experiment. At the beginning of the experiment, participants were told that they will be answering surveys. However, at the end, of the experiment, participants were debriefed on the flow and process of the experiment. Only volunteer participants were recruited for the experiment.

6.7 Methodology

The following part will explain and discuss the measures used in the experiment.

6.7.1 Measures

Survey 1 or the dummy questionnaire was a set of different questions taken from a survey in Crowdsignal.com, a website that contains many different generic surveys. The only important part

of this survey was the first demographic question; the rest of the questions are irrelevant to this study (Appendix 11.1.1).

The main measures were presented in Survey 2, or the real questionnaire, related to ad contents and background audio (Appendix 11.1.2). The survey included both graphic and text components of the advertisement, and informational components of the background vocals. To know if the participant memorized the content of the ad, one must ask questions about different items within the actual ad. Therefore, ad content was measured by five items ("*What is the brand name?*", "*What is the location?*", "*What is the major colour shade?*", "*Did you notice the special offer?*" and "*What was the Trip Advisor rating of the restaurant?*") Each question answered correctly resembles 1 point, out of five total points (i.e. a person with five points scored 100%).

Background audio components were measured by four items ("*What was the gender of the main character?*", "*Were there one or more people on the tape?*", "*Name two items you remember from the tape.*" and "*Do you remember what the voice tape was about?*"). Similar to ad recall measurement, each question equals one point out of 4.

Two items measuring attention were embedded in the survey ("*Please rate the attention you have given to the ad*" and "*Did you pay attention to the voice-tape?*"). Each item was rated on a ten-point Likert scale (1= too much attention to 10= not at all). the questions were purposefully developed for this study. Past research used self-developed questions for memory recall and attention in experiments (Ernstsen, Mallam, & Nazir, 2019). However, for attention, direct questions were used. The question regarding attention given to background audio was recorded as a negative impact on attention, because as previously discussed in the literature review, giving attention to background noises reduces the attention given to the task in-hand. Then both means were calculated into a new average variable.

6.8 Pre-analysis

This study investigates the direct effect of scarce ad vs non-scare ad on ad recall. Meanwhile, the indirect effect of scarce vs non-scare ad is tested through attention as a mediator. There are indeed many different techniques that can be used to test the hypothesized. For example, there are the techniques recommended by Baron & Kenny (1986) and Hayes, (2012). The techniques of Baron & Kenny (1986) suggest that there is a significant zero-order effect of the independent variable on the dependent variable. Zhao et al. (2010) argue that this test seems intuitive and that, without an effect to be mediated, there is no point in further investigating whether the independent on the dependent variable is mediated by the intervening variable, which according to them is not the case with Hayes PROCESS where indirect-only mediation can exist. The current research will test the effect of the independent variable (scarcity) on the dependent variable (ad recall) with a mediating effect of the intervening variable (attention). Hence, after investigating the options, this research uses the Andrew Hayes mediation model 4 in PROCESS; it could answer all the hypotheses completely. Hayes, (2012) proposed the mediation direct and indirect effect model where an independent variable X (scarce vs non-scare ad) is modelled to influence dependent variable Y (Ad recall) directly as well as indirectly through a single intermediary or mediator variable M (attention) causally located between X and Y , as depicted in (Figure 6.2). SPSS was used to analyze the data, as Hayes PROCESS [version 24] is an extension added to the SPSS to test mediation and moderation. The participants from the non-scarce group were coded as 1, whereas 2 was used for the scarce group. The recall variable was out of 5, one point for each memorized item in the ad, a person who memorized every item will get a 5, and the same approach was taken in the background audio memory variable, but out of 4. The attention variable was out of 10 points, five denotes neutral. Before proceeding with the further analysis, normality of data was checked by drawing the QQ plot and histogram. The results were approaching the expected normal line. The standardized residual and standardized predicted values were tested on a scatterplot to check if there are any issues Heteroskedasticity and linearity in the data; the graph approved that there is no violation of the assumptions for multiple regression. Violations for multicollinearity were checked between the DV and both mediators using collinearity diagnosis in SPSS; violations to the assumptions were not found.

Moreover, the study adopted a T-test to check for different in means of age across both conditions (scarce vs non-scarce). The test came insignificant as there is no difference between the age mean across the conditions. Additionally, the Chi-square test has been used to test if there is a difference among genders across both conditions. The result came insignificant as there isn't a difference among genders between conditions.

There were several ethical concerns related to the concealed purpose of the study, the potential for stimuli material to be offensive, and the potential to induce anxiety when the ad is to be taken from the participant. The British Psychological Society guidelines on researching with human participants (BPS, 2009) were followed, and the study was approved by the Social Sciences Ethics Committee at the host university. As previously mentioned, participants were debriefed at the end of the survey; even participants who refused to continue the survey were compensated but excluded from data analysis.

Moreover, it is worth considering the ethics pertaining to ephemeral adverts more broadly. The psychological effects of ephemeral adverts may result in the consumer impulse purchasing, which may cause negative feelings or consequences. For example, this may increase their likelihood to purchase on impulse.

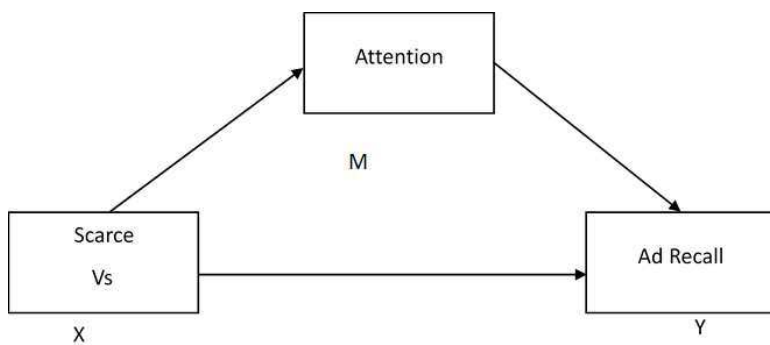


Figure 6-2: Conceptual Model

6.9 Mediation results

Andrew F. Hayes model 4 was calculated using SPSS (Hayes, 2012). Model 4 tells SPSS to estimate the mediation model with 5000 Bootstraps at a 95% level. The model was calculated on 110 samples. The total effect of scarce vs non-scarce effect on ad recall (X on Y) was positive and significant ($\beta = 1.05$, $p < 0.05$, $t = 6.172$) LLCI 1.39 and ULCI 0.7166. The direct effect of X on Y was also positively significant ($\beta = 0.905$, $t = 5.07$, and $p < 0.05$) LLCI 1.25 and ULCI 0.5516. The regression table posits that scarce vs non-scarce (X) positively and significantly affects the attention (M) of participants ($\beta = 1.88$, $t = 3.87$ and $p < 0.05$), supported H1. Further, the attention of participants had a significant effect on ad recall ($\beta = 0.795$, $t = 2.40$ and $p < 0.05$) LLCI 0.1452, ULCI 0.0138, supported H2, as depicted in (Figure 6.3). Most importantly, the indirect effect of X on Y with M as a mediator is also significant (Effect=0.1443), which supports the final hypothesis, H3. The results are presented in (Table 6.1).

Mean scores in attention were calculated and presented the following: Non-scarcity group mean 4.85 with std deviation. 2.43; Scarcity group mean 6.74 with std deviation. 2.66.

The Mean scores in Recall illustrated the following: Non-Scarcity group mean 0.944 with std deviation. 0.95; Scarcity group mean 2.00 with std deviation 1.03.

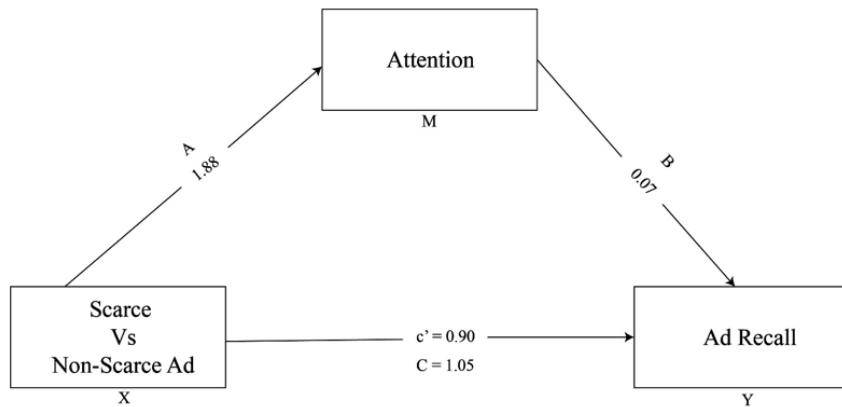


Figure 6-3: Framework

Table 6.1: Mediation Analysis

Path	Effect	t value	p value
A	1.88	3.87	0.002
B	0.07	2.40	0.018
C'	0.90	5.07	0.000
C	1.05	6.17	0.000

The bootstrap confidence interval for the indirect effect was 5000 bootstrap samples. Normally, 1000 is the default bootstrap sample, which generates a bias-corrected confidence interval for indirect effects (Efron, 1987, Efron & Tibshirani, 1993). The bootstrapping procedure was implemented to obtain estimates of the indirect effect and to test the significance by using the confidence interval. If a zero is not included in the 95 percent confidence interval of the estimate, it means that the indirect effect is statistically significant.

The result shows that there is an indirect effect of scarcity on ad recall ($\beta = .144$, LLCI=0.3223, ULCI=0.0292). The value of BootSE falls in the range of upper and lower class limits as previously said. Therefore, the indirect effect or mediation is significant as both the direct and indirect effects

are significant. In the case of Scarcity only affect ad recall if the mediator, attention, is present, it would have been complete mediation. However, because both attention and scarcity affect recall separately, it concludes that this is not complete mediation. Therefore, attention partially mediates the relationship of scarcity and ad recall, which means attention increases the effect of scarcity on ad recall, but scarcity still affects recall even when attention is not present.

6.10 Background audio (Supplementary analysis)

Background audio is considered as another proxy for attention. It is not as definite as attention; however, it is logical to say, supported by the previously discussed literature review, that paying attention to background audio might decrease the attention given to the subject in-hand. Therefore, this paper equates increased attention to background noise to a reduction in attention to the task at hand. To support this, the attention self-report measure, under the same previously used model /test was also used; however, the only difference is the (M) mediator entered was “background audio.” The results were as following:

Path A is significant. Scarcity does have a negative effect on Background audio ($\beta = -1.31$, and $p < 0.05$), which states that participants who were subjected to scarcity in their ad, did pay less attention to background noise.

1. Path B however is insignificant with a P-value 0.2412. Even though it is insignificant, background audio has a negative insignificant effect of -0.10 on Attention.
2. Path C is the total effect of X on Y, which came significant ($\beta = -1.05$, and $p < 0.05$).
3. Path C' which is the indirect effect, came insignificant ($\beta = -1.05$, and $p > 0.05$).

As discussed before, the literature supports the background noise effect on attention. Even though the effect between background noise and recall was insignificant, the data shows though leaning coefficients are in the correct direction.

6.11 Discussion

Scarcity research has focused on demand and supply scarcity appeals. Ads themselves can be scarce, this is the case with ephemeral ads on social media that disappear not to be seen again.

However, there are not many studies on scarcity of ad itself. To better build ephemeral marketing strategies, it is essential to understand the scarcity of an ad and how it impacts attention and ultimately recall.

This study sought to address this gap, testing three hypotheses, which answer the following questions :1) Does scarce vs non-scarce ad affect customers' attention; 2) Does attention affect ad recall; 3) Does a scarce vs non-scarce ad mediate the relationship of attention and ad recall.

Results found a significant positive relationship between ad scarcity and both attention and recall. Furthermore, there was a significant positive relationship between attention and ad recall. The mediating effect of attention between the scarcity of an ad and recall were also supported. In essence, this study found out that people tend to remember more ad elements if it has scarce elements compared to the non-scarce ad, due to paying greater attention to the ad.

The participants were divided into two groups: the treatment or scarce group and the control or the non-scarce group. The scarce group was told that the ad would be taken away from them after a limited viewing time and that they could not return to it. This scenario created an ad scarcity. On the other hand, the non-scarce group was also given a physical paper with the ad, and they were told they can view it and return it to the experimenter whenever they are done. The time limitation created ephemerality in the ad, and unavailability created scarcity in the ad. The participants paid more attention to the ad, which led to more recall of the ad content. The findings are supported by existing literature on scarcity within demand and supply appeals that supports scarcity increases attention and ease of recall and retrieval from working memory (Ackerman & Gross, 2003; Aggarwal et al., 2011; Gürses & Okan, 2014; Hamilton et al., 2019). Specifically, this study extends the scarcity literature by supporting the hypothesis that scarcity effects are not just inherent in the product demand or supply within ad appeals but can be associated with the ad itself. In essence, scarce ad can elicit attention, because scarce advertisements are found to make use of particular motions and visual cues that alert the audience and attain increased attention (Ackerman & Gross, 2003). The positive perception of the brand and healthy customer relationship can also add to the scarcity effect on attention (Aggarwal et al., 2011). Scarce ads have been employed by popular social media platforms, such as Snapchat. It proves to be a powerful tool as more members are said to give more

attention to scarce ads, which therefore can have great impact on recall and purchase intention. Social media is viewed to have a significant impact on marketing, as it has been the gateway for ephemeral marketing (Carmicheal, 2019). Snapchat stories stay for 24 hours and disappear, creating a view that they are scarce as they will be gone forever after a day. The same is true for the ephemeral scarce ads within snapchat, which last for 7-10 seconds and could be a powerful tool for marketing companies to utilize.

However, it should be noted that the experiment resulted in a partial or "complementary" mediation. Partial mediation means that the direct effect is still unexplained fully. Partial mediation, as the name entails, explains some of the mediation. As suggested future research should test additional mediators of this relationship (Zhao et al., 2010).

6.11.1 Complimentary analysis

Ad likability, or pleasant feelings toward the advertisement, has been linked to higher ad recall in the past (Mark et al, 1988)). As a result, we conducted a Pearson correlation between ad likability and ad recall, which revealed a significant association ($p > 0.05$) with a positive correlation of 0.34. Moreover, humans tend to recall memories they like much more than memories they dislike. (Waite, 2007).

6.12 Contribution

Previous studies about scarcity as a marketing tool, whether packaged as supply-caused scarcity, demand-caused scarcity, or time-scarcity (Ishfaq et al., 2016; Shi et al., 2020), looked mostly at scarcity of product or service offerings (Suri et al., 2007; Van Herpen et al. 2009). This study uniquely tests the effectiveness of the scarcity of the ad itself. The advent of digital and social media created more innovative advertisement such as Snapchat story that touches on the scarcity appeal. A study made by Haimson and Tang (2017) talks about how snapchat stories are more engaging because they are fresh (uploaded in less than 24 hours ago) and will disappear. The fact that the content will be permanently deleted after 24 hours made it more valuable. However, people can still view it multiple times during the 24 hours. The idea that it will be deleted after 24 hours, increased the sense of ad scarcity. Moreover, most ads in Snapchat, other than the ads posted as

“stories,” can be viewed once for a number of seconds while surfing between the stories or received as a personal snap. Once these ads are gone, when the timer finishes or the person clicks next, the media cannot be retrieved again. This new breed of social media ad is in essence scarce because the user knows before viewing the ad that it is going to be gone forever once seen. Given their scarcity, they might give the ad more attention than they do with other orthodox ones. However, no existing research to date has examined ad scarcity itself. To fill this gap, this study tests the effectiveness of scarcity as a marketing tool and strategy, but not as applied to a product or service. It has only been applied on an advertisement.

Although scarce ads are available on social media, some of them are still long ads. For example, a Snapchat story of a popular celebrity, containing ads that can be available for the next 24 hours, is sometimes a review about a product that last for couple of minutes, thus cannot be considered ephemeral. However generally, most scarce ads tend to be ephemeral. Ephemeral ads are *‘something that lasts for a very short time’* and ephemeral marketing is consistently used by marketers to gain customer attention (Carmicheal, 2019). However, it is mostly used in product and service offering and have not been tested on an advertisement alongside scarcity. This thesis conducts multiple experiments using an ad that is both scarce and ephemeral, which is the case with most snapchat ads. Even though all of snapchat ads are scarce, few are scarce but not ephemeral. It tests an ad, which lasts for only seven (7) seconds. This makes a contribution to the literature on ephemeral scarce ads that is growing in popularity starting with snapchat but now can be found in almost every major social media platform. Ephemeral marketing has been heavily used by snapchat called temporary marketing, which is marketing through short informative messages and videos that have proven, thru their field study, to engage more progressive audience (Mehra et al., 2018). Therefore, it could be concluded that this thesis also contributes to understanding the effect of "temporary marketing" on our human attention and memory “recall.”

What happens when people know that the ad is scarce? Scarcity is a state of mind a person develops regardless of the actual condition of the ad. If the person knows that this ad will be scarce, they will set their mind to pay more attention even before the ad starts. While many studies directly test the effect of scarcity to product quality, desirability, exclusivity, perceived value, and purchase decision, (Aggarwal et al., 2011; Swami & Khairnar 2003; Van Herpen et al. 2009). This study

explored the direct and indirect effect of ad scarcity on both ad attention and ad recall. The study shows that ad scarcity positively influences a person's attention while viewing the ad. The psychology of a person dictates that while the scarce ad is available, they will give more attention to it compared to ads, which are indefinitely available. An indefinite ad can be viewed "later," but a scarce ad cannot. Recall or the memory of the ad retained in the mind of the viewers is also a crucial aspect in an advertisement. Therefore, tests on recall have been done in previous studies to identify the factors that affect it (Cohen & Faulkner, 1986). Is ad scarcity one of those?

This study makes contribution in the literature on ad recall because it reveals that indeed ad scarcity is a powerful tool in increasing ad recall. People will have a better memory if ads are offered scarcely compared to ads that will be continuously available. There are many ways in which people pay more or less attention to ads. For an example, people tend to pay more attention to ads in the cinema; however, young people and media multitaskers, people who use multiple devices at the same time, tend to pay less attention to ads (Teixeira, 2015). Ad scarcity can contribute in increasing ad attention for all the mentioned groups. As shown in this thesis, increasing attention can ultimately increase how much a person remembers from an ad. The cost of commanding consumer attention has increased seven-to nine-folds in real terms since 1990 in the US. Businesses are eager to increase consumer attention by any means possible (Teixeira, 2015). This study contributed to both businesses who seek to grab consumer attention and marketing academics who seek to understand the effect of different types of ads on human psychology.

6.13 Limitations and future research

The limitations of the current study are as follows.

1. The presentation of the ads within another tasks was somewhat unnatural and is likely to have created some ambiguity for some participants. Though this was necessary due to the lab setting and the need for a cover story to increase internal validity, it is important that future studies address the lack of ecological validity here supporting the relationships within more real-life settings.
2. The experiment was conducted using the physical printed ad, which was different from the real ad in online social applications, which are short videos and pictures. Therefore, results

may not be generalisable. Future studies should aim to support the results in the context of scarce video ads, in the style of ephemeral ads present on social media.

3. Attention was recorded using a question based on the person's belief if they paid attention or not (i.e. a self-reported measure), using a one-item measure. Single-item measure is perceived to “enhance insight into self-presentation behaviour” (Marder et al, 2016) To address the limitation of a self-report one-item measure alone, background audio was used as a proxy measurement for the self-report attention variable, which indeed provided support. The participants were allowed to listen to a food tutorial while viewing the ad. After viewing, they were asked two questions – one about the ad, and another about the background audio. Albeit the case, future studies should consider multi-item measures for attention and also eye tracking or physiological measures.
4. The study's purpose was to test the longer-term memory recall (recall after an intensive exercise), hence the inclusion of the dummy questionnaire after the ad stimuli was shown. However, some might argue that 5-10 minutes is not a significant amount of time to move the memory from the short-term to the long-term. However, due to the limits of the study and the experiment, and to lessen the burden placed on the participants, the 5-10 minute time frame was found most suitable. Future studies could lengthen the waiting time and add extra activities to ensure the testing of long-term memory.
5. One of the limitations of this study is that no boundary conditions were explored. Future research should test the effect of boundary conditions such as the presence of FOMO, the effect of social media usage intensity, and the effect of personal traits such as social class, age, or gender.
6. During the dummy survey, in the questions where participants had to ask the surveyor for clarification (when the surveyor gives the ad), some participants kept on staring at the question without knowing what to do, and some even ignored it. When this happened, the researcher had to immediately stop the participant and give them the ad to continue the experiment. Although survey or experiment interruptions are found to have no significant consequence on the quality of responses nor reduce the consistency of the participant's answer, they can pose a challenge to the administration of surveys, especially when two or more respondents have to be simultaneously attended to (Schaffner & Ansolabehere, 2015).

7. Several factors influenced the experiments in the laboratory. For example, labs are in high demand in the University therefore preferred labs could not be reserved during busy hours. Hence researcher needs to adjust the same settings in another, less preferred lab. The sun interferes with some participants, and sometimes people try to enter the room. In many cases, it would not go as expected; however, the surveyor tried his best to eliminate all these differences and excluded any participant's data where it was deemed the data was too severely impacted. Future research should endeavour to validate the results in a more natural ad setting.
8. Convenient sampling of students is a limitation of current research though it is a commonly used sample within lab experiments on social media phenomenon. Similar research and experiments investigating different effects between social media ads and participants used the same sampling method (Marder et al, 2016)
9. Most of the non-scarce group's participants gave the ad back after 3 or 4 seconds, which sometimes limits the way to judge their recall of the ad compared to the scarce group who almost always concentrated on the paper ad until the time expired. Future research shall employ an automated number of seconds that ad is shown can be employed.

6.14 Recommendations for future research

The demographical aspects of the current study were not investigated due to scope limitations. In the future, such demographic elements are worth investigating (Eisend, 2013). Implications of the study for future research include replication of this research with participants from different geographical regions and different age groups. By doing so, replication of this research with participants from different geographical regions and in different age groups would provide additional data that would allow this researcher to further support ad scarcity as an effective marketing tool. This study experimented manually to test the effect of scarcity. Different online software can be helpful to show a real ad. Further, online software such as Amazon MTURK will help control the time limitation. The relationship between scarcity and ad recall will be investigated in study 2 by testing different possible moderators, such as FOMO or SMI.

A second study will be conducted by incorporating stated recommendations. Some scarce and ephemeral ads contain a timer that counts down to zero. When the zero is reached, the ad disappears. It could be said that this might have some effect on recall or attention. Therefore, study 2 might include testing the factor of visible timer vs non-visible timer. Demographic aspects will be investigated in the second study. To understand scarcity, the second study will increase the number of participants to confirm the effects.

Questions about ad appearance, rating of the actual restaurant, and tourism rating agency, among other questions were collected in the questionnaire but were not used during the analysis. Future studies could be conducted using the data collected from this study.

6.15 Conclusion

In conclusion, this study provided initial support for the effect of ad scarcity. It explored three paths: the effect of scarcity on attention, the effect of ad scarcity on recall, and the mediating effect on attention between ad scarcity and recall. These paths were found to be significant. The study confirmed that scarcity has an effect on the participant's attention and recall, and that attention mediates the effect of ad scarcity to recall. However, no boundary condition was explored, therefore this will be included in Study 2. The next study within the thesis aims to further support this relationship by addressing key limitations here; particularly through the use of video ads, restricted/automated number of seconds to view the ad, and a better measure for attention. Furthermore, the study will explore two types of moderators of the relationship between scarcity and attention, personal moderators (FOMO and social media usage intensity) and external moderator (the presence of a timer).

7 Chapter 7: Study 2

7.1 Introduction

In the previous study, the researcher focused on the effects of scarcity in ephemeral ads and specifically on the relationship between the scarcity of advertisement and better recall with attention as a mediator. This chapter details the second study of the thesis. The experiment conducted in Study 1 concluded the important results of how scarcity can affect Recall and Attention using a physical picture ad. In comparison, this study has two main aims. First, validate the first study with a video ad, similar to the ephemeral ads that appear on social media. Second, this study explores different moderators that might moderate the effect between Scarcity and Attention, specifically timer presence, fear of missing out [FOMO], and social media intensity [SMI]. Moderators can help explain the relationship between the independent variable and the dependent variables (Baron & Kenny, 1986).

A moderating effect is explained by the presence of one or more variables that modulate the effect of variable X on variable Y by impacting the direction, nature, and/or strength of this influence, which can differ by the values of the moderating variable (Aguinis and Gottfredson, 2010) (Borau et al., 2015).

The literature review outlines the rationale for the three moderators of interests in this study. It has been known in the marketing parlance that scarcity can initiate a sense of urgency, and time is an important component of it; thus, a timer can strengthen the effect of scarcity on attention (Aggarwal et al., 2011). FOMO is likewise worthy of investigation since digitalised platforms have made "the movement of messages" fast-paced; therefore, everybody is likely to be cautious of missing something or the other (Taylor, 2019). Previous works have discussed the relationship between FOMO and social media intensity and their effect on human's attention (Baker, et al., 2016; Wu & Lee, 2016).

Timers are used everywhere, from the corner of ephemeral ads on YouTube to pedestrians crossing the street, all of which impact the person's attention and behaviour, increasing the study's ecological validity (Paschalidis, et al., 2016). This study's focus was to determine the impact of

scarcity of an ad on recall (mediated by attention) when there are first-timers in ads and secondly, for people of different levels of social media intensity and FOMO. Specifically, as demonstrated in the literature review, we expect the three moderators to moderate the relationship between ad scarcity and attention, providing a significant indirect moderated mediated path from scarcity to recall.

7.2 Hypotheses

The first part, H1-3 of the hypothesis replicated the hypothesis found in Study One.

Following are the hypothesis guiding this study:

H1: A scarce ad (vs non-scarce ad) positively affects the ad attention.

H2: Ad attention positively affects ad recall.

H3: Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad recall.

H4: The positive relationship between scarcity and attention is greater for high (vs. Low) FOMO individuals. the association between Scarcity and Attention

H5: The positive relationship between scarcity and attention is greater for ads with a timer present (vs. absent) moderates the association between Scarcity and Attention

H6: The positive relationship between scarcity and attention is weaker for high (vs. low) Social Media Intensity individuals. Intensity moderates the association between Scarcity and Attention

7.3 Experiment design

An online survey experiment was conducted through Amazon Mturk, administered through Qualtrics. Mturk is a crowdsourcing marketplace that provides a quick and effective research process (Keith, Tay, & Harms, 2017). Mturk is commonly used in advertising research and is a great support to providing reliable data. Within the experiment, scarcity of the ad (scarce vs non-scarce) and a timer (present vs not present) was manipulated; hence, participants were randomly allocated to one of four groups. The further two moderators, FOMO and SMI, were measured along with existing scales to be assessed as continuous moderators within a Hayes process model. The following section outlines the experiment's procedure, followed by a deeper discussion of the stimuli development, sampling, and measures.

7.4 Experiment procedure

Participants were told the survey was about online shopping; they were further told that they must be social media users to participate. They are briefed on the first page about the experiment's details, excluding the ad viewing part. After accessing the survey, participants from all groups need to fill out their demographic questions, including meeting the threshold criteria wherein they must be 18 years of age to continue, and then fill a dummy survey about online shopping.

In the middle of the dummy survey, a page will appear which asks the participant to read the instructions that differ depending on each group described in the experiment design section. The same ad is given to the two groups of participants. The scarce group is advised that they cannot view the ad again after the first and only viewing, while the non-scarce group is advised that they can revert to the ad. In reality, however, both groups cannot view the ad again. For participants in the timer condition, a timer is visible on the ad, while those at the non-timer condition were shown no timer. After viewing the ad, both the scarce and non-scarce groups were subjected to a memory test to collect the recall variable. This ascertained their recall level.

After reading the instructions, another page, the manipulation check page, will appear. This is explained in the manipulation check and exclusion section. The participant must correctly answer a question that can only be answered correctly if the participant read the instructions carefully; otherwise, the participant will be excluded from the experiment. In both conditions, participants cannot go back and view the 7-second video ad again. In the scarcity condition group, the page will automatically roll over to the next page, whereas in the non-scarce group, the participant has to click to move to the next page to remove any sense of scarcity of the ad within the participant. Two of the four groups were subjected to a visible timer located on the right down corner of the video, as seen in (Figure 7.1) that counts down from 7 seconds to 0. After that, the ad is over, and the page is flipped.



Figure 7-1: Timer

Following this, participants from all four groups continued filling the rest of the dummy survey. The reason they had to continue with the dummy survey is to give participants time to be involved in another activity before being questioned about the ad. Having participants involved in another activity for 5 minutes is a greater test for recall than testing the recall memory instantly after the ad.

The measures within the main survey is in the following order:

- 1- Ad likability questions
- 2- Word of mouth questions
- 3- Cognitive load questions
- 4- Attention questions
- 5- Purchase intent questions
- 6- Recall questions
- 7- FOMO questions
- 8- Social Media Intensity questions

The reason recall questions came after 5 different sets of questions is to add an extra level of challenge on the participant's memory (recall of the ad). It took approximately 15 minutes to finish the experiment.

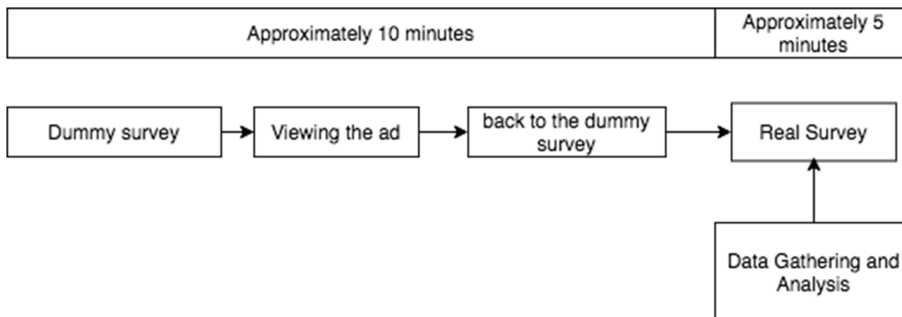


Figure 7-2: Procedure

7.5 Ad video stimuli

An ad for a tourism company was chosen since tourism has mass appeal. The ad was designed to look similar to a real ephemeral ad to increase ecological validity. The ad is displayed for 7 seconds because the ad time is approximately the same as the time shown in various online applications (such as YouTube and Snapchat) that use short-term (short-lived) marketing. The ad had visual, voice, and subtitles, to provide participants information to be recalled. The ad involved a picture of a tourist in a small canoe among the pictures on display and a question about a cruise within the tourism package was asked at the end. This was done to ensure that the participant paid attention to both the voice and the video. The pictures were not chosen to resemble any specific tourism destination, but different parts around the world to avoid any unpredicted biases. All the photos are related to tourism and travel, including car, vacation, and sea photos. It can be seen from the storyboard below (Figure 7.3), that the pictures cover every activity mentioned in the offer. The voice mentions two sentences only, making the ad ephemeral, brief, and direct to the point. The first sentence mentions the offer, the second sentence mentions the name of the company and what services it provides. Subtitles of the voice were added along with the name of the company to closely mimic popular ephemeral ads found on Snapchat and YouTube, and to also eliminate unexpected incidents such as sound mail functionality.

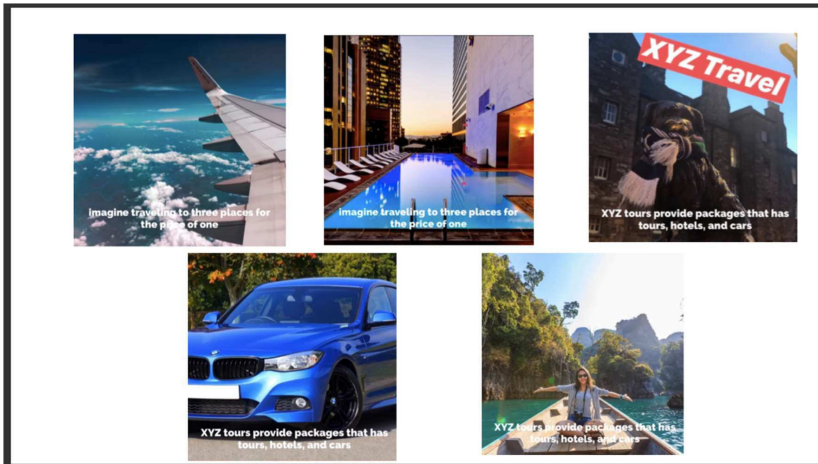


Figure 7-3: Ad Specifics

The ad is about XYZ Tour, a leading travel company, and mentions a company offer that provides travel packages, hotels, and escorted tours within 7 seconds.

According to a recent study, 93% of YouTube users skip ads, which can only be skipped after viewing the first 5 seconds. However, the vast un-skippable ads are 10 seconds, making the most watched ads on YouTube ephemeral ads, hence the mean number was chosen, seven seconds (Tandyonomanu, 2018).

7.6 Measures

Participants took the first part of the study or (the dummy survey) from Crowdsignal.com. The first half of the dummy survey included demographics (Appendix 11.2.1). The measures (attention, recall, purchase intention, FOMO, SMI) were measured as shown in the below table and is found in appendix 11.2.1.

Table 7.1: Table of Measures

<p>Social Media Intensity</p> <p>This study utilized an adapted version of the Facebook Intensity scale (Ellison, 2007) to measure social media intensity. The questionnaire used a 7-point Likert scale (add the scale – e.g. From strongly disagree to strongly agree?). Items that test the participant's regularity in using social media applications, time spent per day, and how frequently were included.</p> <p>Six different items are used in testing social media. The items are extremely similar to the Facebook Intensity Scale questions, but instead of saying “Facebook,” it says, “Social media.” Example: “Social media is part of my everyday activity”, “I am proud to tell people I’m on social media.”</p> <p>Alpha Score: 0.839</p>
<p>Purchase Intent</p> <p>The questionnaire contained a direct close-ended question regarding the purchase intent of the participants. Similar questions have been previously used in assessing purchase intent (Ansar, 2013). A 7-point Likert scale measured the degree of purchase intent. Two items are used in this measure. Directly asking participants if they are interested in the company.</p> <p>Example: “Please imagine that you are considering going on a holiday at this moment, how likely is it you would consider following up potential deals with this agency”</p> <p>Alpha Score: 0.923</p>
<p>Attention</p> <p>Asking participants about their attention toward the ad has been previously used in marketing experiments (Milosavljevic & Cerf, 2008)</p> <p>A 7-point Likert scale measured participant attention to the ad.</p> <p>Directly asking participants 3 questions about their attention components of the ad.</p> <p>Example: “I paid full attention to the voice”, “I paid full attention to the images.”</p> <p>Alpha Score: 0.865</p>
<p>FOMO</p> <p>A 7-point Likert scale measured the FOMO levels among the participants under different experimental conditions. The scale for the assessment of FOMO levels derived from the previous studies 1) FOMO influence on people (Pryzbylski et al., 2013); 2) motivation, emotional, and behavioural correlates of fear of missing out (Buglass et al, 2017); Motivators of online vulnerability: the impact of social network site use and FOMO).</p> <p>Example: “Please imagine you will not be able to use your social media for 7 days”</p> <p>Alpha Score: 0.912</p>
<p>Ad Recall</p>

Adopting a similar approach based on remembering content of a video or a movie was used to assess ad recall (Wang, et al., 2018)

Specifically, ad recall was measured by how many components of the ad a participant were able to recall in each condition. Seven different questions are asked and each correctly answered is one score. A person who answered everything correctly receives a score of seven. This strategy was used before in study 1 ad recall variable also.

Example: "What is the name of the agency in the ad", "What was the offer?", "What was the colour of the vehicle in the ad."

7.7 Manipulation check and exclusion

To check the manipulations were received, participants must pass two different nominal manipulation check questions. The first questions must be answered correctly to move to the next one. After reading the scarcity stimuli instructions, the participant is asked "Once the ad you will be shown on the next page is over, you will **NOT** be able to go back to view the ad again!" They are given two choices: 1- I understand I will **NOT** be able to go back to the ad 2- I understand I will be able to go back to the ad. The participant must answer the question correctly according to their condition, otherwise, the participant is excluded.

The second manipulation check is related to the visible timer. If a participant answers the first question correctly, ad will be displayed. After seeing the ad, the participants will receive the question about the timer, "With regards to the ad you just watched, was there a timer visible - or was there no timer visible " and the participants saw the timer picture. Participants must answer correctly whether they have seen a visible timer during the ad or did not, otherwise they will be excluded from the experiment. Every participant included in the data analysis has passed both manipulation checks and answered all key measures questions.

7.8 Ethics

The researcher followed the British Psychological Society guidelines on researching with human participants (BPS, 2009), and Business School Ethics Procedure at Edinburgh University approved both the quantitative and qualitative portions of Study 2. Participation in the study was voluntary and the researcher informed participants that they could withdraw at any time. All participants signed an informed consent outlining identity and data protections.

There were several ethical concerns related to the concealed purpose of the study, including the potential for stimuli material a dummy ad offers, and the potential to induce anxiety or anger when the participant is excluded from the experiment due to not paying attention. The researcher debriefed the participants at the conclusion of the experiment.

7.9 Sample

A total of 1,100 participants took part in the survey; however, only 880 participants provided complete responses and passed check questions. The participants who did not complete the responses and pass the check questions were thus omitted from the study. Before participating in the study on Mturk, as stated, participants were told that the study is regarding ads on social media and they must be social media users to participate. Furthermore, survey response was restricted to those who currently reside in the US, as recent statistics have shown that in 2019 almost 80% of US citizens have a social media account (Tankovska, 2021) Participants who completed the study were debriefed at the end about the process of the experiment and then given a small monetary compensation. Therefore, it is considered a purposeful sample. Of the 880 participants demographic variations are as follows. Participants ranged from 18 years old to 70 years old. The mean age of participants was 39.6 years ($SD = 13.5$), with 40.7 years age mean among men and 39.1 among women. The sample population gender was 53.7% male.

7.10 Pre-analysis

This study explored path A, scarcity (independent) to attention (mediator). All of the moderators will be located along path A only. The moderator (s) effects on the path a will be tested individually and with two moderators at a time. Percentile method-based confidence intervals are established to assess the indirect effect significance. Zero must not fall in between the low and high intervals for the indirect effect to be considered significant. However, the study first replicates the simply mediation process (without moderation) to support study 1, hence testing the indirect effect of scarce vs non-scare ad is tested through attention as a mediator. As in study 1, Hayes process is used the analysis (Hayes, 2009). To support H1-H3, the current research will test the effect of the independent variable (scarcity) on the dependent variable (ad recall) with a mediating effect of the

intervening variable (attention), Hayed Model 4. To test H4-H6 moderated mediations are carried out for each of the three moderators (Hayes model 7) and lastly, pairs of moderator interactions will be explored using Hayes model 11.

7.11 Model used:

1. Mediation model 4 to replicate study 1 hypothesis.
2. Three mediated moderation model 7 to test the three moderators.
3. Three mediated model 11 to test the possible relationship effect between the moderators on the mediator (double moderated mediation model).

The participants from the non-scarce group were coded as 1, and 2 for the scarce group. The recall variable was out of seven, with one point for each memorized item in the ad. A person who memorized every item will get a seven. All continuous variables are factored into one average, then used as a single variable in the analysis. Before proceeding with the further analysis normality of data, it was checked by drawing the QQ plot and histogram. The results were approaching the expected normal line. The standardized residual and standardized predicted values were tested on a scatterplot to check if there are any issues. Potential violations for multicollinearity were checked and was assured as depicted in the table below.

Table 7.2: Multicollinearity test

Variable	VIF	Tolerance
Gender	1.0	0.97
Age	1.0	0.96
Scarcity	1.0	0.96
Attention	4.5	0.22
FOMO	5.6	0.18
Social media intensity	2.3	0.44
Timer	1.0	0.96
Recall	1.3	0.75

Hayes PROCESS automatically divides continuous variables into three segments, high, medium, low. For example, the FOMO variable is divided into participants with high, medium, and low levels of FOMO (Hayes, 2017).

The study tested these hypotheses using the Andrew Hayes following models.

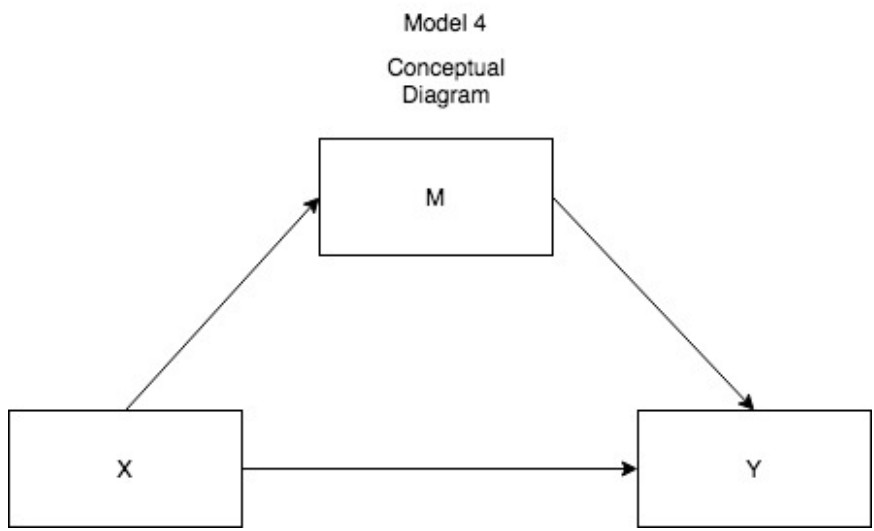


Figure 7-4: Model 4: Conceptual Diagram

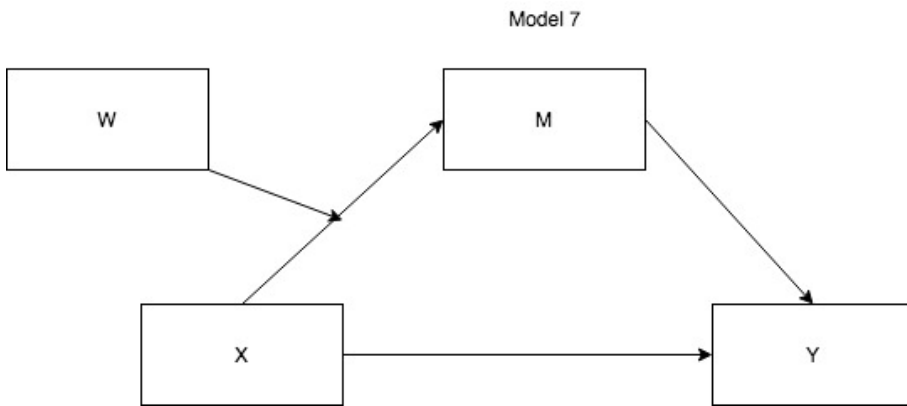


Figure 7-5: Model 7

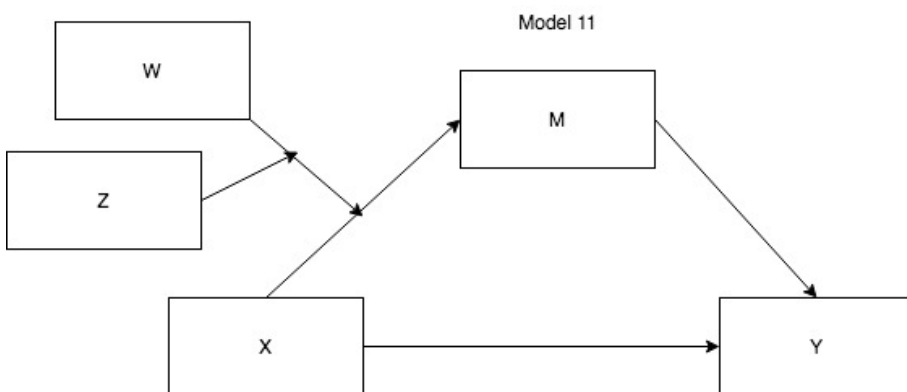


Figure 7-6: Model 11

7.12 Testing the core model H1-H3

Model 4 was set up X = Scarcity, M = Attention, Y = Recall. Three covariates have been included in the model, Timer, Gender, and Age. Researcher used SPSS to estimate the mediation model with 5000 Bootstraps at a 95% level. The total effect of scarce vs non-scarce effect on ad recall (X on Y) was positive and significant ($\beta = 0.2154, p < 0.05, t = 10.75$) LLCI 0.1761 and ULCI 0.2547.

The direct effect of X on Y was also positively significant ($\beta = 0.1827$, $t = 9.5478$, and $P < 0.05$) LLCI 0.1451 and ULCI 0.2202.

All of the mean scores were calculated, and produced the following results:

- a. Mean scores in attention (Timer): Non-scarcity group mean 5.67 with std deviation. 2.01; Scarcity group mean 7.32 with std deviation. 2.43
- b. Mean scores in Recall (Timer): Non-Scarcity group mean 1.03 with std deviation. 1.02; Scarcity group mean 2.13 with std deviation 1.43
- c. Mean scores in attention: Non-scarcity (No Timer) group mean 4.62 with std deviation. 2.34, Scarcity group mean 6.21 with std deviation. 2.68
- d. Mean scores in Recall: Non-Scarcity (No Timer) group mean 0.84 with std deviation. 0.91; Scarcity group mean 1.69 with std deviation 1.14

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The regression table posits that scarce vs non-scarce (X) positively and significantly affects the attention (M) of participants ($\beta = 0.5004$, $t = 4.860$ and $p < 0.05$), supported H1. Further, the attention of participants had a significant effect on ad recall ($\beta = 0.0654$, $t = 10.57$ and $p < 0.05$) LLCI .053, ULCI .077 supported H2, as depicted in (Figure 7.5). Furthermore, the indirect effect of X on Y with M as a mediator is also significant (Effect=0.0327), which supports the final hypothesis, H3. The results are presented in (Table 7.2). However, the three covariates, Timer, Gender, Age were all insignificant $p > 0.05$.

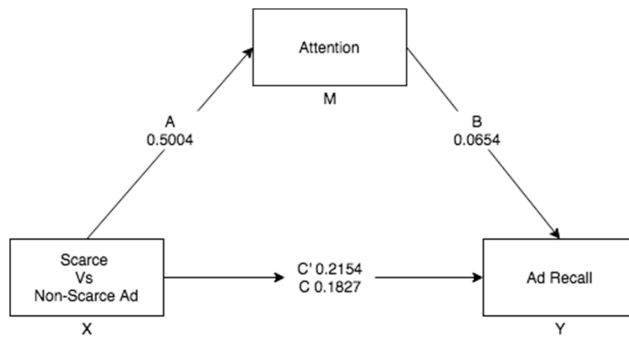


Figure 7-7: Mediation Analysis

Table 7.3: Mediation Analysis

Path	Effect	t value	p value
------	--------	---------	---------

A	0.5004	3.87	<.001
B	0.0654	2.40	<.001
C'	0.2154	10.75	<.001
C	0.1827	9.547	<.001

As both the direct and indirect effects are significant, it concludes that this is not complete mediation. Therefore, attention partially mediates the relationship of scarcity and ad recall, which means attention increases the effect of scarcity on ad recall, but scarcity still affects recall even when attention is not present. Therefore, the next model will try the first possible moderator that might moderate the relationship between scarcity and attention.

7.13 Moderating effect (H4-H6)

Model 7 of Andrew Hayes PROCESS was utilized to serve the purpose of H4-H6. For a significantly moderated mediation the moderated mediation effect, zero must not be included between the BootLLCI and BootULCI, high and low bound. All the tests are done by $p < 0.05$ significance rate (two-tailed). A spotlight table is generated for each of the models, starting with low and ending with high. Essentially model 7 will run model 4 for each of the three levels of the moderator, high, medium, and low each time.

Moderated mediation was tested; it is also called conditional indirect effects. The independent variable (X) has an effect on the dependent variable (Y) through a mediator (M) that is affected by different levels of the moderator (W). As shown in (Figure 7.8) where both a mediator and a moderator are embedded together in the same model (Preacher & Hayes, 2007).

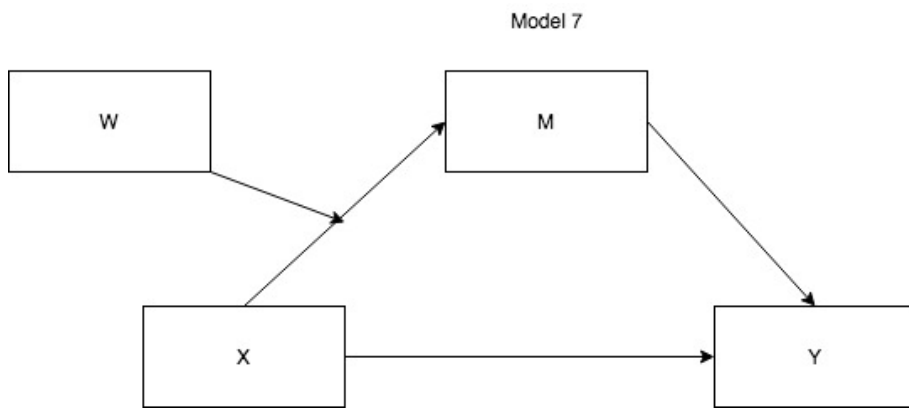


Figure 7-8: Model 7

7.13.1 FOMO (H4)

The first moderator to be tested is FOMO. Which will be placed in the W box as displayed. Gender, Age, and Timer are included as covariates in the test.

X: Scarcity

Y: Recall

M: Attention

W: FOMO

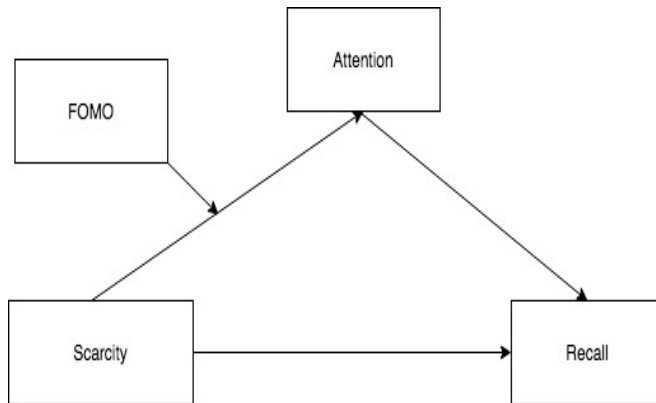


Figure 7-9: FOMO

The moderated mediation test, FOMO scores an index of 0.0081 with a significant result of 0.0159 BootULCI and 0.0005 BootLLCI. Hence, the moderated mediation effect is significant with FOMO as a moderator supporting H4.

Table 7.4: FOMO

FOMO	Explained	Effect	BootLLCI	BootULCI
-2.2133	Low	0.0172	0.0013	0.0341
0.3350	Medium	0.0288	0.0161	0.0420
1.7591	High	0.0495	0.0250	0.0744

7.13.2 Timer (H5)

The second moderator to be checked is Timer, which examines if watching a visible timer during the ad moderates the mediated effect of scarcity on recall. W box will be substituted with Timer. Since the timer is included as the moderator, it will not be included as a covariate. The timer also is not a continuous variable, participants were either subjected to a timer or not, hence 1 (timer) and 0 (no timer).

X: Scarcity

Y: Recall
M: Attention
W: Timer

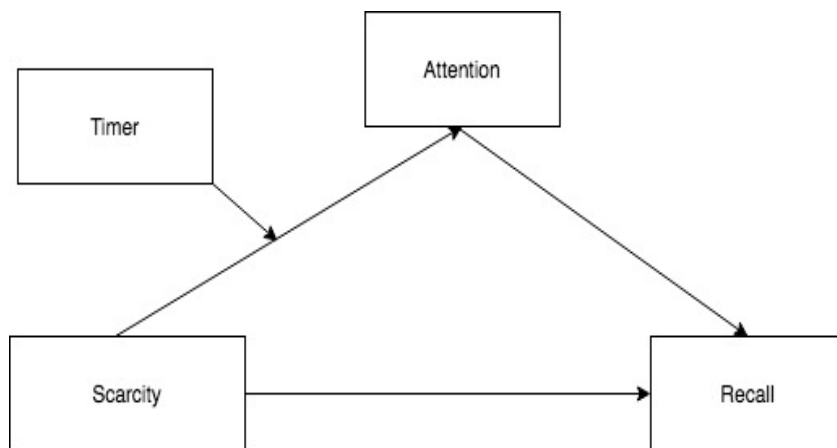


Figure 7-10: Timer

In the moderated mediation test, with $p < 0.05$ (run at 95 %), the effect is insignificant. However, with $p < 0.10$ test (run at 90 %), the result is a significant 0.0191 index. It could be concluded that a visible timer marginally moderates the mediation model, supporting H5.

The following table is generated after analysing the results.

Table 7.5: Timer

TIMER	Effect	BootLLCI	BootULCI
0	0.0235	0.0079	0.0391
1	0.0426	0.0276	0.0583

As seen in the (Table7.4), both groups are positively significant as zero is not between the LLCI and ULCI. However, the timer group had almost a double indirect effect. Hence, the results support

that the effect of scarcity on attention is more pronounced within groups who were subjected to a visible timer, and less within groups who were not subjected to a visible timer. No covariates were statistically significant.

7.13.3 Social Media Intensity (H6)

The third and final moderator of the survey is the Social Media Intensity Scale. As explained before, social media intensity for each participant is factored into a single average, and then placed instead of the legend W in the model as a moderator between X and M. Timer variable is back into the covariate box, and PROCESS split social media intensity into low, medium, and high participant intensity. Both SMI and FOMO measures were standardized around zero, hence negative means low and positive means high.

Similar to other moderators, a table is generated to simplify and understand the results.

X: Scarcity

Y: Recall

M: Attention

W: Social Media Intensity

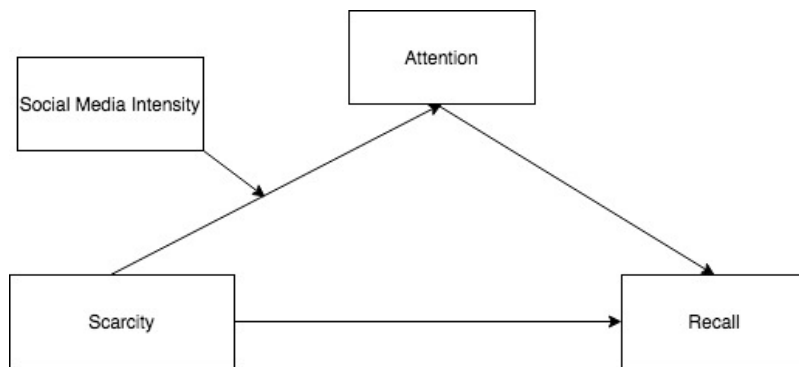


Figure 7-11: Social Media Intensity

The index of moderated mediation effect is significant, -0.0172 BootLLCI and -0.0006 BootULCI supporting H6. However, the index is negative (-0.0087), which means that there is a negative significant indirect effect on the model.

Table 7.6: Social Media Intensity

Social Media Intensity	Effect	BootLLCI	BootULCI
-1.6814	0.0456	0.0231	0.0687
0.3857	0.0277	0.0158	0.0402
1.6057	0.0171	0.0030	0.0318

All of the three groups of social media intensity have a positive significant indirect effect as zero is not between LLCI and ULCI. However, the highest effect is found in the group with low social media intensity, which will be discussed thoroughly in the discussion section. The indirect effect decreases as social media intensity increases, participants with the highest levels of social media intensity had the lowest effect. To conclude the previous table, the results support that the effect of scarcity on attention is more pronounced within groups who have lower social media intensity levels, and less within groups that who have higher social media intensity levels. No covariates were statistically significant at $p \leq .05$

7.13.4 FOMO and Timer

Examining these three possible moderators, they all seem to have an impact on the mediation model. However, Andrew Hayes PROCESS Model 7 only checks one moderator at a time. When these moderators are added to the model, their reactions may vary. Though it is beyond the hypotheses, this thesis provides further exploration of potential interacted moderated effects.

Therefore, model 11 is selected. With Model 11 the researcher can choose to add two moderators to the simple mediation model. Using three moderators, two different 11 models will be generated to check the effect. The first model has two moderators, a timer and FOMO. The second model will have timer and SMI as the moderators. Including all of the moderators and the mediator in

one model is possible; however, the power would be too low to be considered as a significant finding.

Model 11 also tests the index of moderated mediation, because there are two moderators. In the following conceptual model, two moderators are replaced instead of Z and W.

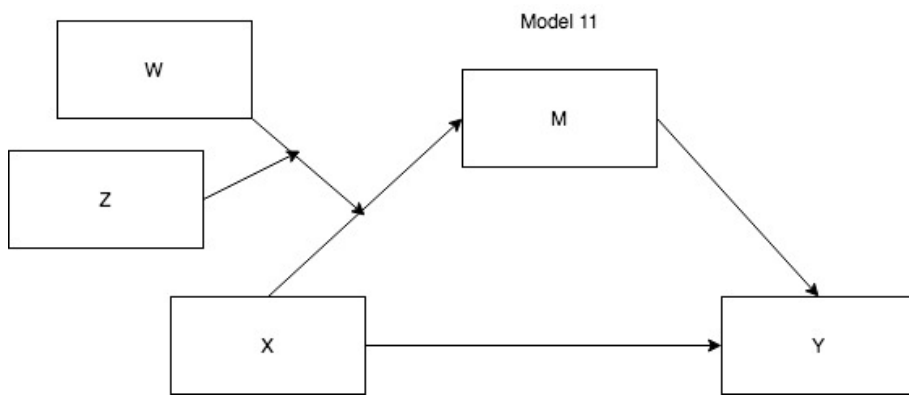


Figure 7-12 Model 11

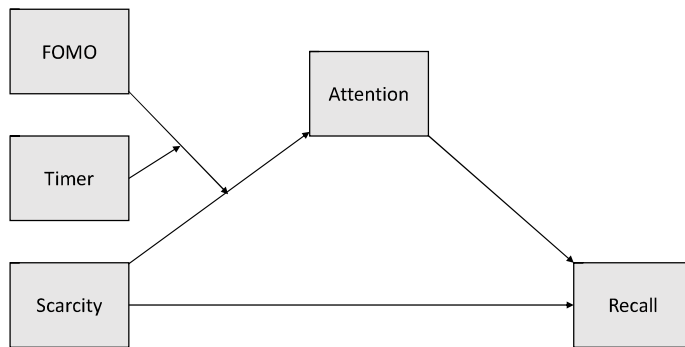


Figure 7-13: First Model 11

7.13.4.1 First Model 11

X: Scarcity

Y: Recall

M: Attention

W: FOMO

Z: Timer

Andrew Hayes PROCESS automatic split

Timer:

1 (No) 2 (Yes)

FOMO:

-2.2133 (Low) 0.3350 (Medium) 1.7591 (High)

Index of moderated mediation

The effect is -0.0187 with BootLLCI -0.0344 and BootULCI -0.0042, the zero does not fall in between, therefore there is an indirect significant effect. Both of these moderates together have a negative indirect effect on the Scarcity > Attention effect path. However, some of the groups discussed in the following table have a positive indirect effect on the mediator while scarcity is the independent variable.

Table 7.7: Indirect effect results

Timer	FOMO	Effect	BootLLCI	BootULCI
No	Low	0.0223	-0.0116	0.0551
No	Medium	0.0239	0.0055	0.0426
No	High	0.0248	0.0011	0.0481
Yes	Low	0.0798	0.0441	0.1182
Yes	Medium	0.0338	0.0156	0.0520
Yes	High	0.0081	-0.0149	0.0300

The first group, not projected with a visible timer, seem to increase in effect, starting from low to high levels of FOMO, though the differences are indeed very small. Participants with low levels of FOMO had no significant indirect effect on the Scarcity > Attention path. Participants with high levels of FOMO had a slightly higher effect than participants with medium levels of FOMO. The second group is the group that was projected with a visible timer. Interestingly, the case is the opposite with this group. It seems that as the levels of participants gets higher, the lower the effect on the model. Participants with low levels of FOMO had the highest indirect effect on the model, almost double the participants with medium levels of FOMO. The group with high levels of FOMO had an insignificant indirect effect on the model when presented with a visible timer. To conclude, the differences in the timer condition drive the significant moderated mediation mode.

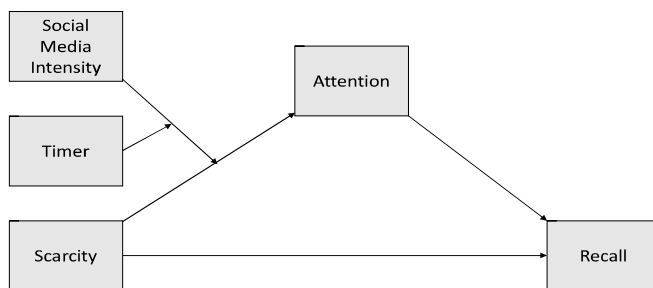


Figure 7-14: Second Model 11

7.13.4.2 Second Model 11

X: Scarcity

Y: Recall

M: Attention

W: Social Media Intensity

Z: Timer

The model will explore the Timer and Social Media Intensity moderators' effect on the mediation model.

Andrew Hayes PROCESS automatic split

Timer:

1 (No) 2 (Yes)

Social Media Intensity:

-1.6814 (Low) 0.3857 (Medium) 1.6057 (High)

Index of moderated mediation

The model was first tested using the default 95% confidence intervals, which came to be insignificant. The model was tried again using 90% confidence intervals and it is concluded that it is partially significant. The BootLLCI is -0.1718 and BootULCI -0.0250, hence there is a significant indirect effect, which is worth interpreting as it is approaching significant at the 95 % level. Furthermore, it is considered a negative indirect effect, even though in some of the cases discussed below, the indirect effect is positive.

Table 7.8: Indirect effect results of Second Model 11

Timer	Social media Intensity	Effect	BootLLCI	BootULCI
No	Low	0.0893	-0.0369	0.2103
No	Medium	0.0885	0.0129	0.1620
No	High	0.0880	-0.0003	0.1756
Yes	Low	0.3971	0.2409	0.5612
Yes	Medium	0.1948	0.1244	0.2646
Yes	High	0.0754	-0.0021	0.1537

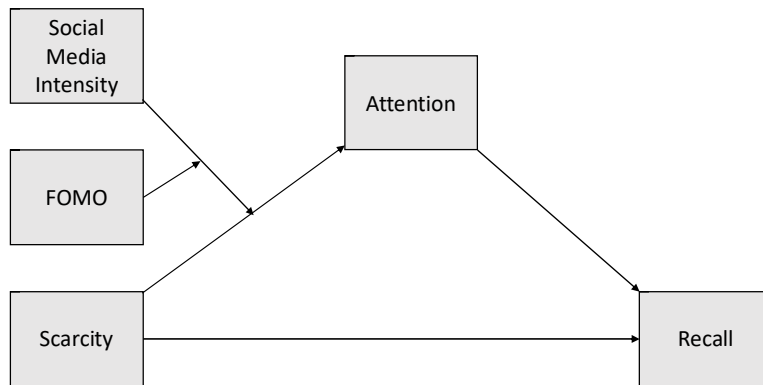


Figure 7-15: Third Model 11

7.13.4.3 Third Model 11

This model is slightly different from the previously explored 11 models. Because this model will explore Social Media Intensity and FOMO as moderators, timer will be used as a covariate. The purpose of this model, as well as the other models, is to explore the relationship between both moderators on the mediation model. Also, the (Table 7.8) of indirect effect might be more complicated, as both FOMO and SMI will be automatically split into three variables instead of two as in timer.

Third Model 11

X: Scarcity

Y: Recall

M: Attention

W: Social Media Intensity

Z: FOMO

Covariate: Timer

The model will explore the timer and SMI moderators' effect on the mediation model.

Andrew Hayes PROCESS automatic split

FOMO:

-1.9277 (Low) 0.3349 (Medium) 1.7591 (High)

Social Media Intensity:

-1.6814 (Low) 0.3857 (Medium) 1.6057 (High)

Index of moderated mediation

The effect is -0.0975 with BootLLCI -0.0085 and BootULCI 0.0352, the zero does fall in between, therefore there is no significant moderated indirect effect with both of these moderators on the Scarcity > Attention path.

Table 7.9: Table of indirect effect results

Social Media Intensity	FOMO	Effect	BootLLCI	BootULCI
Low	Low	0.2266	0.1100	0.3485
Low	Medium	0.1774	-0.0074	0.3628
Low	High	0.1464	-0.1434	0.4331
Medium	Low	0.1058	-0.0040	0.2100
Medium	Medium	0.1144	0.0387	0.1876
Medium	High	0.1198	0.0130	0.2271
High	Low	0.0344	-0.1105	0.1681
High	Medium	0.0772	0.0079	0.1496
High	High	0.1042	0.0355	0.1777

Since the index of moderated mediation is not significant, any further analysis of the results is pointless.

The moderation analysis provided interesting results that require further inquiry. Therefore, follow up interviews were undertaken to help explain relationships with the models.

7.14 Qualitative validation of phase

7.14.1 Research design

The quantitative study findings are further tested using a qualitative study with the aim to increase the ecological validity to the above stated quantitative analysis (Ruark & Fielding-Miller, 2016). An invitation was sent to 30 people for interviews about social media ads. However, only a total of 10 participants responded in full, which are considered for this qualitative study. Each of these participants was explained the purpose of the research. The participants were also compensated using a nominal sum of cash (5GBP) as a regard of their participation. The meetings were in person that lasted 20-40 minutes in a public common spaces and cafes. The sampling technique is considered purposeful sample because the researcher asked the participant to be a social media user. However, because the majority of the population is using social media, it could be argued that it is a convenient sample. Thereafter, these participants were given a questionnaire with two parameters. These parameters are 5- point Likert scale to measure the FOMO levels as given by Pryzbylski et al. (2013) and FOMO and SMI scaling, inspired by propounded by Ellison et al. (2007). The responses of these participants are then collected electronically. Based on their response to the personal traits, participants will be identified as having a low, moderate, or high FOMO/SMI; classifying participants based on a scale within interviews is common in marketing studies (Marder et al, 2019). The interviews ask participants to discuss their opinion and perceptions on a number of aspects of research, like ad scarcity, FOMO, use of timer and social media intensity. The steps of the interview, consent form, the timeline and the personality data are found in Appendix 4.

7.14.2 Ethics

While undertaking the above study, the researcher made sure to adhere to academic integrity and ethical considerations. The participants were told that they are participating in a survey regarding their preferences on ads online. Their consent was sought after communicating to them the details and purpose of the research. Moreover, they were assured that their identity would be kept secretive, and they have the option to back out from the interview at any given time.

7.15 Key findings

Furthermore, the key findings of the in-depth interview in the light of the pre-determined research hypotheses are briefed below:

The measures of responses on these criteria are stated as under:

Table 7.10: Measures of responses on various criteria

Respondents	Gender	Age	FOMO	Social Media Intensity (SMI)
1	M	45	High	Low
2	M	24	High	Moderate
3	F	54	Low	High
4	M	58	Medium	Moderate
5	M	20	High	High
6	F	31	Medium	High
7	F	40	Low	Low
8	M	34	High	Moderate
9	F	29	High	High
10	F	20	High	High

7.15.1 Ad scarcity effect (H1-H3)

Based on the above quantitative analysis, we tested the three hypotheses and it has been proven that the scarcity of ads leads to higher recall and attention of the people. In other words, it has been found that ‘a scarce ad (vs non-scarce ad) positively affects the ad attention’, ‘attention positively affects ad recall’ and ‘Attention mediates the positive relationship between the scarce ad (vs. non-scarce ad) and ad recall’. These results are further validated using the qualitative studies. The main findings are further assessed below:

The under-given responses by the participants validate the hypotheses H1 to H3:

Respondent 1 (M, 45, High FOMO, Low Social Media): *“As such, Snapchat ads are more of a distraction, but sometimes you can really get some good offers...like last time, I*

remember, I got good discount on my smart watch. But yes, there are so many ads, its not possible to keep on viewing or waiting for them...so now on I make sure to keep an eye on the snapchat ads, so that I don't miss upon them...as they are shown only once and for a very small duration..."

Respondent 9 (F, 29, High FOMO, High Social Media): *"Advertisements many times become a clutter. And its worse, when I'm in between of some important discussion or video watching. But, it will not be untrue if I say that many ads are informative and useful for the consumers. Like some genuine offers, which I regret missing....and more so, when I found that any of my friends availed it before it. So, I feel that the companies must either not show any limited one- time ads which become a point of regret later upon missing...or should inform me in advance that something great is on my way....hahaha!!!"*

These responses show that the participants pay special attention to Snapchat ads. They realize that these ads are scarce, limited, and valuable. However, it is important to note that the disappointment is high when they find that the ads are useless or not important to them.

Respondent 3 (F, 54, Low FOMO, High Social Media): *"In my opinion, Snapchat marketing is a funny game. When we miss it, and later learn its good, it displeases me....and when with high hopes, I see any, they turn out to be sheer nonsense...and sometimes it seems its non-ending. So my advice to the marketing people will be that either show small, crisp and clear ads which are actually informative and useful...else refrain from wasting my time"*

Thus, the above quotes show that the participants opinions and perceptions about Snapchat ads and scarcity validates the findings in the quantitative study, done in the previous section of the report.

7.15.2 FOMO H4

From the quantitative analysis that was done, it was concluded that there is a significant indirect effect for the three different levels of FOMO; however, there are differences in effect size, for people of differing levels of FOMO. Specifically, the results support that the effect of scarcity on attention is more pronounced within groups with high levels of FOMO, and less within groups with low levels of FOMO.

Qualitative data validates these findings. The researcher asked participants if they ever feel like they are missing out on disappearing Snapchat ads. Some participants suggested that ads are most useful to them when such ads introduce them to newer companies and products.

Respondent 2 (M, 24, High FOMO, Moderate Social Media) : *“Snapchats ads sometimes are real good...the info about new product and variants launches are indeed resourceful. I feel bad when I miss upon such good ads, which will never come back again”*

Respondent 6 (F, 31, Medium FOMO, High Social Media) : *“I often feel like missed out on specific deals on ad when I am not paying attention to an ad that relates to me and there is a discount or a specific deal in the ad that could be of benefit to me. In such cases, if I miss out on the ad when the ad runs out of time, I want to see the ad again, but the system on Snapchat doesn't allow for ad replay and I am left to wonder if the ad will come again on my screen at a later time.”*

Thus, the above analysis suggests that the respondents, despite their FOMO or social media intensity are more likely to pay attention to the ads, when the ad talks about new companies or products and services offered to the consumers.

The researcher asked participants about their feelings toward snapchat ads. Participants report that they are always under FOMO conditioning in Snapchat because even the most important messages become inaccessible after a short period of time. It leads towards the features of increased cognitive load because the scarcity of a message takes a toll on the cognitive resource, which is not generally

desired by high FOMO participants. Snapchat ads have a more positive outcome from viewers due to the scarcity.

Respondent 5 (M, 20, High FOMO, High Social Media) : *“Honestly, its annoying. Sometimes you are clicking fast checking people’s stories, and boom! You missed out on a good ad or deal..... I open my snapchat, instead of checking for my unread conversations, it feel that I’m always looking at the unwanted ads. And the worst part is, more I see, more it comes. It’s impossible to know if it will be a good or a bad ad, you must check them all.”*

Respondent 10 (F, 20, High FOMO, High Social Media) : *“Ads on snapchat are really the best element of it. Really stupid, but many times, I just open my snapchat to check for any great deals. Its rather fun when I get a deal, which my friends does not. Seems I’m getting too much addicted to it....I feel snapchat people should do something about it ...like the amazon deals, they should have only one hour kept for all great offers, so that I can do other things also.”*

The above responses signify that the Snapchat ads have a more positive outcome from viewers due to the scarcity effect. That is, when they know that the ads on Snapchat are scarce (limited time and shown only once), then they tend to remember the Snapchat ads better than the other general ads played on other media.

7.15.3 Timer H5

The quantitative results support that the effect of scarcity on attention is more pronounced within groups who were subjected to a visible timer, and less within groups that were not subjected to a visible timer.

Respondent 5 (M, 20, High FOMO, High Social Media): *“Timer reminds me of my time-management games, in which we do certain tasks in the stipulated time. Anyway, jokes apart, I find the timer to be good for each video. I will know how big the video*

is, and helps me concentrate better on the ad offering. Like when its small, I am more attentive so that I don't miss upon the key message...and when its big, it becomes boring also."

Respondent 4 (M, 58, Medium FOMO, Moderate Social Media): *"I find the timer to be good, as it tells me in how many seconds can I skip it. And when the ad is mandated, I even go for other works, like getting a glass of water or time to stretch away from my system."*

Respondent 7 (F, 40, Low FOMO, Low Social Media): *"Timer is a mode of distraction according to me. As such, all ads are waste. But if, out of blue moon, you find a good ad catering to your needs, you need to miss the main message cos half of the concentration is on the timer..."*

Respondent 9 (F, 29, High FOMO, High Social Media): *"The timer on the video ad is useful to me as a way of knowing how much time the video ad will take as I do not want to give a lot of time to the ads."*

Hence, the qualitative results also support that the effect of scarcity on attention is more pronounced within groups who were subjected to a visible timer, and less within groups that were not subjected to a visible timer. This increases the importance of timer in the social media ads, and poses impact on the attention span of the viewers. The below highlights discussions of cognitive load related to the visibility of timers.

7.15.4 Timer might cause cognitive load on the viewer?

As discussed in the literature review, under the section on Theory of Cognitive load, most participants discussed, that a visible timer in a "graphically busy" ephemeral advertisement is too much information to process at once, hinting that the timer increases the cognitive load. The researcher did not ask participants further questions about cognitive load because it was not tested in the quantitative experiment. The limitations and future research section will discuss the matter.

Respondent 8 (M, 34, High FOMO, Moderate Social Media): *“If an advertisement video is too engaging or there is just a lot going on in the video then I often do not pay any attention to the surrounding information such as the time or other suggested videos by the platform. It is only when a video ad become slow or boring that I start paying higher attention to the video timer and look for other details to entertain myself.”*

Respondent 2 (M, 24, High FOMO, Moderate Social Media): *“Timer is secondary, when the ad is really good and more importantly, useful for me. Only when I find the ad is meaningless and wasting my time, then I stare at the timer and want the ‘skip ad’ button to appear fast”*

Thus, the context mentioned above highlights that adding a timer on the advertisement is likely to increase the participants' cognitive load and participants are less likely to pay attention to the displayed content.

Moreover, due to increased cognitive load, the cognitive resources are unable to interpret multiple information cues, due to which the individuals end up paying less attention.

7.15.5 Social Media Intensity H6

Qualitative data confirms these findings. In response to this question, most of the participants who are low on social media intensity scale tend to pay more attention to the ads and have a high recall rate, as compared to the people who are rated high on the social media intensity.

Respondent 3 (F, 54, Low FOMO, High Social Media): *“I think over time, I have got indifferent with the ads. Yes, I believe that these ads are good, and rewarding many a times, but anyway, there are so many of them coming each day...so it's okay, if we miss upon a few.”*

Respondent 7 (F, 40, Low FOMO, Low Social Media): *“Although I don’t have much time to check my snapchat and other social media platforms frequently throughout the day, but when I open up and see the pop-up ad in red, I know it’s going to be away in a while, so I make sure to check it out...you never know, some good offer is on my way”*

The above analysis therefore concludes that the people with high social media intensity tend to pay less attention to the scarce ads as compared with the people with low social media intensity. This supports the findings under the quantitative analysis for H6.

7.15.6 Moderate interactions

7.15.6.1 FOMO & Timer

All the participants with different levels of FOMO (High, Moderate or Low) are impacted by the presence of timer in the ads shown on social- media platforms. It was apparent that participants belonging to the low FOMO and high FOMO groups were more likely to emphasize the presence of timer on their video as it informs them about the duration of the video. Therefore, the participants from both the groups had similar characteristics for the scarcity marker. However, participants stated that they view the timer to determine if they should continue paying attention or divert their attention. Additionally, the notion of scarcity could be used to predict increased attention. Individuals tend to assume that they will not be able to access the information again. Furthermore, the users are more likely to pay attention when the timer is attached, or else they would assume that it is not as important (Ghafurian et al, 2020). The following statements of both low and high FOMO groups illustrate the perception of the participants:

Respondent 7 (F, 40, Low FOMO, Low Social Media) : *“Timer is really important for me when the ad is being played. If the ad is bigger, I can at least move away for that extent and do some other work, and resume back to screen if it’s going to be over. Also, it is good to have the timer so that I know whether I can skip it or not. Also, from my experience, I have noticed that the videos with no timer are generally the worse one...with no use or information.”*

Respondent 10 (F, 20, High FOMO, High Social Media) : *“I always keep an eye on the timer of the video advertisement because I want to know how long the ad is. This is important to me because if the video ad is long, I know I can move around my room or do something else. In the other case, if the video is short, I often continue to pay attention to the screen.”*

Respondent 3 (F, 54, Low FOMO, High Social Media) : *“YouTube always have the timer, no matter you see it on full screen or not. I also have a habit to look at the timer, and whenever it is a short video, I look at it...many of them are indeed great. And the longer ones, I can only look for a few seconds and then decide whether to see more, skip or just move away from screen for a while, till its being played, without having any of my control to stop or skip it.”*

The respondents' above responses from both the groups show that the people are sensitive to the presence or absence of timer. When the timer is attached, they perceive the ad as important and scarce, which influences their attention.

7.15.6.2 Timer & SMI interaction

Lastly, the data supports the quantitative results that for participants who did not receive the timer the only important result is people with moderate social media intensity, which has an indirect effect on attention. However, when the visible timer is used, the group with the lowest social media intensity showed the highest indirect effect of all combinations. Later, the group with low social media intensity when projected with a visible timer had the highest indirect effect between all of the combinations. The transition to a higher social media intensity is not obvious. The indirect effect on the mediation model of a visible timer in ephemeral ads significantly increases as the social media intensity levels of the participants decreased.

Respondent comments validate these findings.

Respondent 2 (M, 24, High FOMO, Moderate Social Media) : *“Timer is definitely a decisive tool for me...and shorter the video better it is. When the timer is not apparently visible, like in full screen mode, I make an effort to check for the same which effects my association and watching capacity of the ad.”*

Respondent 7 (F, 40, Low FOMO, Low Social Media) : *“I wish they put timers in all videos. You know exactly how long the video is, how much time you need to spend, and if you should pay attention or not.”*

Thus, the above analysis shows that the mediation effect of timer in the social media ad is inversely related to the intensity of the social media among the selected participants.

The above analysis generally supports the hypotheses that hold, as tested from the quantitative result findings, and the same is validated using qualitative study. Hence, it is true to state that the scarcity of ad impacts viewers' attention positively, which in turn affects ad recall. Along with the remaining hypothesizes and moderated interaction models.

7.16 Discussion

This study aims to validate the main model (the questions of study 1) but with the use of a video and thru an online experiment. It was concerned with answering the questions, 1) Does a scarce vs non-scarce ad affects customers' attention; 2) Does attention affect ad recall; and 3) Does a scarce vs non-scarce ad mediate the relationship of attention and ad recall. The result of the study shows that scarcity increases both ad attention and recall. In addition, attention has a mediating effect between scarcity and recall. As one study suggests, attention is a phenomenon, which stimulates one's consciousness (Eyesenck & Keane, 2015). The scarcity effects in advertisement and marketing were explored in previous studies, which reveal that they lead towards increased intention to purchase if there is positive perception of a brand and healthy customer relationships (Aggarwal et al., 2011).

This study aims to explore the moderation effect of internal factors, known as personal traits, such as FOMO and social media intensity, and an external factor, such as a timer, on the relationship between scarcity and attention. Therefore, this study aims to answer the questions 1) Does the presence vs. absence of FOMO intensify the effect of scarcity to attention; 2) Does the presence vs absence of timer magnify the effect of ad scarcity to attention and; 3) Does the level of social media intensity have an effect on how scarcity of an ad affects attention. The result of study 2 gives support to the result of study 1 wherein the effect of scarcity on attention is confirmed. The moderated mediation test result shows that FOMO is a significant moderator and exerts a positive indirect effect on attention given ad scarcity. The positive effect of scarcity on attention is higher on people who are found to have higher FOMO. Specifically, people with high FOMO are found to give more attention to the ad, as induced by scarcity. Scarcity marketing and FOMO are considered to have greatly influenced over each other (Clark, 2015). According to Heshmat (2017), the features of FOMO and scarcity are likely to operate collectively because when a person has anticipation of a scarcity of a product, they automatically respond towards it with anticipation anxiety, and their instinctive reaction is to purchase before they end up regretting their decision. The results confirm previous studies on ephemeral ad effect on attention. Ephemeral marketing is a marketing strategy the marketer utilizes to showcase their products and services for a restricted time-frame so that the limited representation of their offerings can be capitalized through FOMO (Forbes, 2020).

The scarcity effect was investigated with the presence of a visible timer that counts the seconds in which the participant can view the ad before it disappears. The presence of a timer is found to significantly increase attention to the ad in the presence of ad scarcity. Specifically, the indirect effect was approximately doubled with a visible timer than that without a timer. Thus, the effect of scarcity on attention is more pronounced with a timer. Scarce advertisement and the notion of scarcity overall is mainly used to initiate a sense of urgency amongst the potential consumers with marketing campaigns and offers that psychologically impact the audience by stimulating possible anticipation of regret (Belanche et al., 2017). The presence of a timer strengthened this sense of urgency. A previous study suggests that time-related scarcity, where the product or service is only available for a specified amount of time indicating “urgency”, significantly impacts purchase intentions (Bae & Lee, 2005). When translating the concept to the ad instead of product, our result

shows the same effect of timer – scarcity is highlighted by a timer's presence, thereby increasing attention to the ad. Almost everything in social media now has timers and they can be found as a bar at the bottom or an expiring circle at the top. This study adds to the knowledge about the use of timer on a social media ad.

Lastly, the participants' social media use intensity was determined through the Facebook Intensity Scale. It was used to measure both the usage and frequency of social media use as well as the "emotional connectedness to the site and its integration into individuals' daily activities" (Ellison et al., 2007). The result shows a significant moderated mediation effect of social media intensity, albeit the index is negative. This means that the moderating effect of social media intensity on attention, given scarcity decreases as social media intensity increases. The participants who scored low in social media intensity are the ones who exhibited higher attention to the ad. This can be explained by the phenomenon called ad fatigue, wherein people with the most exposure to social media can be tired of seeing ads because they generally do not provide a good user experience (Zhou et al, 2020). This happens amidst increased spending on online ads, with 33% of ad spending going to digital platforms, which is expected to increase in the coming years (Clement, 2020). Excessive use of social media brings forth information irrelevance and overload that induces social network fatigue resulting to information avoidance behaviour (Li et al., 2020).

All the moderators examined are found to have a significant indirect effect on attention in the presence of scarcity. Mediation can be found full, partial or indirect. Full mediation would mean that there is no need to explore other mediators. Partial mediation means that there is mediation but it is not considered 100%, therefore there is a need to study for more mediators. This is the case in Study 1. In Study 2 what we found is an indirect effect whereby FOMO, timer and social media intensity indirectly helps scarcity to affect attention. These moderators strengthen the effect of ad scarcity on the ad. FOMO and timer have positive effects wherein higher FOMO and the presence of a timer make people pay more attention, while social media intensity has a negative effect so that people with low social media intensity are the ones who pay more attention to the ad in the presence of scarcity.

This study also explored the interaction between those moderators. Three types of interactions were tested: 1) the interaction between FOMO and timer, and how it moderates the effect of ad scarcity on attention; 2) the interaction between timer and Social media intensity and its moderating effect on scarcity and attention and, lastly; 3) the interaction between FOMO and social media intensity and how it moderates the effect of ad scarcity on attention. The result showed that in the presence of a timer, individuals who have medium to high level of FOMO tend to give more attention to the ad, given ad scarcity. This result supports Taylor's (2019) observation, wherein FOMO is continuously being supported by digitalized platforms that have made the movement of messages fast paced. Therefore, everybody is likely to be cautious of missing something or the other. Scarcity marketing is commonly used alongside FOMO because the fear of missing out motivates people to eventually purchase the desired product (Anderson, 2015). The features of FOMO and scarcity are likely to operate collectively because when a person has anticipation of scarcity of a product, they automatically respond towards it with anticipation anxiety and their instinctive reaction is to purchase before they end up regretting their decision (Heshmat, 2017).

There is also a significant interaction between social media intensity and timer. People with low social media intensity are the ones who are likely to pay more attention to the ad in the presence of timer and ad scarcity. This can be attributed to the fact that heavy social media users have the tendency to suffer from ad fatigue (Zhou et al, 2020). The interaction between FOMO and Social media intensity was found to be insignificant, which can likely be brought by measurement problem. This necessitates inclusion of more variables in the future.

This study has a qualitative component to either give credence to the quantitative measure or oppose it; thereby giving life to the numerical quantitative results. The qualitative result was found to be generally supportive to the quantitative result, except for the result of the interaction between timer and social media intensity. Participants who have high social media intensity said that their viewing decision was affected by the timer, in contrast to what the quantitative result says wherein only people with low and medium social media intensity are affected by the timer. In the future, more moderators or other mediators can be tested as suggested by literature, such as a person's patience, social class, and other behavioural characteristics (Murphy, 2019).

7.17 Contribution

Previous studies confirmed the role that moderators play in intensifying the effect of scarcity to the variables of interest. For example, brand familiarity can moderate the effect of scarcity on purchase intention (Huang, 2011), while hedonic shopping motivation, competitiveness and need for uniqueness moderate the effect the shopper's decision journey (Hamilton et al., 2019). This study contributes to the existing literature on moderators between ad scarcity and desired outcomes by exploring the moderating effect of personal traits such as FOMO and Social Media Intensity as well as external factor such as a timer on the effect of ad scarcity on attention. The scarcity strategy offers something either on a limited time or limited quantity (Boyd & Ellison, 2007).

It is suggested that current marketers have effectively utilized the notion of "missing out" in both product and service offerings, and advertising. Ephemeral marketing, which limits products and service offering to a particular timeframe, has specifically capitalized on FOMO to increase the popularity and desirability of the offer (Forbes, 2020). FOMO is increasingly observed among users of the digital platform and social media since it can be triggered with what people read online (Clark, 2015). This study contributes to the most up-to-date comprehensive literature work about FOMO in marketing (Tandon, et al., 2021). Few studies experimented on FOMO in marketing in general; however, none have experimented in FOMO's role between scarce ads and attention, which this study explored. Walker (2017) concluded that FOMO is a major contributing factor towards increased purchase intention, while Clark (2015) said that scarcity marketing and FOMO tend to exert great influence towards each other. This study contributes to the research on the use of FOMO in marketing by confirming that it operates as a moderator which increases the effect of ad scarcity to ad attention. People who have high levels of FOMO are induced more by ad scarcity to pay more attention to the ad compared to people with low FOMO levels. This means that theorists should consider FOMO as moderator in looking at any form of scarcity- demand scarcity, supply scarcity or time scarcity. They can also build on this study by considering different ad lengths.

Video advertisements have been increasingly used in both television and internet channels (Chaffey, 2020). More often, timers, which emerged due to the rapid growth and dynamic nature

of in-stream commercials, are played during or after consumers watch videos pertaining to their preferred contents (Goldstein & Naglieri, 2011). Timers are mainly used to drive urgency leading to purchase (Byers, 2018). They serve as a visual cue that prods consumers to take an action (Goldstein & Naglieri, 2011). This study adds to the literature on the use of timer in marketing by exploring the moderating effect between ad scarcity and attention. If a person views an ad that he knows will disappear, a visual cue such as a timer increases the motivation to put more attention to the ad. This study therefore affirms the inducing effect of timer towards an action, specifically as a response to an ad.

The thesis contributes to current research on social media marketing by using the Facebook Intensity Scale developed by Ellison, et.al (2007) to understand the social media usage intensity of a person and testing it as a moderator between ad scarcity and attention. This study confirms its significance. It affirms the earlier study of Roberts & David, (2019) that social media intensity is aligned with FOMO and ephemeral marketing. This is evident in the increasing number of social media platforms like Facebook, which actively engage in scarce advertisements (Chae et al., 2017).

This study also investigated the interaction between the moderators and affirms the complementing effect of FOMO and timer. The result affirms the earlier study of Reagle (2015) that countdown timers stimulate expected FOMO. In the study of Flom (2017), customers with high FOMO who are shown an advertisement with a timer tend to grow more attentive with every passing second as they fear losing out on the accumulated information. In this study, the interacting effect of FOMO and timer was found to positively influence a person to view the ad with more attention in the context of scarcity and ephemeral ad.

In addition to the literature on moderators, this study also added a qualitative dimension to research, which was made to either confirm or debunk the result of the quantitative study. The over-all result of the qualitative study supports the earlier quantitative result, thereby strengthening the findings of the study. Future research can take inspiration from this study, which combined both quantitative and qualitative dimensions to confirm the moderating effects of selected variables to between ad scarcity and ad attention.

7.18 Limitations and future research

1. A crucial limitation in this study is the use of an online survey experiment, where participants were naturally engaged with the actual social media platform such as Facebook & Snapchat. Though survey experiments are common in the area of research (de Vaus, 2013), participants were made to view a life-like ad, they were not put in a naturalistic situation where they are browsing through a social media platform. The latter would represent the experience of being engaged in a social media platform and doing relevant activities (e.g., browsing through photos and posts). Future studies can be done in the form of field studies through social media platforms themselves.
2. To test the variable ad recall, the participants were asked about the ad 5 minutes after viewing. This limits the memory test to only 5 minutes. Future research should be designed such that memory test can be given after hours, a day, a week or even a month. This allows the researcher to know the duration of ad recall. This is also a better way to analyse deficit in recall over time (Cohen & Faulkner, 1986).
3. FOMO and social media intensity were found to be significant moderators; other moderators are still worth investigating. For future studies, some personal traits such as a person's patience, social class, and other behavioural characteristics can be investigated to make the ad experience more personalised (Murphy, 2019).
4. For a better analysis of participant's attention, an eye tracker can be installed to provide unique eye measurements (Rey, 2014). The eye tracker can monitor the participant's eye movement while viewing the ad. Eye trackers provide evidence on "human processing of visual information" and can be used for interactive and diagnostic applications (Mele & Fedirici, 2012).
5. The urgency feature used in the recent study was a timer that shows the remaining seconds before the ad disappears. The timer used in the experiment was a numerical count down. A circle timer could have been added, but the application in Qualtrics doesn't have either the bar or the circle. In future studies, a bar can be used as observed in some ads or videos. For example, a bar timer is usually seen in YouTube videos (Adobe in a Minute, 2021).

6. The experiment also limited the time to seven (7) seconds, the reason for which can be found in the stimuli section of study 2. Future studies can have different time duration, such as 10 seconds, 15 seconds or even just 1 minute since different ad duration can elicit different levels of attention (Jones et al., , 2019)
7. All the excluded participants were due to not passing the attention check questions, and therefore did not reach any of the survey questions. Hence there is no way to measure or asses if these participants are statistically different than the ones who completed the experiment to the end.
8. This study series is focused on the cognitive effects of scarcity; however, it is important for future studies to test downstream variables such word-of-mouth and purchase intents following scarce ads.
9. Future studies can also experiment with different types of advertisements. This study used an ad about a tourism company, but other types of ad can be tried and might give different results. Different types of ads can have different emotional and rational appeals (Akbari, 2015). The respondents also mentioned that ad viewing could be influenced by whether the ad catches their interest or not.

7.19 Conclusion

This study further validates the core model supported in Study 1, showing that ad scarcity draws increased attention and recall. Furthermore, the study supports three important moderators between ad scarcity and attention (FOMO, SMI, presence of a Timer), understanding of which extends our knowledge on ad scarcity and optimising ephemeral advertising more broadly.

Ephemeral ads will appear alongside or within the same social media usage period as non-ephemeral ads. It raises the question do positive effects of scarce ads spillover to non-scarce ads? In other words, if a person pays more attention to an ad due to ad scarcity, will he also pay more attention to subsequent normal ads? The following study will aim to answer this question.

8 Chapter 8: Study 3

8.1 Introduction

Spillover effects are defined by Raufeisen et al. (2019) as the effect of change in one entity induced by the evaluation by another associated entity. In the domain of psychology, behavioural spillover implies the display of the specific behaviour influencing the probability of a different but behavioural aspect (Juhl et al., 2017).

Schumann et al. (2014) further state that the spillover effect in marketing refers to the impact of evaluating an object by a customer on the evaluation of another related subject. For example, the spillover effect has been examined as the transfer of quality perception by customers based on an existing brand to new brands (Janakiraman et al., 2009). Positive impact is sometimes referred to as the umbrella effect, whereas negative impact is referred to as the cannibalism effect (Li & Lopez, 2015).

Furthermore, previous research has recognised spillover effects occur from products extensions to evaluating parent brands and between two competing brands ((Lei et al., 2008).). A study by Roehm & Tybout (2006) also shows that spillover's magnitude is also evident from the strength of the association between brands and their products/product categories. The spillover effect has also been examined in the context of endorsement. For example, Sato et al. (2019) find that an athlete's reputation influences the consumer's perceptions about the brand that sponsors that athlete. The studies mentioned above highlight the scope of the spillover effect on influencer marketing and how the endorser's act impacts the brand that collaborates with the endorser.

The spillover effect is also evident in affecting the memory of the consumers. For instance, an experiment by Jin (2003) concludes that showing advertising campaigns in news stories for a brand tends to have a higher recall of consumer memory for subsequent advertisements. In other words, viewing the news about an ad causes a spillover effect among the consumers and increases their attention towards the subsequent ads; however, this news and the ads are related. When the consumers view any news about an ad and expect the full ad to be displayed subsequently, it

catches their attention, and they look forward to looking at that ad. Thus, the spillover from the news of an ad to the actual ad is positively captured by Jin (2003).

Building on this prior work, this study attends to a research gap on whether there exists a spillover effect of scarce advertisements on subsequent non-scarce advertisements. In study 1 and 2, it has been found that scarce ads have a significant impact on attention and ad recall. However, there has not been any study investigating the impact of scarce ads on a subsequently viewed ad recall and attention. The latter ad will be called the spillover ad. Thus, the current study aims to fill this gap and explore the mentioned areas.

8.2 Hypothesis

The study aims to answer the following hypotheses.

H7: A scarce ad (vs non-scarce ad) has a spillover effect on the attention towards a subsequent ad.

H8: Spillover ad's attention positively affects ad recall.

H9: Spillover ad's attention mediates the positive relationship between the scarce ad (vs non-scarce ad) and ad recall.

8.3 Experiment design

A 2x1 between-subject experiment was conducted through an online survey experiment on Amazon MTURK, administered through Qualtrics. The experiment participants saw an initial ad that was either scarce or non-scarce depending on their randomly allocated condition. Following this, all participants saw the same subsequent ad (i.e. spillover ad). Recall and attention of the spillover ad were measured and assessed within a Hayes process model. The following section outlines the experiment's procedure, followed by a deeper discussion of the stimuli development, sampling, and measures.

The experiment will be divided into five stages, as shown in Figure 8.1. The first stage involves a dummy survey. The second stage has shown the ad (either a scarce one or a non-scarce one), and the third stage shows the non-scarce spillover ad. Participants will continue answering the dummy survey in the fourth stage. In the final stage, the measures are presented related to the spillover ad.

The dummy survey is the same dummy survey used in study 2, taken from Crowdsignal.com (2018), about online shopping. The second stage showing the scarce vs non-scarce ads showed the same ad also used in study 2, with the same nominal manipulation check. The development of the third stage's non-scarce spillover ad will be discussed in detail in this study's Ad stimuli section. The fourth stage involves the secondary dummy survey used as a filler task, and the final stage asks participants questions about their attention and recall of the latter ad only.

The flow of the experiment is visible in the following figure.

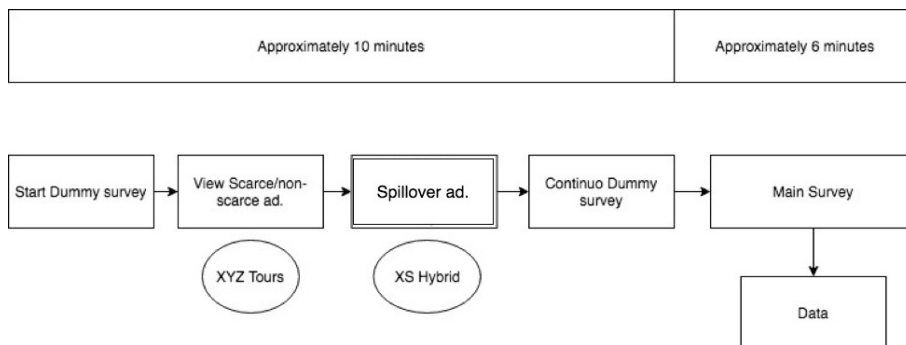


Figure 8-1: Flow of experiment

8.4 Spillover video ad stimuli

As explained before, the first ad shown is the same ad used in study 2, with scare or non-scarce dependent on the condition; this is explained thoroughly in the video stimuli section of study 2. Therefore, this section will only discuss the ad over which spillover is assessed. The video ad shown to participants is about a fictitious car called the Toyota XS Hybrid car. The reason cars were chosen was that it is a different context than tourism. To test the "spillover" effect, the spilt over content should differ from the original one (Li & Lopez, 2015). The video ad had only two pictures with a red and a white sedan car, as displayed in Figure 8.2. There was a calm generic background symphony in the ad and a voice saying the name of the brand, type of the car, most significant feature, and finally, product scarcity. Specifically, "Toyota XS hybrid has the lowest

fuel consumption in the market, 80% already sold! Get yours now." The ad's time is precisely the same as the previously used ads in study 1 and 2, which was 7 seconds.

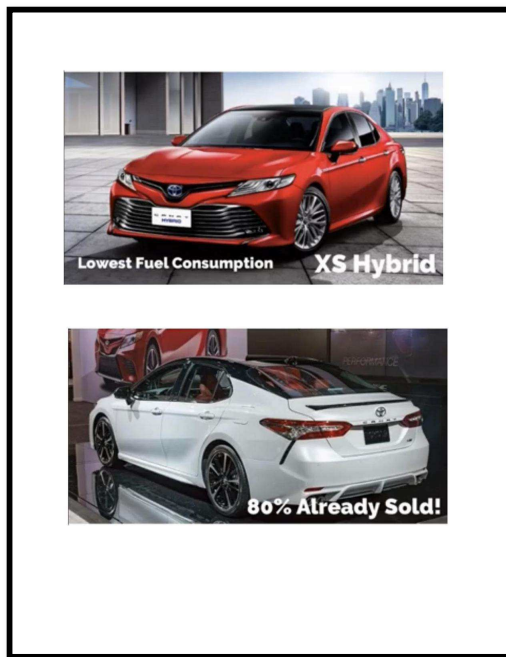


Figure 8-2: video ad had with two pictures with a red and a white sedan car

8.5 Manipulation check and exclusion

To ensure accurate data results, participants must pass two different nominal manipulation check questions. This is the same condition as study 2.

The section is explained thoroughly in the manipulation check and exclusion section of study 2. After seeing the first ad, instructions were given that the next ad was non-scarce, and then the same two option questions above were shown. If the participant answered the spillover ad question wrong (i.e. implying it was scarce), the participant would be excluded from the study.

Every participant included in the data analysis has passed both manipulation checks and answered all key measures questions.

8.6 Sample

Participants were all adults who resided in the US. Those who completed the study were debriefed at the end about the experiment's process and then given a small monetary compensation through the MTURK platform. Before participating in the study on MTURK, participants were told via writing that the study concerns ads on social media, and they must be social media users to participate. Therefore, it is considered a purposeful sample, link in study 2. Four hundred thirty-two participants took part in the survey; however, only 291 participants completed the survey passing both manipulation check. The rest were eliminated. Also, because participants who participated in study 2 understand the experiment, they were excluded from participating in this study via a blocking method on MTURK. The participant's demographic details included a varying age group of participants ranging from 18 years old to 70 years old. Participants' mean age was 37.2 years (SD = 12.8). The sample was 56.4% male.

8.7 Measures

The following part will explain and discuss the measures used in the experiment.

Recall and attention of the spillover ad are measured in a similar way to study 2. A link to the questionnaire is found in Appendix 11.3.1.

Attention was measured through five items measuring attention embedded in the survey (*"Please rate the attention you have given to the images"*, *"please rate the attention you have given to the sound?"*) and adapted from Li and Lo (2014). Each item was rated on a 7-point Likert scale (1= not at all to 7= too much attention). Alpha score 0.913

Ad recall involved different components related to the specific car ad. Specifically, there were 5-items: the car's name, shown offer, "fuel-consumption" statement, and two questions about the vehicles' colour in the ad. Each question correctly answered equals 1 point out of five total points;

therefore, a person with five points scored 100%. This was adapted from Wang, Xu, Han, & Hong (2018).

The measured demographics were also the same as in study 2.

8.8 Ethical considerations

The researcher maintained confidentiality throughout the experiment. The data collected were taken anonymously; identifiable personal information was not taken. Participants were also debriefed at the end of the experiment on everything.

8.9 Pre-analysis

This study will mainly explore, as the hypothesis suggests, the effect of scarcity on spillover ad recall, the effect of attention on recall, and the indirect effect of scarcity on recall mediated by attention. This study's main purpose is to explore the spillover effect on the spillover ad caused by the previous ad's scarcity effect. As a result, all of the variables, except scarcity, are related to the spillover ad.

As in study 1, the Hayes process will be used in the analysis (Hayes, 2009). Mediation model number 4 of Andrew Hayes will be used to sufficiently answer the hypotheses. Check figure 8.3.

Variables tested are $X = \text{Scarcity}$ $M = \text{Attention}$ $Y = \text{Ad Recall}$. Two covariates will be included in the model, age and gender.

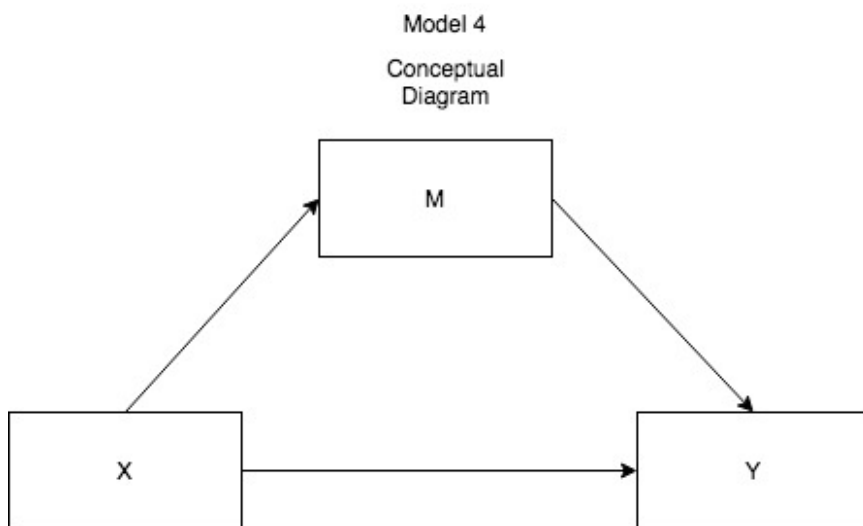


Figure 8-3: Conceptual Diagram: Model 4

The participants from the non-scarce group were coded as 1 and 2 for the scarce group. The recall variable was out of seven, one point for each memorised item in the ad. A person who memorised every item will get a seven. All continuous variables are factored into one average, then used as a single variable in the analysis. Before proceeding with further analysis, as was done in study 1 and 2, the normality of data was checked by drawing the QQ plot and histogram. The results were approaching the expected normal line. The standardised residual and standardised predicted values were tested on a scatterplot to check any issues. Potential violations for multicollinearity were checked and assured.

8.10 Mediation results

Andrew F. Hayes model 4 was calculated using SPSS (Hayes, 2012). Model 4 tells SPSS to estimate the mediation model with 5000 Bootstraps at a 95% level. The model was calculated on 291 samples. The total effect of scarce vs non-scarce effect on the spillover ad recall (X on Y) was positive and significant ($\beta = 1.238, p < 0.05, t = 8.017$) LLCI .9501 and ULCI 1.526. Scarcity's direct effect on recall was also positively significant ($\beta = 1.183, t = 8.05, p < 0.05$) LLCI .8944 and

ULCI 1.472. The regression table posits that scarce vs non-scarce (X) positively and significantly affects the attention of the spillover ad (M) of participants ($\beta = .307$, $t = 2.59$ and $p < 0.05$), supported H7. Further, participants' attention had a significant effect on spillover ad's recall ($\beta = 0.178$, $t = 2.46$ and $p < 0.05$) LLCI .036, ULCI .321, supported H8, as depicted in Figure 8.4. Furthermore, scarcity's indirect effect on Recall with Attention as a mediator is also significant (Effect=.054), supporting the final hypothesis, H9.

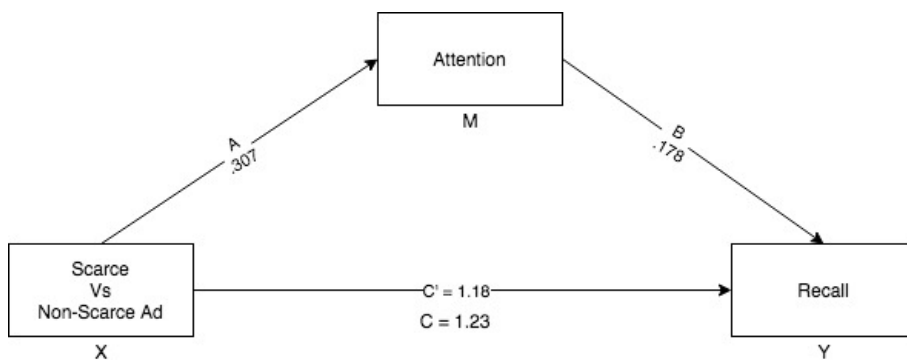


Figure 8-4: Framework

Table 8.1: Mediation Analysis

Path	Effect	t value	p-value
A	.307	2.59	0.002
B	.178	2.46	0.018
C'	1.18	8.05	0.000
C	1.23	8.01	0.000

The result shows an indirect effect of scarcity on ad recall ($\beta = .054$, LLCI=0.0091, ULCI=0.1233). The results are presented in (Table 8.1). As both attention and scarcity affect recall separately, it concludes that this is not complete mediation. Similar to what was said in study 1 regarding partial mediation, more variables should be explored to explain the complete mediation effect. Therefore, attention partially mediates the relationship of scarcity and ad recall, which means attention

increases the effect of scarcity on ad recall, but scarcity still affects recall when attention is not present.

The Mean scores in attention produced the following results: Non-scarcity group mean 3.25 with std deviation. 2.02; Scarcity group mean 5.14 with std deviation. 2.39

Whereas, the Mean scores in Recall showed Non-Scarcity group mean 0.81 with std deviation. 0.63 and the Scarcity group mean 1.66 with std deviation 1.12.

8.11 Covariates

Gender and age were not significant in study 2; however, that is different in this study. Age has a significant rate of $p < .05$ with ($\beta = -.015$ -0.015 LLCI -.026, ULCI -.0039) on the direct effect of Scarcity on Recall. Hence as age increases, the direct effect on spillover recall decreases. The age variable was not significant when tested as a covariate in the main or total effect models. Therefore, it could be possible that the normal memory loss of ageing explains the decrease. As people age, the efficiency of both their short term and long-term memory decreases (Cohen and Faulkner, 1986).

8.12 Discussion

The first study discussed the effect of ad scarcity on attention and recall. The second study mainly discussed moderators, namely personal traits and an external factor. However, both of the previous studies discussed the effect of the specific ad, the scarce ad. The question remains, how long can this effect last? We do not know if it can continue to subsequent ads with different conditions. This was the gap filled in this research; to study the spillover effect of scarce ephemeral ads. Therefore, an experiment was conducted to test the spillover effect of scarce ads on subsequent ad attention and recall.

The findings indicate a significant influence of watching a scarce ad on a subsequently watched non-scarce ad's recall and attention. Furthermore, attention was a mediator between the scarce ad and the subsequent spillover "non-scarce" ad recall.

However, it should be noted that the indirect effect of scarcity on spillover recall mediated by spillover attention is greater in the immediate scarce ad rather than the subsequent one. In other words, the scarcity effect increases recall and attention; however, the increase is diluted for the spillover ad recall and attention. It is important to note that it is still significant. Per the discussion about the umbrella effect in the literature review chapter about spillover of brands within the same company, the effect is diluted and is less than the direct effect. The finding also contributes to the previous research of (Sanchez et al., 2020), who examined the aspects of a marketing communication strategy based on publicising tactics, stressing word-of-mouth campaigns, leading towards spillover effects on different levels.

It could be argued that spillover effect is greater in conditions that have urgency elements. Such as in scarcity of fear in the stock market, investors feel they will miss out on the chance of selling and they will end up losing more, where they do not want to miss on the opportunity before market closes (Tsai, 2014). The current study helps the marketing industry to understand consumer behaviours and cognition. Scarcity is a powerful tactic for increasing customer attentiveness and responsiveness to the presentation of cues. Additionally, the sense of urgency created due to scarcity makes the advertisement sound more appealing, a significant competitive advantage (Raufeisen et al., 2019). Spillover effect has been proven effective in various marketing campaigns (Lewis & Nguyen, 2015). Adding an element of scarcity and ephemerality to the ad could increase the effectiveness of such campaigns.

Therefore, several organisations are extremely keen to determine and understand the link between customer's behaviour and spillover effects in advertisements to enhance their marketing strategies and gain a competitive advantage over brands selling substitute products and services (Raufeisen et al., 2019). It is also widely proven that the phenomenon of spillover effects is not only confined to advertisements and customer behaviour alone because individuals are likely to be influenced by the same variable in varying conditions (Li & Lopez, 2015).

The similarity and dissimilarity between the advertisements determines the effectiveness of a spillover effect. It influences the potential customers' cognition and behavioural attributes of potential customers (Bezes & Mercanti, 2017). The perception spillover, alongside the moderating

variable of product or brand similarity, are of great significance because marketing communications determine the presence of perception spillovers, especially amongst similar brands instead of those that are dissimilar (Janakiraman et al., 2009). Therefore, there is an influx of competitive spillovers due to the similar characteristics between several brands, so marketers must maintain the competitive advantage and brand value (Borah & Tellis, 2016). Furthermore, marketers use different strategies to remain at the top by promoting brand relatedness amongst their existing products and services so that the customers can relate easily, which will further elevate the effectiveness of marketing by associating a positive spillover effect (Hsieh & Wei, 2017).

Attention, as a mediating factor, has a major role in the customer's intention to purchase. The customers are known to present selective attention cues when they view advertisements manually or virtually by responding to specific information and evaluating certain aspects, leading to the final decision (Floracka & Egger, 2019). Nonetheless, there is no significant research emphasising the domain of selective attention apart from the initial evidence for its effects. Contrary to the notion of continuous advertisement presentation to increase sales, the customers attend to some of the visuals because of their restricted capacity to visually process the mentioned details (Hommel, 2019). Therefore, scarcity is more effective in similar situations because the continuous exposure to an advert does not ensure customer attentiveness. For instance, potential customers in environments consisting of multiple and complex visual cues only use their selective attention to attend to specific details while ignoring others. Similarly, marketers must use different advertisement types to attract customers with specific information instead of impeding the entire process (Munoz-Leveia et al., 2019).

The spillover effect is strongest with ads of relevance, a study claim, but the effect is reduced as the person scrolls down the online page. (Liu et al., 2016). Therefore, the marketers are not required to continue the prospects of scarcity in every advertisement but the initial one alone. Consequently, the organizations are likely to employ similar strategies and tactics to elevate the prospects of escalated profits and sales, thereby positively impacting brand equity and loyalty (Chen et al., 2018). However, the spillover effect of scarcity in an advertisement applies to advertisements shown immediately after the scarce advertisement, which may render the

marketing tactic ineffective. Hence, companies that utilize spillover effect in their marketing campaigns might want to consider scarce elements to the first ad to ensure greater results.

8.13 Contribution

Scarcity marketing has created hype and customer excitement over a product or service (Abendroth & Diehl, 2006) The effectiveness of scarcity marketing has been widely tested. (Aggarwal et al., 2011). Li, et al., 2010; Newbold, 2017). Hamilton et al. (2019) state that scarcity of products and/or a scarcity of resources constrain many consumer decision journeys. The two previous studies confirmed the positive effect of scarce ads on attention and recall in both the presence and absence of moderators or boundary conditions. The researcher found that fear of missing out, social media intensity, and timer were significant moderators. This current study looks at how long the effect lasts.

Spillover effects are marketing and advertising processes in which one condition positively influences another condition. For example, if one product is already associated with a positive image, another can also benefit. Xu and Wyer (2007, 2008) studied the influence of a comparative mindset. They assumed that goal-directed often follow a sequence. People first decide whether or not to pursue a goal. If the answer is “yes,” and there are several options available, they next decide which option they prefer. Finally, they decide how to implement the choice. As discussed, making prior comparative judgments in unrelated domains may increase the accessibility of procedures that helps determine which to choose, thus bypassing the initial step of whether one wants to choose at all. Accordingly, activating a comparative mindset can increase individual consumers’ purchase likelihood (Xu & Wyer, 2007, 2008).

Most research is on the spillover effect from one product to another, not on ads themselves. Applying this study on the spillover effect of a scarce ad to non-scarce ad in the field of advertisement contributes to the literature on scarcity. The main question investigated whether viewing a scarce ad increases ad attention and ad recall of subsequent non-scarce ads. The result of the study revealed a positive spillover effect of scarcity to both the attention given to the ad and recall of non-scarce ad.

Previous literature on the presence of spillover effect in marketing found that an advertisement for a certain product increases the search for the specifically advertised brand and other competitor brands (Balachander & Ghose, 2003; Erdem & Sun, 2001; Lewis & Nguyen, 2015; Sahni, 2016). Balachander & Ghose (2003), in a study of reciprocal spillover effects on yogurt and detergent ads, found evidence of a significant spillover effect, but did not specify its strength. Lewis & Nguyen (2015) found that display advertising influences customer search for both the advertised brand and its competitors. They studied ad delivery on 500 million visits to the Yahoo! homepage and visitors' subsequent activities on Yahoo! Search. In three advertisers' campaigns, display ads increased searches for advertised brands by 30–45 % and for competitors' brands by up to 23 %. Strikingly, the total number of incremental searches for competitors is 2–8 times the increase for advertisers' brands.

After analysing online ads in the Indian restaurant industry, Sahni (2016) discovered what he refers to as the “spillover effect”, a phenomenon where a company's ad unintentionally promotes a competitor. Sahni's research, encompassing 189,650 customers over a four-month period in 2010, found that the positive effect of an ad across hundreds of competitors' sales was up to five times greater than the positive effect on the company doing the actual advertising.

However, these studies did not consider scarcity as a factor in the spillover effect of these ads. This study adds to the findings of previous studies. The finding of this thesis contributes to the literature on ad attention and ad recall by confirming the presence of a spillover effect of a scarce ad to a non-scarce ad. This thesis confirms the efficacy of scarcity in advertising as well as the spillover effect of one ad to other brands (Raufeisen et al., 2019). Spillover likely occurs because consumers who see an ad make mental associations beyond their impression of the brand that is being advertised. Testing the spillover of a scarce to non-scarce ad may allow brand competitors to capitalize on scarce ads. Advertisers can counteract spillover by emphasizing what distinguishes their product or service from their competitors (Sahni, 2016). Marketers can also reduce spillover by increasing the frequency with which they display their ads, creating more impressions on the consumer. Sahni's (2016) experiments showed that scarce advertising, or fewer than three

exposures, helped competitors gain sales. Higher frequency (non-scarce) ads helped the advertiser overcome the spillovers and increase sales. In his study, he found no evidence of spillovers among customers exposed to an ad more than three times, confirming the efficacy of scarce ads.

Marketing's future will go to those who can create reality, or more importantly, the illusion of scarcity. The illusion of shortage of supply can heighten demand. Shortage of supply can motivate us to act sooner than we would normally. It causes us to buy for more and maybe even buy more than we want or need. In the automotive industry, for example, manufacturers ship only highly optioned versions to dealers. Manufacturers encourage dealers to stock up on other models in their product line as payback for getting the new model first. This expanded inventory benefits from a spillover effect. There is increased showroom traffic who first came to see that new model but drive home in something else (Conticchio, 2016).

This study helps to understand consumers' decision-making process when viewing an ad in the presence of scarcity (Aguirre-Rodriguez, 2013). The results indicate a spillover effect occurs from a scarce ad to a non-scarce ad. This warrants further investigation as there is scant literature addressing this phenomenon. What is the right mix for scarcity? Non-scarce ads may benefit from all the advantages of scarcity. Also, non-scarce ads may counteract the positive effects of scarcity and draw the consumer by pointing out the advantages of the product. However, viewing an ad too often may be detrimental. Future studies are needed to find the best balance of scarcity to non-scarcity that both enhance spillover and positively affect the consumers' decision-making process.

8.14 Limitation and future research

- 1- This study tests the spillover effect of the subsequent ad once, but it is unknown if the effect will increase or decrease with the third, fourth, or any ad in the future. Future studies should test the longevity of the spillover effect.
- 2- As for all the studies in this thesis, these experiments do not resemble real life events as discussed before. Future experiments shall utilise real-life applications and events to eliminate this limitation.

- 3- Both ads were considered ephemeral as their length was limited to seven seconds. Therefore, the effect might differ with different types of ads, especially non-ephemeral ads. Future studies would include a subsequent picture ad or an interactive online ad.
- 4- The first ad was about a tourism company and the second ad was about a new car in the market. Future research should consider whether spillover effects of scarce ads are increased/decreased over difference/similarity in categories of subsequent ads.
- 5- Adding an extra ad to test the spillover effect increased the overall experiment's duration used in study 2 by approximately one minute, which might cause fatigue and thus impact on the accuracy of recall. Future studies studying spillover effect vs a direct ad effect shall consider being consistent in the experiment's duration.
- 6- The study's main purpose was to explore the effect of scarcity on the subsequent ad. However, moderators were not tested, such as study 2. Future studies should explore the effects of moderators in spillover ads. A major variable that might be tested is patience levels. A person who would move from an ad to a subsequent ad is a person with some level of patience; they had the patience to view more than one ad. Another variable is whether they liked the first ad or not. A positive experience gives a positive spillover effect as discussed before in this study.
- 7- The background audio was used in the first study to validate the attention self-report measure; however, background audio could not be implemented in this study as it was a video ad, and in both the tourism and the car ads, a person was talking and advertising the product. Hence, it was impossible to add both voices speaking simultaneously in the seven-second duration. Future studies should aim to validate the spillover effect found using different stimuli where further attention proxies can naturally occur.

8- Even that participants were briefed before the beginning of the second ad that its conditions are not the same as the previous ad, it is a possibility that some participants thought the second ad was also scarce and therefore paid extra attention to it.

8.15 Conclusion

This study built on the prior studies by (Jin, 2003, Lewis & Nguyen 2015, Liu, et al., 2016, Tsai 2014). Spillover effect in advertisement is still considered a new technique that is used in Marketing. Hence there is a lot of exploration to be made in future studies. The following chapter will provide an in-depth discussion of the overall contributions and practical implications of this thesis.

9 Chapter 9: Contributions, Limitations, Future Research and Conclusion

9.1 Introduction

This chapter discusses the findings of this thesis. The interlocking concepts of scarcity, ephemerality and digital media begin the chapter. The psychology of scarcity, boundary conditions, and spillover effects are concepts germane to the study. The chapter concludes with a delineation of practice implications, contributions of the study, limitations of the study, and areas of future research.

9.2 Scarcity, ephemerality & digital Media

The scarcity strategy offers something either in a limited time or limited quantity (Boyd, 2007). Previous studies about scarcity as a marketing tool examined the scarcity of product or service offerings (Suri et al., 2007; Van Herpen et al., 2009), whether packaged as supply-caused scarcity, demand-caused scarcity, or time-scarcity (Ishfaq et al., 2016; Shi & Xhumnumpan, 2020). Ads themselves provide a new avenue to exploit limited time-based scarcity.

This thesis examines the effectiveness of the scarcity of the ad itself. Unlike prior advertising, where all ads were somewhat scarce, social media clearly distinguishes between scarce and non-scarce ads. With older platforms, every ad was the same. Therefore, viewers did not perceive the ad as scarce. Haimson and Tang (2017) found that Snapchat stories are engaging because they are fresh (uploaded less than 24 hours previously) and disappear. This thesis argues that since people cannot return to the content, they perceive it as scarce, increasing its value.

Viewers can see most ads on Snapchat once for several seconds. Once these ads are gone, the viewer cannot retrieve them. The user knows beforehand that, once viewed, the ad will be gone forever. This makes the ad scarce and, therefore, in line with other general scarcity appeals (Haimson & Tang, 2017). Such scarcity should increase attention and subsequently, recall. Snapchat has used ephemeral marketing heavily, which is marketing through short informative messages and videos. Research finds that these ads engage a more progressive audience (Mehra et al., 2018).

However, no existing research to date has examined ad scarcity itself. To fill this gap, the study tests the effectiveness of scarcity as a marketing tool, not applied to a product or service, but to the ads themselves.

Specifically, this thesis examines the effectiveness of the scarcity component within ephemeral ads – those which are short (approx. 7 seconds) and scarce (once seen, the viewer cannot see them again). This research explored the direct and indirect effect of ad scarcity on both ad attention and ad recall. Findings indicate that ad scarcity positively influences a person's attention while viewing the ad. This thesis conducted multiple experiments using a scarce ad to confirm its findings and to make a substantive intervention in the academic literature.

9.3 Impact of study on psychology of scarcity

Scarcity is the condition of having insufficient resources to cope with demands. This condition presents significant challenges to the human cognitive system. Scarcity consumes cognitive resources such as attention, working memory, and executive control (Zhao and Tumm, 2018). In addition, scarcity presents urgent demands that hijack the cognitive system, focusing on urgent demands and inducing neglect of other information (Zhao and Tumm, 2018).

Many studies directly test the effect of scarcity on product quality, desirability, exclusivity, perceived value, and purchase decision (Aggarwal et al., 2011) ; Swami & Khairnar 2003; Van Herpen et al. 2009). Recall or the memory of the ad retained in the viewer's mind is also a crucial aspect of an advertisement. Scarcity can be a powerful addition to an advertiser's toolbox. Increasing attention can ultimately increase how much a person remembers from an ad. The cost of commanding consumer attention has increased seven to nine-fold since 1990. In the U.S., businesses are eager to increase consumer attention by any means possible (Teixeira, 2015).

9.4 Boundary conditions: FOMO, timer and Social Media Intensity

Previous studies confirmed the role that moderators play in intensifying the effect of scarcity on variables of interest. For example, brand familiarity can moderate the effect of scarcity of demand supply on purchase intention (Huang, 2011).

Research suggests that current marketers effectively utilize the notion of "missing out" in product and service offerings and advertising. Ephemeral marketing, which limits products and service offering to a particular timeframe, has capitalized on FOMO to increase the popularity and desirability of the offer (Forbes, 2020). FOMO is increasingly observed among digital platform users and social media since it can be triggered by what people read online (Clark, 2015). In the most comprehensive literature work about FOMO in marketing (Tandon et al., 2021), no studies experimented with FOMO's role between scarce ads and attention. This study explored that phenomenon and fills this gap. Walker (2017) concluded that FOMO is a major contributing factor towards increased purchase intention. Walker (2017) said that ad scarcity marketing causes FOMO, which might explain marketing scarcity's effectiveness. Furthermore, to exacerbate these strategies advertisers increasingly use video ads on internet channels (Chaffey, 2020). Timers emerged in commercials on streaming services (Goldstein et al., 2011). Consumers became accustomed to seeing the countdown of ad time. Advertisers use timers primarily to drive urgency, leading to purchase (Byers, 2018). They serve as a visual cue that prods consumers to action (Goldstein et al., 2011).

This study also affirmed the complementing effect of the moderators of FOMO and timer. The result supports the earlier study of Reagle (2015) that countdown timers stimulate expected FOMO. Flom (2017) found that in social media ads, countdown timers increased engagement 1.9 times and increased click rate 2.7 times. He concluded that online business sites utilize countdown timers to increase urgency, boost engagement, and encourage sales. The current study confirmed that both timers and high FOMO groups increased the scarcity effect on attention, aligning with Flom (2017). Higher engagement to the ad means more attention to the ad. When a person has high FOMO, they tend to act on urgency, which was increased by countdown timers according to the previous study (Li et al., 2020). Groups that have high FOMO may explain the increase in

engagement and click rate also. Our experiment could be considered a bridge between those discussed studies that involved different factors and personality traits.

This study also added a qualitative dimension to research. The overall result of the qualitative study supports the earlier quantitative result, thereby strengthening the findings of the study. Future research can combine quantitative and qualitative dimensions to confirm the moderating effects of selected variables between ad scarcity and ad attention.

9.5 Possible mediators

State vs. Trait

To begin, we must identify the difference between a trait and a state when describing different conditions humans go through. a trait is something that is regarded to be a long-term trait of an individual that manifests via their behavior, activities, and feelings. It is regarded as a characteristic, feature, or quality of a person. Someone who says, "I am a confident person" or "I am just an anxious person," for example, is indicating that these characteristics are a part of who they are.

A state, on the other hand, is a transient condition that people are going through. They will return to their previous state once the state has passed. Someone who says, "I feel fairly confident about this interview" or "I feel scared about doing this," for example, is describing a condition (The Oxford Review, 2022).

FOMO as a state

FOMO have been discussed in the thesis as a trait and not in its temporal state. An action can cause a person to be in a state of FOMO temporarily, which has the same attributes as trait FOMO (Li, Griffiths, Niu and Mei, 2020). It could be discussed that scarcity might cause a temporary increase in FOMO levels of the individual which act as a first order mediator that leads to an increase in attention to the observed content. Even with groups that are identified with having low FOMO as a trait, a temporal increase in FOMO might be responsible for the increase in attention (Maxwell,

Tefertiller, and Morris, 2020). FOMO is one of the elements that have not been widely experimented on yet and the internet is one of the main factors that can enhance one's FOMO levels (Hayran and Anik, 2021). Therefore, future studies need to examine the role of FOMO as a mediator between scarce ads, and also scarcity marketing tactics more generally and downstream effects such as attention and recall.

Commented [MB1]: This is good !

But it needs at least some references that consider FOMO as a state.

Timer-Urgency.

Timer has been discussed in the thesis as an external feature, therefore it was classified as a moderator. A visible timer could put a pressure on the viewer called “time pressure,” which creates a sense of insistence to act fast. As the task grows more urgent, it may appear to be more significant (Cialdini, 2009). As a result, constrained time limitations increase task attention, increase incentive to comprehend following information, and expedite job completion (Suri and Monroe, 2003; Zhu et al., 2018). Hence, as thoroughly discussed in section 3.3, that Timer creates a temporal sense of urgency which could act as a first order mediator that increases attention for an amount of time. As ephemeral ads are indeed short (around 7 seconds) but also can only be seen once – time pressure is applied due to the duration and permeance of the ads. For a more nuanced understanding of the positive effects of scarce ads as supporting in this thesis, future studies should consider assessing time pressure, or similarly urgency as a first order mediator.

Scarcity and perceived value

The last possible mediator is perceived value. It could be assumed that scarcity causes an increase of perceived value with the brand, which can influence better recall of the ad (Pavelchak et al., 1988). As discussed in section 2.6.5, scarce items are viewed as more valuable than non-scarce items. Scarcity has been found to increase perceived value of both items and brands (Suri et al., 2007). Multiple studies have found association between different types of scarcity and its effect on perceived value (Lynn, 1987). Hence, could add perceived value as a first order mediator that influences attention. Future studies could explore if scarcity of the ad leads to an accumulative increase of perceived value of the brand, which eventually increases attention and recall. However, this mediator was not chosen in this study because the study's ads were not actual companies and therefore no perceived value has been established yet. Assuming value

requires extensive information and happens over a longer period of time which was not possible with this experiment (Suri et al., 2007).

9.6 The spillover effect

Scarcity marketing creates customer excitement over a product or service (Abendroth & Diehl, 2006) Researchers have tested the effectiveness of scarcity marketing (Aggarwal et al., 2011) ; Li, et al., (2010); Newbold, (2017). Hamilton et al. (2019) state that scarcity of products and/or a scarcity of resources constrain many consumer decision journeys. This thesis confirmed the positive effect of scarce ads on attention and recall in both the presence and absence of moderators or boundary conditions. The researcher found that fear of missing out (FOMO), social media intensity, and timer were significant moderators. This current study looks at how long the effect lasts.

Spillover effects are marketing and advertising processes in which one condition positively influences another condition. For example, if one product is already associated with a positive image, another can also benefit. Most research is on the spillover effect from one product to another, not on spillover between ads. Applying this study on the spillover effect of a scarce ad to a non-scarce ad in the field of advertisement contributes to the literature on scarcity.

Previous literature on the spillover effect in marketing found that an advertisement for a certain product increases the search for the specifically advertised brand and other competitor brands (Balachander & Ghose, 2003; Erdem & Sun, 2001; Lewis & Nguyen, 2015; Balachander & Ghose (2003), in a study of reciprocal spillover effects on yoghurt and detergent ads, found evidence of a significant spillover effect but did not specify its strength. Lewis & Nguyen (2015) found that display advertising influences customer search for both the advertised as well as its competitors. They studied ad delivery on 500 million visits to the Yahoo! homepage and visitors' subsequent activities on Yahoo! Search. In three advertisers' campaigns, display ads increased searches for advertised brands by 30–45 % and for competitors' brands by up to 23%. Strikingly, the total number of incremental searches for competitors is 2–8 times the increase for advertisers' brands.

After analysing online ads in the Indian restaurant industry, Sahni (2016) discovered what he refers to as the “spillover effect”, a phenomenon where a company’s ad unintentionally promotes a competitor. Sahni’s research, encompassing 189,650 customers over four months in 2010, found that the positive effect of an ad across hundreds of competitors’ sales was up to five times greater than the positive effect on the company doing the actual advertising.

However, these studies did not consider scarcity as a factor in the spillover effect of these ads. This study adds to the findings of previous studies. Spillover likely occurs because consumers who see an ad make mental associations beyond their impression of the advertised brand. Testing the spillover of a scarce to a non-scarce ad may allow brand competitors to capitalize on scarce ads.

This study helps to understand consumers’ decision-making process when viewing an ad in the presence of scarcity (Aguirre-Rodriguez, 2013). The results indicate a spillover effect occurs from a scarce ad to a non-scarce ad. This warrants further investigation as there is scant literature addressing this phenomenon. What is the right mix for scarcity? Non-scarce ads may benefit from all the advantages of scarcity. Also, non-scarce ads may counteract the positive effects of scarcity and draw the consumer by pointing out the advantages of the product. However, viewing an ad too often may be detrimental. Future studies are needed to find the best balance of scarcity to non-scarcity in order to enhance spillover and positively affect the consumer’s decision-making process.

9.7 Practical implications

This thesis offers implications for marketers and social media site designers. Marketers should consider investing more resources into scarce ads and designing ads to increase the scarcity effect. This study provides insights to marketers on how to package the ads as scarce ads and ephemeral, thereby gaining more attention and recall. Marketers should also consider investing more time into scarce ads and designing ads to increase the scarcity effect. For example, they could draw attention to the ad by saying, “this ad is likely never be seen again.” Snapchat has successfully captured people’s attention, which is why every major social media platform such as Facebook, Instagram,

and even Twitter use the same features. This study offers evidence that ephemeral ads can be the solution to waning social media ad attention due to ad fatigue (Zhou et al, 2020).

Social media designers may employ a marketing strategy that includes "anything and everything with a limited life cycle" (Newberry, 2020; Chaffey, 2020). The result of this thesis suggests that companies targeting users in popular social media platforms can maximize ad attention and recall by offering these scarce ads. Aside from direct ads, companies can also employ social media influencers and ambassadors who can use Snapchat stories and Facebook Stories to promote the brand. Ephemeral ads have increasingly gained popularity, and this study confirms that it is highly effective in attracting attention and ad recall (Digital marketing Institute, 2017).

Due to ad fatigue experienced by heavy social media users, targeting the scarce ad to new or infrequent social media users can maximize ad exposure. Advertisers can expect people with low to medium social media exposure to give more attention to the ad if they know beforehand that it is scarce. Popular analytics program can track social media usage and categorize accordingly.

The ad's content can elicit or trigger FOMO. The psychological state known as FOMO informs the tendency of people to view the ad with more attention. People with high FOMO pay more attention to scarce ads compared to people with low FOMO.

One effective way to communicate scarcity is the use of a timer. Marketers can capitalize on this visual cue to induce viewers to act. It can be a standard timer that shows the duration of the video. In addition, marketers can use different countdown timers, such as the visible timer in YouTube or a circle timer such as Snapchat. The timer creates in viewers a sense of urgency, preventing them from overthinking their decision.

Brand managers can capitalize on the spillover effect. For example, they can present non-scarce ads following scarce ads, inducing greater attention and ad recall than being packaged as entirely

non-scarce ads. In addition, companies can use ads that are not scarce or ads that can stay indefinitely in platforms that people expect to be scarce.

9.8 Contributions

The following is a summary of the contributions of this study.

1. The thesis contributes to the advertising literature by showing that scarcity effects are not confined to demand and supply appeals of products and services but to the ad itself. As a result, scholars should now consider scarcity a way to increase attention and ad recall.
2. This thesis contributes to marketing and information systems scholars focused on understanding the effectiveness of social media content generally and ad-related content in particular. These findings confirm Haimson and Tang's (2017) assertion that scarcity endemic to social media should increase attention and therefore, ad recall.
3. The present study contributes to the existing literature on moderators between ad scarcity and desired outcomes by exploring the moderating effect of personal traits, such as FOMO and Social Media Intensity, and an external factor such as a timer on the effect of ad scarcity on attention.
4. This study contributes to the literature on ad recall because it reveals that ad scarcity is associated with increased attention and increased ad recall. It appears that in addition to the scarcity of supply and limiting time, the ad itself is a vehicle for increasing attention and ad recall when presented on social media platforms. This finding provides advertisers with a new avenue to exploit limited time-based scarcity.
5. This study contributes to the research on the use of FOMO in marketing by confirming that it operates as a moderator, increasing ad scarcity on ad attention. People with high levels of FOMO pay more attention to the scarce ad than people with low FOMO levels. Theorists should consider FOMO as a moderator in looking at any form of scarcity, whether it be demand scarcity, supply scarcity or time scarcity. They can also build on this study by considering different ad lengths as a further interacting moderator.

6. The thesis contributes to current research on social media marketing by using the Facebook Intensity Scale developed by Ellison et al. (2007) to understand the social media usage intensity and testing it as a moderator between ad scarcity and attention. This thesis confirms social media intensity, FOMO, and scarcity in marketing (Roberts & David, 2019). It is evident in the increasing number of social media platforms like Facebook, which actively engage in scarce advertisements (Chae et al., 2017).
7. This thesis adds to the literature on using a timer in marketing by exploring its moderating effect between ad scarcity and attention. If a person views an ad that he knows will disappear, a visual cue such as a timer increases the motivation to put more attention to the ad. This study, therefore, affirms the inducing effect of timer towards an action, specifically as a response to an ad.
8. The main question investigated whether viewing a scarce ad increases ad attention and ad recall of subsequent non-scarce ads. The result of the study revealed a positive spillover effect of scarcity to both the attention given to the ad and ad recall of a non-scarce ad.
9. The finding of this thesis contributes to the literature on ad attention and ad recall by confirming the presence of a spillover effect of a scarce ad to a non-scarce ad. This thesis supports the efficacy of scarcity in advertising and the spillover effect of one ad to other brands (Raufeisen et al., 2019).

9.9 Limitations & scope of future research

9.9.1 Lack of ecological validity

One of the most critical limitations of the thesis is that the experiment was a planned simulation, not real ads in real-time. The study participants responded to simulated ads and were told that they would not see the ad again. This led to the notion of scarcity manipulation (Kristofferson et al., 2016) and likely influenced the respondents' responses and provided biased results. Shen (2013) found that the manipulation of scarcity leads to higher perceived scarcity scores when the scarcity limit is appealed. The respondents tend to become cautious when they learn that the experiment is for some pre-defined purpose and may suffer from performance bias. To overcome this limitation,

the researcher must use a more extensive data set, tested on existing social media platforms and employing eye-tracking to validate the study results.

Future research can conduct a real-time experiment by approaching Snapchat or other social media platforms, extracting the recall and attention and even its effect on a subsequent ad by way of scarce ads.

9.9.2 Inability to identify the relation between recall level and purchase intent

The experiment studied the recall and attention span of the respondents as impacted by the scarce ads. Literature reveals a strong positive relationship between an ad recall and purchase intent (Memom et al., 2016). However, the study did not test whether the rise in scarce ad recall influences the purchase intention of the viewers. Thus, the study may not be entirely relevant for advertisers seeking to influence purchase intentions and decisions of the viewers or potential customers, but rather aiming to increase attention and recall of the ad being displayed.

This limitation also provides the scope for future research for potential researchers and academicians. The existing literature established the relationship between advertisement on social media and the purchase intentions of the people. Still, no studies have explored the impact of scarce ads on purchase intent. Thus, testing this relationship using real-time analysis will provide important implications for the marketers and add value to the research knowledge. This is possible by using a real-time experiment of testing the behavioural measures of the respondents on social media platforms. The scholars can also undertake a comparative analysis by testing for CTR between scarce and non-scarce ads on these social media platforms.

9.9.3 Limited study of personality traits and factors

The present study tested only two personality traits (social media intensity and fear of missing out) and one external factor (timer) using scarce ads. However, consumers' personality traits are relevant for the advertisers, like openness, conscientiousness, extraversion, agreeableness, and social sensitivity (Patton, 2020), which may have relevance for the marketers. These five together

form the significant five bipolar factors, are known to be related to social relations (Ryan and Xenos, 2011), and are commonly studied by marketers for gauging social media usage, social networking, and even marketing blogs (Amichai-Hamburger and Vinitzky, 2010; Correa et al., 2010). Hence, the current research has limited scope as the other personality traits were assumed constant. Nevertheless, the researcher did this to provide an in-depth understanding of FOMO and social media intensity concerning scarce ads.

Given this, future research can consider more personality traits and variables, and evaluate their impact on scarce ads. Moreover, one can take a comparative analysis to study which variables respond higher to ad scarcity and which direction (whether they behave positively or negatively) towards the scarce ads. In order to best understand the nuances of ephemeral adverts, it is therefore essential for future research to consider these untested aspects.

9.9.4 Use of unrelated ads

Another limitation of the research is that it considered all types of product advertisements as uniform. This research considered the ads of a restaurant, tour & travel, and car, which denotes three different types of purchases (leisure and luxury). The study also did not distinguish between the different effects of hedonic (focused on pleasure) vs utilitarian (goal-oriented) products (Khan & Dhar, 2010). Kim & Kim (2014) claimed that the compromise effect by the consumers is higher in utilitarian product consumption compared to the hedonic consumption process, owing to different valuation processes used by the consumer. It signifies that the effect of consumer's choice under different ads pertaining to hedonic or utilitarian is not differentiated, thus adding to the limitations of the research. The nature of products is an important variable affecting the viewers' purchase decisions and interest levels (considered as potential customers and influencers). This study did not test this factor.

Future research can study the effect of scarce ads on different hedonic and utilitarian products. One can also conduct a comparative study to understand how the nature of the products, measured by being hedonic or utilitarian, influences the consumer outcomes.

9.9.5 Failure to study length of retention of recall

The study concluded that scarce ads affect recall, mediated by attention, but not on the duration of the recall. The duration of the increased attention and recall could last a day, a week, a month. Different durations of ads indeed have different effects on attention and recall, but these effects have not been tested on scarce ads. Even the time of the day the ad is viewed might change the effect of scarcity on attention and recall. It is an important aspect for both the social media platforms and the marketers of consumer goods and products since it will help them plan different ads and their frequency, among other factors.

The length of scarcity effect on recall and attention is a valuable research topic for the future. Future studies can explore whether the ad viewers remember and retain ads after various lapses of time. Comparative analysis using the pre-test, the post-test can test the retention level after showing the ad and post-test after the lapse of different lengths.

9.9.6 Ad length

All the scarce ads shown in the experiment were short and did not test the differences in the consumer recall level and attention based on the duration of the ad. This may be useful to the marketers in designing the content and length of the ads. The relevance of the length of the advert is an important factor in marketing. It significantly influences brand recall, advertisement liking, and brand attitude (Varan et al., 2019).

Future scholars may test different ad durations to find out the impact of scarce ad duration on the attention and recall level of the respondents. In addition, further studies can link the duration of the scarce ad to the purchase intent of the potential consumers.

9.9.7 Revisiting ads

Another limitation to the existing research is that the recall level and attention of the ad viewers are tested on highly scarce ads and non-scarce ads. However, it is important to note that scarcity exists on a continuum. For example, Snapchat ad (highly scarce), Facebook brand post (not scarce) and Snapchat stories (somewhat scarce, and you can go back over 24 hours). The current study is

limited as it only contrasts two of these factors. There is no mention of the effect on an ad that can be returned for a defined period, like Snapchat stories. This study is important for the marketers to decide which medium to adopt for advertising their products and services to maximize the recall and attention and increase purchase intent. Thus, future studies can fill this gap.

9.9.8 Self-report measures

The study suffered from biases arising from self-reported measures. Researchers recorded attention using a one-item measure, asking respondents whether they paid attention or not. According to Marder et al (2017), the single-item measure is perceived to facilitate self-represented behaviour. However, the researcher controlled this limitation by playing background audio, a proxy measurement for the self-report attention variable. The participants were also allowed to listen to a food tutorial while viewing the ad. After viewing, the researcher asked two questions – one about the ad and another about the background audio.

This limitation provides further research scope, and future studies should consider multi-item measures for attention and eye-tracking or physiological measures.

9.10 Overall conclusion

In conclusion, this thesis provided a direct examination of the effects scarce ads have on the consumer's attention and recall. The effects of which were yet to be examined by scholars, despite the rise in scarce ads given the huge increase of Snapchat's popularity. To examine this effect, this thesis did three quantitative experiments along with qualitative validation. Moreover, two major personal traits and an external site based-factor have been examined as boundary conditions, (FOMO, Social Media Intensity, a visible timer), and finally the spillover effect of scarce ads on non-scarce ads.

There are three main overarching contributions in this thesis. The first contribution is that scarce ads positively impacts attention, which in turn increases recall. The second contribution is that the effect of scarcity on attention could increase or decrease based on the studied personal traits and

the presence of a timer. The final contribution is that the scarcity effect supports spillover to the subsequently viewed non-scarce ads.

These experiments could help marketers, specifically in social media industry, tailor their ad spend in a way that could achieve marketing objectives, such as increasing attention and recall of the advertised ad. This thesis has supported ad scarcity as an important tool within a marketer's arsenal and therefore an area of research that is as interesting to scholars as it has evidently been to social media technologies.

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11 Appendices

11.1 Appendix- 1: Study 1

11.1.1 Survey 1

1. Gender: M/F
2. Age:
3. Occupation:
4. Country:

1. Highest level of education reached in the past or currently undertaken

	Vodafone	o2	Meteor	Three	Other
High school or less					
Undergraduate degree					
Postgraduate degree					

4. Overall, how satisfied would you say you are with the Reliability of Connection?

	Vodafone	o2	Meteor	Three	Other
Extremely Satisfied					
Quite Satisfied					
Moderately Satisfied					
Slightly Satisfied					
Not Satisfied At All					

5. Overall, how satisfied would you say you are with Average Upload Speed?

	Vodafone	o2	Meteor	Three	Other
Extremely Satisfied					
Quite Satisfied					
Moderately Satisfied					

Slightly Satisfied					
Not Satisfied At All					

6. Overall, how satisfied would you say you are with Average Download Speed?

	Vodafone	o2	Meteor	Three	Other
Extremely Satisfied					
Quite Satisfied					
Moderately Satisfied					
Slightly Satisfied					
Not Satisfied At All					

7. Overall, how satisfied would you say you are with Performance Relative to Cost?

	Vodafone	o2	Meteor	Three	Other
Extremely Satisfied					
Quite Satisfied					
Moderately Satisfied					
Slightly Satisfied					
Not Satisfied At All					

8. Have you contacted your Provider with an issue recently?

	Vodafone	o2	Meteor	Three	Other
Within the last three months					
Within the last six months					
Within the last 12 months					
Longer ago					

Not at all									
------------	--	--	--	--	--	--	--	--	--

9. Thinking now of the most recent issues you had to contact your Provider about, which of the following categories did the issue fall into? Was it to do with

	Vodafone	o2	Meteor	Three	Other
A billing, pricing or payment issue					
A fault with the service you are buying from them, for example total or partial failure of service					
The service not performing as well as expected, for example issues with coverage, speed, picture quality					
Problems with the repair service, for example it didn't happen or didn't solve the problem					
A problem relating to the installation or set up of your service					
Or something else, a general issue					

10. And more specifically, which of the following best describes what the issue with your Provider was concerning?

A. Billing

	Vodafone	o2	Meteor	Three	Other
Bill was inaccurate					
Bill contained items that you should not have been charged for					
Pre-pay credit lost or not credited to card					

Need help to understand the bill					
Bill was a lot higher than expected					
The format of the bill					
Payment Issues (including setting up/making a payment, non-direct debit charges)					
Account details (name, address, tariff, package etc)					
Getting a refund, credit note, or cashback					
Closing/switching your account					
A different issue					

11. B. Faults and Repairs

	Vodafone	o2	Meteor	Three	Other
Poor reception/coverage					
Text or voice mails delivered late					
Problems with calls being disconnected during a call or not connected at all					
Availability of coverage					
Reliability of service					
Time taken to repair a fault					
A different issue					

12. General enquiries

	Vodafone	o2	Meteor	Three	Other
Contract, enquiring or complaining about the terms of your contract					
Mis-selling					
Cooling-off periods					
Keeping your mobile number when changing supplier					
Unsolicited contacts (e.g. sales and marketing calls, emails/spam, scams)					
General issue with customer service					
Buying your service					
Changes to your package or service (upgrading or downgrading your service)					
Technical enquiry about the service					
Enquiring about usage levels (hours/amount downloaded) and quotas/caps on usage					
Switching issues (e.g. problems trying to switch or switched without permission)					
A different issue					

13. In contacting your Provider/Retailer about your most recent issue, in your opinion, was the reason for this contact with your Provider/Retailer a complaint or something else?

	Vodafone	o2	Meteor	Three	Other

Complaint					
Something else					

14. In contacting your Provider/Retailer about your most recent issue, how did you contact them?

	Vodafone	o2	Meteor	Three	Other
Only on the phone					
Mainly on the phone					
Only via email					
Personally by letter					
Personally by visit					

15. If contact was by phone, how long were you waiting on hold before speaking with a customer service representative?

	Vodafone	o2	Meteor	Three	Other
Not at all long (under a minute)					
Slightly Long (2 – 5 min)					
Moderately Long (6 – 10 min)					
Quite Long (10 – 15 min)					
Extremely long (15 – 25 min)					
Longer					

16. How many times have you been in contact with your Provider in relation to this particular issue so far?

	Vodafone	o2	Meteor	Three	Other
Once					
Twice					

Three times					
Four times or more					
Don't Know					

17. How interested did the customer service representatives seem to be in resolving the issue?

	Vodafone	o2	Meteor	Three	Other
Extremely Interested					
Quite Interested					
Moderately Interested					
Not Very Interested					
Not Interested At All					

18. How clear was the information that the Customer Service Representative provided to you?

	Vodafone	o2	Meteor	Three	Other
Extremely Clear					
Quite Clear					
Moderately Clear					
Not Very Clear					
Not Clear At All					

19. How well did the customer service representative answer your question or resolve your problem?

	Vodafone	o2	Meteor	Three	Other
Completely Resolved					
Partly Resolved					
Not Resolved At All					

11.1.2 Survey 2

Paper Ad questions

- If you find yourself around the location of this restaurant, would be likely to go?

1 Very Likely	2	3	4	5	6	7	8	9	10 Not Likely
---------------	---	---	---	---	---	---	---	---	---------------

- When looking at the ad I have given you, please rate the attention you have given to the ad.

1 Too much	2	3	4	5	6	7	8	9	10 Not at all
------------	---	---	---	---	---	---	---	---	---------------

Leaflet questions:

- What was the brand name?
 1. DI Capri
 2. Paper Moon
 3. DI Roma
 4. Antica Pesa
 5. La Spiga
 6. Cicchetti
 7. Don't know
- Where is this store located at?
 1. Sydney town hall
 2. Princess street hall
 3. George place
 4. Caledonian city hall
 5. Mcintosh Hall
 6. St Katharine's and wapping
 7. Don't know
- What was the major color shade?
 1. Blue
 2. Green
 3. Orange
 4. Yellow
 5. Gray
 6. Maroon
 7. Don't know
- Did you notice any special offer?
 1. YES
 2. NO
 If yes what was it?
- What was TripAdvisor's rating of the restaurant?

- Out of 10, what do you think of the ad appearance?

1	Very appealing	2	3	4	5	6	7	8	9	10	Not appealing at all
---	----------------	---	---	---	---	---	---	---	---	----	----------------------

- Based on the advertisement, How much would you rate the restaurant out of ten?

1	appealing	2	3	4	5	6	7	8	9	10	Not appealing at all
---	-----------	---	---	---	---	---	---	---	---	----	----------------------

- What was your impression when I limited you time to view this ad?

Option 2 for the lure

- Did you pay attention to the voice-tape?

1	Too much attention	2	3	4	5	6	7	8	9	10	Not at all
---	--------------------	---	---	---	---	---	---	---	---	----	------------

- What was the gender of the main character?
 1. Male
 2. Female
 3. Don't know
- Was there one or more people in the tape?
 1. Only one
 2. More than one
 2. Don't know
- Name 2 items you remember from the voice-tape.
 1. Strawberry
 2. Black peen
 3. Chili
 4. Orange
 5. Lemon
 6. Avocado
 7. Don't know
- Do you remember what was the voice-tape about?
 1. YES
 2. NO

If yes what was it?

11.1.3 Advertisement

 **20% OFF**

Italian Food

Di roma



Sunday 21st AUGEST
Caledonian City Hall
10Am - Late

- Live food demonstrations
- 250 of Italy's finest wines
- Shop for authentic food
- Cocktail and espresso bar open all day and night

 **GOURMET**  

11.2 Appendix- 2: Study 2

11.2.1 Questions

Dear Participant,

Thank you for taking time to visit this survey, which is part of a study headed by Hitmi Al-Hitmi at a UK university. **The aim of this study is to gather social media ad data.**

This survey is expected to take 7-9 minutes.

This survey is for people of 18 years and above

There will be 2 Attention CHECK questions based on the content of the survey - if you fail these questions, you will be exited from the survey and will not receive the reward.

By completing this survey you indicate that you understand the following:

— Any information you provide during the study will be treated with strict confidence, and it will not be possible to identify individuals.

— If you have any questions, please contact the lead researcher.

— You may refuse to participate or withdraw from participation without evaluation at any time by closing the browser window.

— Please contact Hitmi Al-Hitmi (s1795298@ed.ac.uk) if you have any general questions or if you withdraw from the survey part-way through but still wish to have the financial reward validated.

As researchers we cannot complete our work without your help. Thanks again for your time; it is very much appreciated.

Are you 18+?

- Yes
- No

11.2.2 Survey Flow

Standard: Intro (2 Questions)

Branch: New Branch

If

If Are you 18+? No Is Selected

EndSurvey: Advanced

Block: Default Question Block (15 Questions)

Standard: Ad brief (3 Questions)

Branch: New Branch

If

If The audio in my device is turned on No it is not Is Selected

EndSurvey: Advanced

BlockRandomizer: 1 - Evenly Present Elements

Standard: Ad condition 1 Scarcity * timer (4 Questions)

Standard: Ad condition 2 Scarcity * no timer (3 Questions)

Standard: Ad condition 3 Nonscarcity * timer (4 Questions)

Standard: Ad condition 4 Nonscarcity * no timer (3 Questions)

Branch: New Branch

If

If IMPORTANT Once the ad you will be shown on the next page is over, you will NOT be able to go bac... i understand i will be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If Please pay attention! Once the ad you will be shown on the next page is over, you will NOT be abl... i understand i will be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... i understand i will NOT be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... i understand i will NOT be able to go back to the ad Is Selected

EndSurvey: Advanced

Standard: cont dummy (2 Questions)

Standard: Pre DV (1 Question)

Standard: DV (11 Questions)

Standard: Trait (7 Questions)

Standard: De brief (scarce) (1 Question)

Standard: De brief non-scarce (1 Question)

WebService: GET - https://edinburgh.eu.qualtrics.com/jfe/form/SV_9ExPcLFJuNlg10h

EndSurvey: Advanced

Page Break

Start of Block: Intro

Q45

Dear

Participant,

Thank you for taking time to visit this survey, which is part of a study headed by Hitmi Al-Hitmi at a UK university. **The aim of this study is to gather social media ad data.** This survey is expected to take 7-9 minutes. **This survey is for people of 18 years and above There will be 2 Attention CHECK questions based on the content of the survey - if you fail these questions, you will be exited from the survey and will not receive the reward.**

By completing this survey you indicate that you understand the following: — Any information you provide during the study will be treated with strict confidence, and it will not be possible to identify individuals. — If you have any questions, please contact the lead researcher. — You may refuse to participate or withdraw from participation without evaluation at any time by closing the browser window.

— Please contact Hitmi Al-Hitmi (s1795298@ed.ac.uk) if you have any general questions or if you withdraw from the survey part-way through but still wish to have the financial reward validated. As researchers we cannot complete our work without your help. Thanks again for your time; it is very much appreciated.

Q46 Are you 18+?

Yes (1)

No (2)

End of Block: Intro

Start of Block: Default Question Block

Q1 Birth Gender

- Male (1)
- Female (2)



Q62 What is your age

Q2 Occupation

- Staff (1)
- Student (2)
- Self or unemployed (3)

Q5 How likely are you to recommend a nice ad to a friend

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q6 How reliant are ad reviews

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q7 I believe online ads are better than physical ads

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q8 online ads are reliable and real

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Q10 Name your favorite ad type

Q11 ads gives real facts about the product.

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Page Break

Q16 How long have you been paying attention to online ads

- Never used paid attention (1)
 - less than a year (2)
 - 1-3 years (3)
 - 3 years or more (4)
-

Q17 what is the preferred length of online ads do you like?

Q18 I believe online ads damages the businesses rather than help

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q19 Items i buy when i shop online

Clothes (1)

Electronics (2)

Cosmetics (3)

Jewellery (4)

Others (5)

Q20 Approximately, if you have a small business, how much would you spend per year on online ads (USD)

Q23 Do you believe that online shopping might completely overtake physical shopping one day?

Definitely yes (1)

Probably yes (2)

Might or might not (3)

Probably not (4)

Definitely not (5)

End of Block: Default Question Block

Start of Block: Ad brief

Q47 You will watch an ad about a travel agency on the next page.

The company in the ad has been operating mainly in Europe and the US for over 8 years. The agency is considered one of the known brands in the market. The agency provides different types of travel deals. They have been given 80%+ positive reviews on different review platforms such as Yelp and TripAdvisor.

IMPORTANT note: Please do not put the ad on fullscreen Please make sure the audio in your device is switched on

Q52 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break _____

Q60 The audio in my device is turned on

- Yes it is (1)
- No it is not (2)

End of Block: Ad brief

Start of Block: Ad condition 1 Scarcity * timer

Q37

IMPORTANT

Once the ad you will be shown on the next page is over, you will **NOT** be able to go back to view the ad again!

- I understand i will NOT be able to go back to the ad (1)
- i understand i will be able to go back to the ad (2)

Page Break

Q38

Q48 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break

Q56 With regards to the ad you just watched, was there a timer visible - or was there no timer visible.

- No Timer visible (1)
- Timer visible (2)

End of Block: Ad condition 1 Scarcity * timer

Start of Block: Ad condition 2 Scarcity * no timer

Q47 Please pay attention! Once the ad you will be shown on the next page is over, you will **NOT** be able to go back to view the ad again!

- I Understand i will NOT be able to go back to ad (1)
- i understand i will be able to go back to the ad (2)

Page Break

Q48

Q51 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

End of Block: Ad condition 2 Scarcity * no timer

Start of Block: Ad condition 3 Nonscarcity * timer

Q49

IMPORTANT

Once the ad shown on the next page is over, you will have the option to go back and view the ad **as many times as you like during this survey**

- I Understand i will be able to go back to the ad (1)
- i understand i will NOT be able to go back to the ad (2)

Skip To: End of Survey If IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... = i understand i will NOT be able to go back to the ad

Page Break

Q50

Q49 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break

Q57 With regards to the ad you just watched, was there a timer visible - or was there no timer.

- Timer visible (1)
- No Timer visible (2)

End of Block: Ad condition 3 Nonscarcity * timer

Start of Block: Ad condition 4 Nonscarcity * no timer

Q51

IMPORTANT

Once the ad shown on the next page is over, you will have the option to go back and view the ad **as many times as you like during this survey**

- I Understand i will be able to go back to the ad (1)
- i understand i will NOT be able to go back to the ad (2)

Page Break

Q52

Q50 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

End of Block: Ad condition 4 Nonscarcity * no timer

Start of Block: cont dummy

Q9 What factors affect a product

convenience (1)

reliability (2)

ease (3)

speed of delivery (4)

price (5)

Q21 I usually encounter technical problems when i shop online

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

End of Block: cont dummy

Start of Block: Pre DV

Q25 The following survey will be - questions about the ad you have watched previously.

End of Block: Pre DV

Start of Block: DV

Q26 Based on the ad you were shown in this survey. Rate how much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I feel positive about this ad (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the ad (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel the ad is good (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q35 How much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I Would recommend the offer within the ad to my friend who like traveling. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this to your friend who likes travel deals (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this agency to a friend who likes travel packages (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q63 How much do you agree or disagree with the statements below

	Stongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disgaree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
There was too much information to be processed (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The load of the information was high (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot was going-on in the ads (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q36 How much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I paid full attention to the voice (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid full attention to the images (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid full attention to the ad overall (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q52 Please imagine that you are considering going on a holiday at this moment, how likely is it you would consider following up potential deals with this agency

- Extremely likely (1)
- Moderately likely (2)
- Slightly likely (3)
- Neither likely nor unlikely (4)
- Slightly unlikely (5)
- Moderately unlikely (6)
- Extremely unlikely (7)

Q61 How much do you agree or disagree with the statements below

I feel comfortable buying deals from this agency

Strongly agree (18)

Agree (19)

Somewhat agree (20)

Neither agree nor disagree (21)

Somewhat disagree (22)

Disagree (23)

Strongly disagree (24)

Q29 What is the name of the agency

Bobby tours (1)

XYZ tours (2)

YZX tours (3)

X tours (4)

Scottish tours (5)

Q30 What was the offer?

- booking a tour with free hotel (1)
 - a rental car with the package (2)
 - traveling 3 places for the price of 1 (3)
 - 50% off the total price (4)
 - there was no offer (5)
-

Q31 Please select all the items that are provided in the package

- Cars (1)
 - Hotels (2)
 - Tours (3)
 - Escorted tours (5)
 - Adventures (6)
 - Cruises (7)
 - Camping (8)
-

Q32 What was the color of the vehicle in the ad

- Blue (1)
 - Red (2)
 - White (3)
 - Black (4)
 - There was no car (5)
 - Green (6)
-

Q33 Where was the cruise in the ad?

- In a river (1)
- In the ocean (2)
- Parking near shore (3)
- There was no cruise (4)
- Under maintenance (5)
- Cruise was sailing away (6)

End of Block: DV

Start of Block: Trait

Q58 The following questions will be regarding yourself in your general life.

Q54

Please imagine you will not be able to use your social media for 7 days.

Based on the scenario where you are unable to check social media for 7 days, rate how much do you agree or disagree with the statements below

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
... I will be frightened (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
.... I will be nervous (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
....I will feel isolated (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q55

In your general life, please rate how much you agree / disagree with the following statement:

I feel like i'm a patient type of person

- Strongly agree (15)
 - Agree (16)
 - Somewhat agree (17)
 - Neither agree nor disagree (18)
 - Somewhat disagree (19)
 - Disagree (20)
 - Strongly disagree (21)
-

Q59 How much do you agree or disagree with the statements below

	Strongly disagree (11)	Disagree (12)	Somewhat disagree (13)	Neither agree nor disagree (14)	Somewhat agree (15)	Agree (16)	Strongly agree (17)
Social media is part of my everyday activity (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud to tell people in on social media (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media has become part of my daily routine (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel out of touch when i haven't logged onto social media for a while (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel i am
part of the
social
media
community
(5)

I would be
sorry if my
favorite
social
media
company
shut down
(6)

Q34 How often do you travel for leisure?

- 3+ a year (2)
- 1-3 times a year (1)
- once every two years (4)
- maybe once every 5 years (5)
- i don't travel (3)

Q35 How much do you like traveling for holiday

- Far too much (25)
 - Moderately too much (26)
 - Slightly too much (27)
 - Neither too much nor too little (28)
 - Slightly too little (29)
 - Moderately too little (30)
 - Far too little (31)
-

Q36 How many hours do you spend on social media every day (approximately)

_____ Write the number of hours in the box (1)

End of Block: Trait

Start of Block: De brief (scarce)

Display This Question:

If Please pay attention! Once the ad you will be shown on the next page is over, you will NOT be abl... = I Understand i will NOT be able to go back to ad

And IMPORTANT Once the ad you will be shown on the next page is over, you will NOT be able to go bac... = I understand i will NOT be able to go back to the ad

Q51 Thank you for your participation

End of Block: De brief (scarce)

Start of Block: De brief non-scarce

Display This Question:

If IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... = I Understand i will be able to go back to the ad

And IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... = I Understand i will be able to go back to the ad

Q52 This was an experiment, therefore you were unable to go back to the ad (there is no technical error). The reason you were told you could go back then were not allowed is so that ad would resemble a natural ad that was posted on social media by a brand. Thank you for participating in this project.

End of Block: De brief non-scarce

11.3 Appendix- 3: Study 3

11.3.1 Questions

Start of Block: Intro

Q45

Dear

Participant,

Thank you for taking time to visit this survey, which is part of a study headed by Hitmi Al-Hitmi at a UK university. **The aim of this study is to gather insights social media ad data.** This survey is expected to take 7-9 minutes. **This survey is for people of 18 years and above There will be 3 Attention CHECK questions based on the content of the survey - if you fail these questions, you will be exited from the survey and will not receive the reward.**

By completing this survey you indicate that you understand the following: — Any information you provide during the study will be treated with strict confidence, and it will not be possible to identify individuals. — If you have any questions, please contact the lead researcher. — You may refuse to participate or withdraw from participation without evaluation at any time by closing the browser window.

— Please contact Hitmi Al-Hitmi (s1795298@ed.ac.uk) if you have any general questions or if you withdraw from the survey part-way through but still wish to have the financial reward validated. As researchers we cannot complete our work without your help. Thanks again for your time; it is very much appreciated.

Q46 Are you 18+?

Yes (1)

No (2)



Q62 What is your age?

End of Block: Intro

Start of Block: Default Question Block

Q1 Birth Gender

Male (1)

Female (2)

Q2 Occupation

Employed (1)

Student (2)

Unemployed (3)

Q5 How likely are you to recommend a nice ad to a friend

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q6 How reliant are ad reviews

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q7 I believe online ads are better than physical ads

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q8 online ads are reliable and real

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Q10 Name your favorite ad type (e.g TV, social media)

Q11 ads gives real facts about the product.

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Page Break

Q16 How long have you been paying attention to online ads

- Never used paid attention (1)
 - less than a year (2)
 - 1-3 years (3)
 - 3 years or more (4)
-

Q17 what is the preferred length of online ads do you like?

Q18 I believe online ads damages the businesses rather than help

- 0 (0)
 - 1 (1)
 - 2 (2)
 - 3 (3)
 - 4 (4)
 - 5 (5)
 - 6 (6)
 - 7 (7)
 - 8 (8)
 - 9 (9)
 - 10 (10)
-

Q19 Items i buy when i shop online

Clothes (1)

Electronics (2)

Cosmetics (3)

Jewellery (4)

Others (5)

Q20 Approximately, if you have a small business, how much would you spend per year on online ads (USD)

Q23 Do you believe that online shopping might completely overtake physical shopping one day?

Definitely yes (1)

Probably yes (2)

Might or might not (3)

Probably not (4)

Definitely not (5)

End of Block: Default Question Block

Start of Block: Ad brief

Q65 You will soon be presented with different ads to view

You will receive details about the ad before it starts, the specific details only relate to ad presented after those details. Please select whether....

- Details presented are valid for all ads shown in this survey (4)
- Details presented are specific to the ad shown after the details are presented (7)

Skip To: End of Survey If You will soon be presented with different ads to view You will receive details about the ad bef... = Details presented are valid for all ads shown in this survey

Page Break

Q47

IMPORTANT note: Please do not put the ads on fullscreen Please make sure the audio in your device is switched on before you click to the next page.

Q52 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

Page Break

Q60 The audio in my device is turned on

- Yes it is (1)
- No it is not (2)

End of Block: Ad brief

Start of Block: Ad condition Scarcity

Q47

IMPORTANT

DETAILS

Once the short ad you will be shown on the next page is over, you will **NOT** be able to go back to view the ad again!

- I understand i will NOT be able to go back to ad (1)
- i understand i will be able to go back to the ad (2)

Page Break

Q48

Q51 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

End of Block: Ad condition Scarcity

Start of Block: Ad condition Nonscarcity

Q51

IMPORTANT

Once the short ad shown on the next page is over, you will have the option to go back and view the ad as **many times as you like during this survey**

- I Understand i will be able to go back to the ad (1)
- i understand i will NOT be able to go back to the ad (2)

Page Break

Q52

Q50 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

End of Block: Ad condition Nonscarcity

Start of Block: spillover (Nonscarcity)

Q81

IMPORTANT

DETAILS

The ad on the next page is short.

Please proceed to the next ad.

Page Break

Q85

Q74 Timing

First Click (1)

Last Click (2)

Page Submit (3)

Click Count (4)

End of Block: spillover (Nonscarcity)

Start of Block: cont dummy

Q9 What factors do you think affect your decision making about purchasing a product ?

convenience (1)

reliability (2)

ease (3)

speed of delivery (4)

price (5)

Q21 I usually encounter technical problems when I shop online

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

End of Block: cont dummy

Start of Block: Pre DV

Q25 The following survey will be - questions about the **car** ad you have watched previously.

End of Block: Pre DV

Start of Block: DV

Q29 What is the name of the car

- TS (1)
 - Auris (2)
 - XM hybrid (3)
 - XS hybrid (4)
 - XZ hybrid (5)
-

Q30 Choose the correct statement below

- This car is the fastest budget hybrid car out there (1)
 - there is a 80% discount on this car for a limited time (2)
 - 80% of these cars are already sold (3)
 - This car comes with a 3 year warranty (4)
 - There is 80% customer satisfaction with this car (5)
-

Q31 What were the colors of the vehicles in the ad (choose all that is correct)

- White (2)
 - Red (3)
 - Blue (5)
 - Black (6)
 - There was no car (7)
 - Silver (8)
-

Q33 Choose the correct statement that was made in the ad, from below

- Most efficient hybrid car in the US (2)
 - Most highly rated hybrid car in the US (3)
 - Lowest fuel consumption (4)
 - Most stylish hybrid on the market (5)
 - All the statements are wrong (6)
-

Q26 Based on the car ad you were shown in this survey. Rate how much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I feel positive about this ad (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the ad (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel the ad is good (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q35 How much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I Would recommend this ad to my friend who like eco cars. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this ad to my friend who likes efficient cars (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would send this ad to a friend who like hybrid cars (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q36 How much do you agree or disagree with the statements below with regards to the car ad,
please answer honestly this is NOT an attention check question.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I paid full attention to the voice (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid full attention to the images (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid full attention to the ad overall (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not divert my attention from the ad (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I gave the ad my undivided attention (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q77 How much do you agree or disagree with the statements below with regards to the ad

	Strongly disagree (7)	Disagree (8)	Somewhat disagree (9)	Neither agree nor disagree (10)	Somewhat agree (11)	Agree (12)	Strongly agree (13)
There was too much information to be processed (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The load of the information was high (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A lot was going-on in the ads (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q85 How much do you agree or disagree with the statements below with regards to the car ad

	Strongly disagree (7)	Disagree (8)	Somewhat disagree (9)	Neither agree nor disagree (10)	Somewhat agree (11)	Agree (12)	Strongly agree (13)
--	--------------------------	-----------------	--------------------------	------------------------------------	------------------------	---------------	------------------------

i would consider buying an eco-friendly car at this moment, how likely is it you would consider following up potential deals related to car in the ad. (1)

i would consider researching more information about this car (2)

i would
check
payment
plan
options
related to
the car in
the ad (3)

End of Block: DV

Start of Block: Trait

Q58 The following questions will be regarding yourself in your general life.

Q82 In your general view, rate how much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I feel positive purchasing cars from Toyota (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel secure obtaining Toyota products (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Toyota products are known for their good quality (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q83 In your general view, rate how much do you agree or disagree with the statements below

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I feel positive purchasing hybrid cars (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel secure obtaining eco friendly products (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
hybrid cars are known for their good quality (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q54

Please imagine you will not be able to use your social media for 7 days.

Based on the scenario where you are unable to check social media for 7 days, rate how much do you agree or disagree with the statements below

	Strongly disagree (13)	Disagree (14)	Somewhat disagree (15)	Neither agree nor disagree (16)	Somewhat agree (17)	Agree (18)	Strongly agree (19)
... I will be frightened (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
.... I will be nervous (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
....I will feel isolated (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q55

In your general life, please rate how much you agree / disagree with the following statement:

I feel like I'm a patient type of person

- Strongly disagree (29)
 - Disagree (30)
 - Somewhat disagree (31)
 - Neither agree nor disagree (32)
 - Somewhat agree (33)
 - Agree (34)
 - Strongly agree (35)
-

Q59 How much do you agree or disagree with the statements below

	Strongly disagree (11)	Disagree (12)	Somewhat disagree (13)	Neither agree nor disagree (14)	Somewhat agree (15)	Agree (16)	Strongly agree (17)
Social media is part of my everyday activity (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud to tell people in on social media (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media has become part of my daily routine (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel out of touch when i haven't logged onto social media for a while (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I feel i am
part of the
social
media
community
(5)

I would be
sorry if my
favorite
social
media
company
shut down
(6)

Q64 How much do you agree or disagree with the statements below

	Strongly disagree (7)	Disagree (8)	Somewhat disagree (9)	Neither agree nor disagree (10)	Somewhat agree (11)	Agree (12)	Strongly agree (13)
I pay attention to ads in general (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I listen and watch ads when i'm free (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to watch and understand the content of the ad (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q79 How much do you agree or disagree with the statements below

	Strongly disagree (7)	Disagree (8)	Somewhat disagree (9)	Neither agree nor disagree (10)	Somewhat agree (11)	Agree (12)	Strongly agree (13)
When a product becomes popular among the general population, I tend to dislike it. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited edition items grab my attention more than high in demand items. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel unique among the general population (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q36 How many hours do you spend on social media every day (approximately)

_____ Write the number of hours in the box (1)

End of Block: Trait

Start of Block: De brief (scarce)

Display This Question:

If IMPORTANT DETAILS Once the short ad you will be shown on the next page is over, you will NOT be a... = I understand i will NOT be able to go back to ad

And IMPORTANT Once the ad you will be shown on the next page is over, you will NOT be able to go bac... = I understand i will NOT be able to go back to the ad

Q51 Thank you for your participation

End of Block: De brief (scarce)

Start of Block: De brief non-scarce

Display This Question:

If IMPORTANT Once the short ad shown on the next page is over, you will have the option to go back a... = I Understand i will be able to go back to the ad

And IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... = I Understand i will be able to go back to the ad

Q52 This was an experiment, therefore you were unable to go back to the ad (there is no technical error). The reason you were told you could go back then were not allowed is so that ad would resemble a natural ad that was posted on social media by a brand. Thank you for participating in this project.

End of Block: De brief non-scarce

11.3.2 Survey Flow

Standard: Intro (3 Questions)

Branch: New Branch

If

If Are you 18+? No Is Selected

EndSurvey: Advanced

Block: Default Question Block (14 Questions)

Standard: Ad brief (4 Questions)

Branch: New Branch

If

If The audio in my device is turned on No it is not Is Selected

EndSurvey: Advanced

BlockRandomizer: 1 - Evenly Present Elements

Standard: Ad condition Scarcity (3 Questions)

Standard: Ad condition Nonscarcity (3 Questions)

Branch: New Branch

If

If IMPORTANT Once the ad you will be shown on the next page is over, you will NOT be able to go bac... i understand i will be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If IMPORTANT DETAILS Once the short ad you will be shown on the next page is over, you will NOT be a... i understand i will be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If IMPORTANT Once the ad shown on the next page is over, you will have the option to go back and vie... i understand i will NOT be able to go back to the ad Is Selected

EndSurvey: Advanced

Branch: New Branch

If

If IMPORTANT Once the short ad shown on the next page is over, you will have the option to go back a... i understand i will NOT be able to go back to the ad Is Selected

EndSurvey: Advanced

Standard: spillover (Nonscarcity) (3 Questions)

Standard: cont dummy (2 Questions)

Standard: Pre DV (1 Question)

Standard: DV (9 Questions)

Standard: Trait (9 Questions)

Standard: De brief (scarce) (1 Question)

Standard: De brief non-scarce (1 Question)

WebService: GET - https://edinburgh.eu.qualtrics.com/jfe/form/SV_1Odp2ABxOsu06GN

EndSurvey: Advanced

Page Break

11.4 Appendix- 4: Qualitative Study

11.4.1 Consent form

PROJECT TITLE

Scarcity of Advertisements

By signing below, you are agreeing that: (1) you have read and understood the Participant Information Sheet, (2) questions about your participation in this study have been answered satisfactorily, (3) you are aware of the potential risks (if any), (4) you are taking part in this research study voluntarily (without coercion), and (5) anonymised data only may be shared in public research repositories.

I (the participant) understand that there will be a monetary benefit from participating in the interview and my participation is voluntary.

Participant's Name (Printed)*

Participant's signature*

Date

Name of person obtaining consent (Printed)

Signature of person obtaining consent

11.4.2 Interview form and steps

PROJECT TITLE

Scarcity of the advertisement: The effects of short and scarce advertisements on the human mind.

INVITATION

You are being asked to take part in a research study regarding how scarce and short advertisements that are being viewed by many people on social media, has an effect on a different variety of things such as attention, memory, and purchase intent.

The general aim of this research is to study further the effects of short-scarce advertisements on the human mind. My name is Hitmi Alhitmi, I am a Ph.D. student at the school of business in the University of Edinburgh. There are two purposes of this study. First purpose is to help me gather information to use in my Ph.D. thesis, which revolves around the affects and reaction of human mind to short-scarce advertisements in social media context.. Secondly, this study is an assignment for a class named Research Skills in the Social Sciences: Data Collection. I'm supervised on this project by Dr Ben Marder and Dr Jake Ansell. This project has been ethically reviewed by the University of Edinburgh School of Political Science.

WHAT WILL HAPPEN

In this study, you will be asked multiple questions regarding the advertisements you view on your social media pages. E.g. You will not be asked any personal details regarding these ads, however from this research, I would like to as much as possible, in-depth, your feelings and emotions towards these ads. Such questions might include, but not limited to, you reaction to these ads, can you remember 3 of them, do short ads with loud noises annoy you or grab your attention, etc...

TIME COMMITMENT

The interview typically takes approximately 45 minutes. The interview will not be recorder however I will be taking notes.

Location of the interview: any nearby coffee-shop

PARTICIPANTS' RIGHTS

You may decide to stop being a part of the research study at any time without explanation. During the interview. You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

You have the right to omit or refuse to answer or respond to any question that is asked of you.

You have the right to have your questions about the interview questions answered. If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins. Contact provided at the bottom of the page.

BENEFITS AND RISKS

Risks: We will be sitting in a coffee-shop discussing short ads on social media, therefore there are no risks related to the study. However, that does not guarantee general third-party risks that might occur from being in the coffee-shop.

Benefits: there will be payment made to you of 15 GBP for taking part in this study

CONFIDENTIALITY/ANONYMITY

The data collect do not contain any personal information about you. No one will link the data you provided to the identifying information you supplied. There will be no recording machines, however I would have to write as much notes as possible. I reassure that no personal information to be written in these notes.

When your role with this project is complete, your data will be anonymised. You have the right to view the notes and take a copy with you. Up until the point at which your data have been anonymised, you can decide not to consent to having your data included in further analyses. Once anonymised, these data may be made available to researchers via accessible data repositories and possibly used for novel purposes.

Researcher: Hitmi Alhitmi: s1795298@sms.ed.ac.uk, University of Edinburgh business school

If you have questions about your rights in this research, or you have any other questions, concerns, suggestions, or complaints that you do not feel can be addressed by the researcher, please contact me.

11.4.3 Interviews Timeline

Comments	Starting Date
participants were contacted by phone and in-person for a verbal preapproval	31st Oct
Emails sent to participants containing the required forms.	31st Oct
Participants responded with the signed forms thru email, shortly it was followed by a phone call from me to discuss interview times.	1st Nov
A gentle phone reminder preceded the interview by an hour. The interviews took place around cafes in Edinburgh and Glasgow.	3RD Nov
The comments that will might be used in my paper were highlighted and sent to the participants to approve of.	21th Nov
The comments were approved and now it is time for records to be destroyed permanently.	24th Nov

11.4.4 Questionnaires of Qualitative Study to measure FOMO and SMI level

11.4.4.1 Respondent 1:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 4.83 = (5+5+4+5+5+5)/6 (HIGH)

Mean Social Intensity Score = 1.2 = (1+2+1+1+1)/5 (LOW)

11.4.4.2 Respondent 2:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					

4. I feel out of touch when I haven't logged onto Social Media for a while					5
5. I feel I am part of the Social Media community				4	
6. I would be sorry if Social Media shut down					5

Fear of Missing Out (FOMO)					
	1	2	3	4	5
1. I fear others have more rewarding experiences than me.			3		
2. I get worried when I find out my friends are having fun without me.			3		
3. I get anxious when I don't know what my friends are up to.				4	
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.	1				
5. It bothers me when I miss an opportunity to meet up with friends.				4	

Mean FOMO score = 4.5 (HIGH)

Mean Social Intensity Score = 3 (MODERATE)

11.4.4.3 Respondent 3:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 1.83 (LOW)

Mean Social Intensity Score = 4.83 (HIGH)

11.4.4.4 Respondent 4:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 2.83 (MODERATE)

Mean Social Intensity Score = 2.80 (MODERATE)

11.4.4.5 Respondent 5:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 4.5 (HIGH)

Mean Social Intensity Score = 4.4 (HIGH)

11.4.4.6 Respondent 6:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 3.167 (MODERATE)

Mean Social Intensity Score = 4.6 (HIGH)

11.4.4.7 Respondent 7:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 1.5 (LOW)

Mean Social Intensity Score = 1.4 (LOW)

11.4.4.8 Respondent 8:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 4.5 (HIGH)

Mean Social Intensity Score = 3.0 (MODERATE)

11.4.4.9 Respondent 9:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 4.83 (HIGH)

Mean Social Intensity Score = 4.5 (HIGH)

11.4.4.10 Respondent 10:

	1 = strongly disagree, 2 = disagree, 3= neither disagree nor agree, 4= agree & 5 = strongly agree				
Social Media Intensity	1	2	3	4	5
1. Social Media is part of my everyday activity					
2. I am proud to tell people I'm on Social Media.					
3. Social Media has become part of my daily routine					
4. I feel out of touch when I haven't logged onto Social Media for a while					
5. I feel I am part of the Social Media community					
6. I would be sorry if Social Media shut down					

Fear of Missing Out (FOMO)	1	2	3	4	5
1. I fear others have more rewarding experiences than me.					
2. I get worried when I find out my friends are having fun without me.					
3. I get anxious when I don't know what my friends are up to.					
4. Sometimes, I wonder if I spend too much time keeping up with what is going on.					
5. It bothers me when I miss an opportunity to meet up with friends.					

Mean FOMO score = 5.0 (HIGH)

Mean Social Intensity Score = 4.6 (HIGH)

11.5 Appendix- 5: Academic Publication

[Academy of Marketing Science World Marketing Congress](#)

AMSWMC 2019: [Enlightened Marketing in Challenging Times](#) pp 381-382 | [Cite as](#)

Mediating Effect of Ad Scarcity and Attention on Recall for Ephemerality in Marketing: An Abstract

Authors

[Authors and affiliations](#)

Hitmi Khalifa Alhitmi , Jake Ansell, Ben Marder

Conference paper

First Online: 18 September 2020



Downloads

Part of the [Developments in Marketing Science: Proceedings of the Academy of Marketing Science](#) book series (DMSPAMS)

Abstract

‘Only 7 left in stock’, ‘Only 7 days to claim’: the scarcity of a product/product deal has been well-established in the academic literature about marketing as leading to positive consumer cognition and behaviour. However, the scarcity of advertisements themselves due to short duration (i.e. ‘This ad will only last 7 seconds’) has received very little academic attention. The

duration (i.e. 'This ad will only last 7 seconds') has received very little academic attention. The key question for theorists and practitioners is, does an advert which is ephemeral (i.e. scarce, and accessible only once for a few seconds) outperform those advertisements which are accessible over time (non-scarce)? Marketing practitioners often take advantage of scarcity in developing promotional campaigns for product/services. Through scarcity, consumer perceptions regarding product quality and desirability could be altered to enhance the consumers' perceptions of the product/service's value.

Predominantly, two type of scarcity appeals are used by marketing experts: limited-time scarcity and limited-quantity scarcity. Scarcity advertising raises a product's value as perceived by consumers, hence influencing consumers' attention to the advertisement (Eisend 2008). Significant research has been done on various aspects of consumer attention, including an investigation into internal factors such as motivation, personal choices and mental cognition, and external factors such as environment, product characteristics and advertising features. The 'Fear of Missing Out' is the experience of the ubiquitous anxiety that one's peers are enjoying higher social status or social relationships than the person themselves. However, research related to consumers' attention to advertising (or ad) that is only available for a limited time and consumers' recall of advertising has rarely been investigated by academic researchers.

In this paper, I will contribute to the literature about consumers' response to limited time availability of advertising through the theoretical lens of scarcity of ads. This paper investigates the relationship between attention and recall under scarcity conditions linked to an advertisement. The key proposition in this paper is investigated in three ways. The first is a discussion of scarcity, in particular limited time/quantity appeals and consumers' perceptions of value regarding the product/service. Second, we investigate consumers' ad attention, linking it with resource scarcity for ad effectiveness. Finally, we highlight the importance of consumers' ad recall and its relationship to scarcity. The key focus of this paper is to contribute, through the theoretical lens of scarcity, the effect of consumers' attention and recall of ads. An experiment has been carried out to evaluate the efficacy of scarce vs. non-scarce marketing on the attention given to adverts by consumers (n = 110). The findings illustrate that greater attention is paid to an advertisement if it is known to be scarce, leading to greater recall among consumers. This paper also contributes the first empirical support for the use of ephemeral marketing to the academic literature about marketing.

Keywords

Marketing scarcity Ephemeral marketing FOMO Short advertisement
Advertisement recall

