

The Effectiveness of “Fear of Missing Out” Inducing Content in Facebook Advertisements

Dalina Weideinger¹, Alastair McClelland¹, Adrian Furnham^{2*}

¹Department of Experimental Psychology, University College London, London, UK

²Department of Leadership and Organisational Behaviour, Norwegian Business School (BI), Oslo, Norway

Email: *a.furnham@ucl.ac.uk

How to cite this paper: Weideinger, D., McClelland, A., & Furnham, A. (2021). The Effectiveness of “Fear of Missing Out” Inducing Content in Facebook Advertisements. *Psychology, 12*, 829-842.
<https://doi.org/10.4236/psych.2021.125051>

Received: April 17, 2021

Accepted: May 28, 2021

Published: May 31, 2021

Copyright © 2021 by author(s) and
Scientific Research Publishing Inc.

This work is licensed under the Creative
Commons Attribution International
License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

This study aimed to extend previous findings by investigating whether the inclusion of a “Fear of missing out” (FOMO) message in Facebook advertisements improves memory for the advertisements. In all, 200 participants (121 females and 79 males) were randomly assigned to one of two conditions. In one condition, they were exposed to a simulated Facebook news-feed including a selection of five advertisements which included FOMO inducing content. In the other condition, participants were exposed to the same five advertisements but without FOMO inducing content. It was found that memory overall, as well as recall and recognition memory for the advertisements, was better when the FOMO content was present. Overall memory and recognition memory for advertisement information was better for females than males in both the FOMO and no FOMO conditions. Males had better overall memory and recognition for advertisement information with FOMO inducing content compared to advertisement information without FOMO inducing content. Implications and limitations are acknowledged.

Keywords

Facebook, FOMO, Memory, Gender, Online Advertisement

1. Introduction

There is no agreed definition for “Fear of missing out” (FOMO) in the extant literature. However, a decade ago, J. Walter Thompson (JWT) Worldwide (2012) define the phenomenon as: “*The uneasy and sometimes all-consuming feeling that you’re missing out—that your peers are doing, in the know about, or in possession of, more or something better than you*” (p. 4). Later, Przybylski et al., (2013) provided the following definition of a commercial FOMO appeal: “*Any*

initiating appeal, whether in person or impersonal, originating from an organisation, in which FOMO or 'missing out' is mentioned or specifically implied, and the context of which is the stimulation of demand, usage or purchase of a product" (p. 1841). Both definitions highlight that FOMO appeals are distinctive in that they directly address an individual's internal hesitancy and stimulate a desire to take part. The process has attracted recent research interest (Al-Furaih & Al-Awidi, 2020; Barry & Wong, 2020; Good & Hyman, 2020; Haylan et al., 2020).

FOMO appears to be an extremely popular technique used within advertising to increase awareness for a brand. Examples include "Using FOMO to Beat Your Competition" (McMurty, 2017), "Winning with FOMO" (Walsh, 2015) or "7 FOMO marketing strategies to cash in on black Friday" (Serrano, 2018). Furthermore, using FOMO in advertisements has been demonstrated to assist sales, especially for younger adult products, including "beer, boutique clothing, feminine hygiene products and real estate for young first-time home buyers" (Hodkinson, 2016: p. 66).

While FOMO is actively used within marketing campaigns, previous research has focused on investigating individuals' self-initiated FOMO-driven behaviours, thus treating FOMO more as a personality trait rather than an advertising technique. That is, some people may be much more susceptible to FOMO techniques than others, which is stable over time and consistent across situations.

It has been argued that FOMO can lead to greater mobile phone checking behaviour (Collins & Van Abeele, 2013), internet addiction (Kandell, 1998) and even negative alcohol-related consequences (Riordan et al., 2018). While these studies viewed the phenomenon in an essentially negative light, it is clear that FOMO has become part of modern culture and is used frequently within the press and for commercial purposes (Hodkinson, 2016). Despite the frequent use of FOMO inducing content, it remains unknown whether its use in advertising will make the advertisements more memorable compared to advertisements that do not implement this technique.

Hodkinson (2016) was probably the first academic researcher to investigate consumer response mechanisms in relation to externally initiated FOMO appeals. He used a qualitative analysis, and included both interviews and focus groups, to gain a better understanding of the FOMO experience and the use of a FOMO appeal within marketing. From a thematic analysis he concluded that opportunity, limited supply or scarcity, and the need to make choices, were recurring themes outlined by his participants. The findings suggested that externally initiated FOMO appeals produced cognitive, emotional, and commercial responses within individuals, which interfered with rational constructive thinking, and the ability to consider possible options.

There is, however, a body of research examining the effectiveness of emotional appeals in advertisements (Akram, McClelland, & Furnham, 2018; Baird, Wahlers, & Cooper, 2007; Bakalash & Riemer, 2013). Whilst it has been shown that emo-

tional appeals have a substantial impact on consumer attitudes, as well as upon purchase intentions within print, television and radio advertising (Edell & Burke, 1987), the influence of emotional advertising appeals on consumer's memory remains controversial. Some researchers argue that the use of emotional appeals result in poor consumer memory or make no difference (Baird, Wahlers, & Cooper, 2007), while others assert that emotional appeals make advertisements more memorable and effective (Bakalash & Riemer, 2013). Overall, the general conclusion within this field appears to be that emotional appeals within advertisements increase memory and awareness for advertisements, however this depends heavily on the valence and strength of the emotion that is used (Ambler & Burne, 1999, Bakalash & Riemer, 2013; Lee & Burns, 2014).

One specific form of emotional advertising that has been researched in the past is fear. Akram, McClelland and Furnham (2018) aimed to test whether the fear inducing content in television advertisements led to better memory for the advertisement. They found that fear inducing content in advertisement led to better memory compared to non-fear inducing content.

Biener et al., (2004) found that advertisements with fear inducing content (e.g., messages about health consequences of smoking), were recalled better than advertisements featuring messages about normative behaviour. The findings from these and other studies (Rayner, Baxter, & Ilicic, 2015; Snipes, LaTour, & Bliss, 1999), strongly imply that the use of negative emotions, such as fear, within advertisements is an effective strategy when aiming to increase memory and awareness.

Ray and Wilkie (1970) suggested that the effectiveness of emotional advertisement might be dependent on the intensity of the emotion. They proposed a curvilinear model of fear, which suggests that moderate, levels of fear are most effective, whereas low and high levels of fear appear to negatively influence memory for advertisement information. The curvilinear model has been supported by subsequent research investigating the influence of low, moderate and high levels of fear inducing content in advertisements on recall (Chebat, Laroche, Badura, and Filiatrault, 1995). As predicted by Ray and Wilkie (1970), moderate levels of fear inducing content appeared to be the most effective in increasing memorability for advertisement information. Thus, if a curvilinear model also applied to the FOMO phenomenon, FOMO inducing content should be most effective when it evokes moderate levels of emotion.

In the early part of this century, there was an increase in popularity for online advertisements, with advertisers moving away from traditional forms of advertising such as radio, newspaper and television. In particular, they were quick to realize the potential of online social networking sites (e.g., Facebook, LinkedIn and MySpace) as platforms for advertising, and these have gradually turned into a push medium from a pull medium, meaning that advertisements within social networking sites are pushed towards users, rather than asking individuals to pull the information from websites themselves (Soares and Pinho, 2014). Advertisers

would seem to be rapidly moving their content to online social networking sites in order to seize a share of the available advertising space, and it is likely that studies comparing print and online advertising today might yield different results from those obtained by [Sundar et al. \(1998\)](#).

2. Emotions, Memory and Gender Differences

There is extensive research suggesting that emotional stimuli influence female and male memory differently (e.g., [Canal et al., 2002](#); [Lithari et al., 2010](#)), and thus their memory for advertisement information may depend heavily on the advertising technique that has been used.

Previous findings focusing on memory and gender differences suggest that females have superior episodic memory for verbal material compared to males ([Galea & Kimura, 1993](#); [Herlitz, Nilsson, & Bäckman, 1997](#); [Hill et al., 1995](#); [Zel-sinki et al., 1993](#)). The research also suggests that online gender differences occur when individuals are asked to respond immediately after being exposed to visual stimuli ([Choti, et al., 1987](#); [Grossman & Wood, 1993](#); [Moore, 2007](#)). These findings imply that stronger emotions are more likely to be evoked in females than males when they are exposed to both positive and negative emotional stimuli.

Other research suggests that women are likely to report positive feelings of joy, love, affection and warmth ([Brody, 1993](#); [Eisenberg & Lennon, 1983](#); [Fischer et al., 2004](#)), and negative feelings like sadness, disgust, fear and hurt ([Brody, 1999](#)) more frequently and with greater intensity than men. It has also been demonstrated that the attitude towards a product or brand advertised can influence advertising effectiveness ([Aaker & Williams, 1998](#); [Edell & Burke, 1987](#); [Homer, 1990](#)). As women appear to experience stronger emotions, they will be more influenced by emotional appeals used in advertisements and will therefore be more likely to have better awareness and memory for the advertisement information.

3. This Study

In contrast to previous research on FOMO, this study investigated whether *externally* initiated FOMO appeals can increase consumers' awareness for a brand, service or product. The aim of the current study was to examine the effectiveness of FOMO inducing online advertisements on memory for the advertisements. It also set out to investigate whether there is a difference between males and females in their response to FOMO content. Participants were either exposed to FOMO inducing online advertisements or identical advertisements but without the FOMO inducing content. The dependent variables consisted of two measures of recognition (brand and product recognition) and two measures of recall (free and cued recall) for the advertisement information.

It is hypothesised that H(a) individuals would have better memory and awareness for advertisements which include FOMO inducing content relative to advertisements which do not include FOMO inducing content. On the basis of

previous findings, it is also predicted that H(b) females would be better at recalling and recognizing both FOMO and no FOMO inducing content compared to males. Lastly, because previous research suggests that females tend to be more influenced by emotional appeals in contrast to males, it is predicted that H(c) memory and awareness in females would be significantly better for FOMO inducing advertisements compared to no FOMO inducing advertisements.

4. Method

4.1. Participants

There were 200 participants (all university students) who received 0.25 course credits for their participation. They included 79 males with a mean age of 22.39 years ($SD = 0.70$ years) and 121 females with a mean age of 19.56 years ($SD = 0.18$ years). The average time spent on social media per day for males was 2.19 hours ($SD = 0.11$ hours) and for females was 2.98 hours ($SD = 0.13$ hours). Ethical approval was granted and received.

4.2. Materials and Apparatus

The social media feed was created using a web development programming software called Visual Studio Code and programming languages included JavaScript, HTML and CSS. The website was deployed using Heroku (<https://www.heroku.com/>) and then implemented into an iFrame. The computer-based experiment was hosted on the Gorilla online experimental platform (<https://gorilla.sc>) and was live between 22nd November 2018 and 19th January 2019.

4.3. Filler Content and Advertisements

Filler content was based on a total of five user posts implemented within the Facebook news feed, which were the same for the FOMO and no FOMO inducing advertising conditions.

The same five advertisements with either FOMO inducing, or no FOMO inducing content were created and embedded in the Facebook feed. In each feed one advertisement was followed by a user post. The advertisements were selected from previous Facebook advertisements presented between 2016-2018. Both the FOMO material and the no FOMO material were added to the original advertisements. In one example, the information added for the FOMO condition was “**The #Sale is ON! Only a few left in stock!**”, whereas the information added to the no FOMO condition was “Casing & Decals for all Models, worldwide shipping available”.

4.3.1. Advertisement Questionnaires

Participants were given a total of four memory questionnaires and were similar to the questionnaires used in the Akram et al., (2018) study. These questionnaires were presented in the following order: Free recall for advertisement in-

formation; Recognition of brand name; Recognition of product; Cued recall of advertisements. The questionnaire on free recall for advertisement information was based on a score out of 15 points for both conditions. There was a high level of agreement between the randomly selected subset marked by the external judge and the set marked by the first author (98%). If the score was different between the judge and the first author, the average score was obtained and given to the participant.

4.3.2. Procedure

Ethical approval was granted and received. Participants engaged in the experiment within their own environments but were strictly instructed to read through all the content by scrolling down the screen using their computer mouse or keyboard. Participants were told that they would be exposed to a Facebook feed for a total of one minute. Each participant was randomly allocated to a Facebook feed containing either five FOMO inducing advertisements or five no FOMO inducing advertisements, both placed between filler content.

5. Results

5.1. Pre-Analysis

The points awarded in the free recall and cued recall tests were summed for each participant and divided by the total score to obtain an overall proportion correct score for recall memory of the advertisement information. In addition, the scores awarded in the product and brand recognition test were summed for each participant and divided by the total score to provide an overall proportion correct score for recognition memory of the advertisement information. Outcomes closer to 1 indicate a high score and outcomes closer to 0 indicate a low score.

5.2. Overall Memory

There was a strong positive correlation between the two memory measures, $r(198) = 0.59$, $p < 0.001$. Given the strong relationship between these measures, a single memory factor score ($M = 0$, $SD = 1$) for each participant was computed using a principle component analysis. A two-way analysis of variance was conducted on these scores to compare the effect of advertising condition and gender on memory. The mean score for overall memory under the advertising conditions and gender is presented in **Figure 1**.

There was a significant main effect of gender, $F(1, 196) = 5.12$, $p = 0.03$, $\eta_p^2 = 2.50\%$, showing that females ($M = 0.11$, $SD = 0.89$) had a significantly higher memory score for advertisements compared to males ($M = -0.16$, $SD = 1.13$). The main effect of advertising condition was also significant, $F(1, 196) = 20.74$, $p < 0.001$, $\eta_p^2 = 9.60\%$, indicating that participants exposed to FOMO inducing advertisements had a significantly higher memory score ($M = 0.28$, $SD = 0.98$) than participants exposed to no FOMO inducing advertisements ($M = -0.26$,

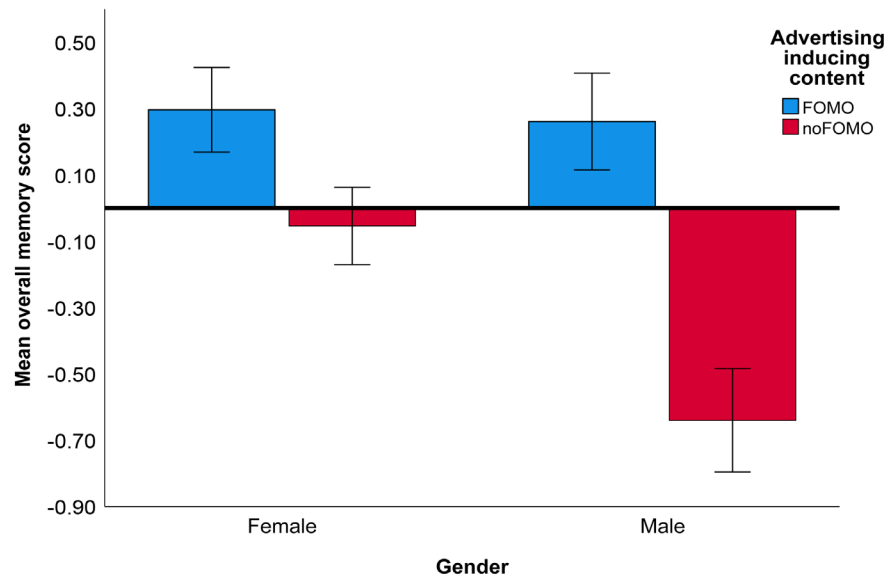


Figure 1. Mean overall memory score for advertisements with FOMO or no FOMO inducing content for both males and females. Error bars denote one standard error around the mean.

$SD = 0.95$). In addition, there was a significant interaction between gender and condition, $F(1, 196) = 4.01, p = 0.05, \eta_p^2 = 2.00\%$.

Simple effect analyses revealed that the FOMO effect is moderated by gender. Female memory scores for advertisements with FOMO inducing content were significantly higher ($M = 0.30, SD = 0.88$) than for advertisements without FOMO inducing content ($M = -0.05, SD = 0.88$), $t(119) = 2.19, p = 0.03, d = 0.40$. Males memory score was also significantly higher for FOMO inducing advertisements ($M = 0.26, SD = 1.11$) compared to no FOMO inducing advertisements ($M = -0.64, SD = 0.97$), $t(77) = 3.82, p < 0.001, d = 0.87$. The positive effect of the presence of FOMO is greater in males ($d = 0.87$) than in females ($d = 0.40$).

Following the analysis of the combined memory score, recall and recognition performance were analysed separately using a two-way analysis of variance. The means score for the recall measure and recognition measure under the advertising conditions and gender is presented in **Figure 2** and **Figure 3**, respectively.

5.3. Recall

For recall memory, the main effect of gender was not significant, $F(1, 196) = 0.38, p = 0.54, \eta_p^2 = 0.20\%$. The main effect of advertising condition was significant, $F(1, 196) = 22.14, p < 0.001, \eta_p^2 = 10.10\%$, indicating that participants exposed to FOMO inducing advertisements had a significantly higher recall score ($M = 0.48, SD = 0.17$) compared to participants exposed to no FOMO inducing advertisements ($M = 0.38, SD = 0.15$). The interaction was not significant, $F(1, 196) = 2.44, p < 0.12, \eta_p^2 = 1.20\%$.

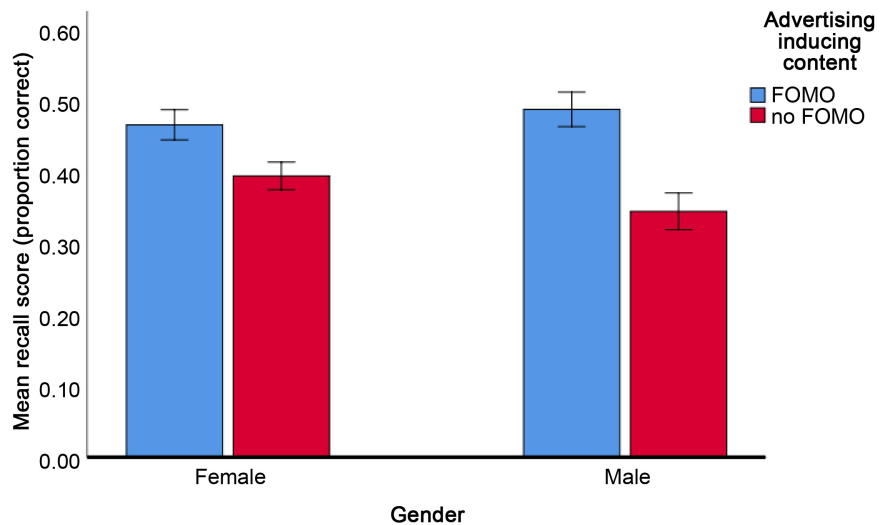


Figure 2. Mean *recall proportion correct* score for advertisements with FOMO or no FOMO inducing content for both males and females. Error bars denote one standard error around the mean.

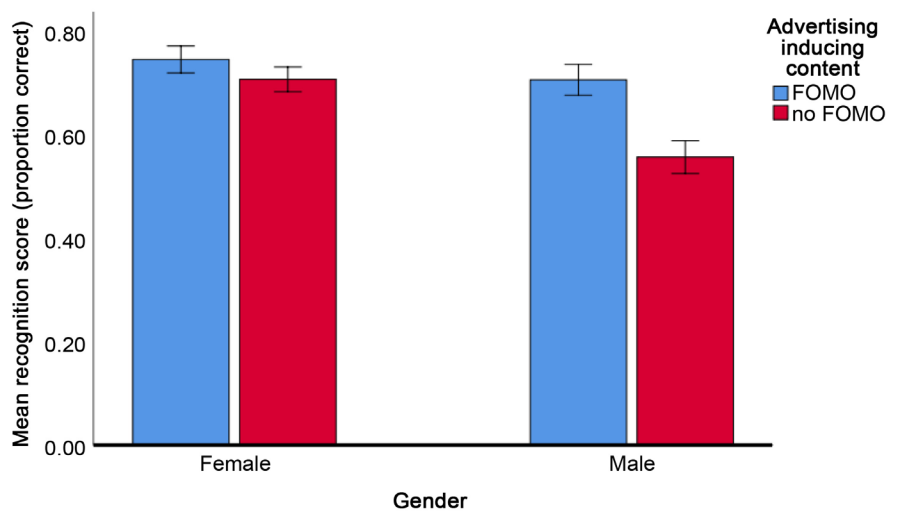


Figure 3. Mean *recognition proportion correct* score for advertisements with FOMO or no FOMO inducing content for both males and females. Error bars denote one standard error around the mean.

5.4. Recognition

For recognition memory, there was a significant main effect of gender, $F(1, 196) = 11.45$, $p < 0.001$, $\eta_p^2 = 5.50\%$, such that females ($M = 0.73$, $SD = 0.18$) had a significantly higher recognition score for advertisements compared to males ($M = 0.64$, $SD = 0.23$). There was also a significant main effect of advertising condition, $F(1, 196) = 11.24$, $p < 0.001$, $\eta_p^2 = 5.40\%$, indicating that participants exposed to FOMO inducing advertisements had a significantly higher memory score ($M = 0.73$, $SD = 0.19$) than participants exposed to no FOMO inducing advertisements ($M = 0.66$, $SD = 0.21$). The interaction between gender and advertising content was also significant, $F(1, 196) = 3.94$, $p = 0.05$, $\eta_p^2 = 2.00\%$.

Based on the significant interaction between gender and advertising content on recognition scores, two further simple effect analyses were conducted. An independent sample-*t*-test revealed that males had a significantly higher recognition score for FOMO inducing advertisements ($M = 0.71$, $SD = 0.22$) compared to no FOMO inducing advertisements ($M = 0.56$, $SD = 0.22$), $t(77) = 3.04$, $p < 0.01$, $d = 0.69$. In contrast, the difference between females' recognition scores for FOMO inducing advertisements ($M = 0.75$, $SD = 0.16$) and no FOMO inducing advertisements ($M = 0.71$, $SD = 0.19$) was not significant, $t(119) = 1.20$, $p < 0.17$, $d = 0.22$.

6. Discussion

There were three main hypotheses in this study. Firstly, it was hypothesised that individuals would have better awareness and memory for FOMO inducing advertisements compared to no FOMO inducing advertisements. The results suggested that individuals' overall memory was better for FOMO inducing advertisements compared to no FOMO inducing advertisements. Furthermore, both recall and recognition scores were significantly better for FOMO inducing content compared to no FOMO inducing content. Thus the first hypothesis was supported.

The second hypothesis was that females would have better memory and awareness for FOMO and for no FOMO inducing content compared to males. The results suggested that females' overall memory and recognition scores for both FOMO and no FOMO inducing advertisement information, were better than that for males. However, recall scores for advertisement information was not different between males and females. Thus, the second hypothesis was only partially supported.

Lastly, it was predicted that females' memory and awareness would be significantly better for FOMO inducing advertisements than no FOMO inducing advertisements. There was an interaction between gender and advertising condition for overall memory and recognition scores. The results indicated that females had better overall memory for FOMO inducing advertisements than no FOMO inducing advertisements; however, this was not the case for recognition scores. Interestingly, it was observed that males also had better recognition scores and overall memory for FOMO inducing advertisement compared to no FOMO inducing advertisements. More importantly, the results indicated that the FOMO effect was stronger in males than in females. For this reason, the third hypothesis was partially supported by the results obtained from this experiment, as there was no difference in recognition performance for females. Despite this, the results provide a novel finding suggesting that males are more influenced by FOMO inducing content in advertisements compared to females.

The overall findings are consistent with previous research on the impact of emotion on memory for advertisements. For example, it has been observed that evoking emotions in advertisements can lead to better memory and awareness

for a brand (Akram et al., 2018; Bakalash & Riemer, 2013; Bradely, Angelini, & Lee, 2007; Hodkinson, 2016). These findings are supported by the results from this study, which indicate that evoking FOMO related emotions can also be effective in improving memory for a brand or product. Moreover, the findings are consistent with the notion that the stimuli did elicit a moderate level of emotion given the improvement in memory (Ray & Wilkie, 1970). However, clearly a manipulation of the strength of the FOMO stimuli is required before firm conclusions can be drawn.

Furthermore, females had better overall memory for FOMO inducing advertisements compared to no FOMO inducing advertisements, which also supported the findings from previous research which focused on gender differences in memory for emotional stimuli (Grossman & Wood, 1993; Moore, 2007). Surprisingly, males had better overall memory and recognition for FOMO inducing content compared to no FOMO inducing content and the findings indicate that males are more influenced by FOMO inducing content than females. One possible reason for this finding is that FOMO might induce a rather different emotional effect compared to previous emotional appeals investigated (Grossman & Wood, 1993; Moore, 2007), which is stronger in males than in females. It has been reported that FOMO does not only evoke emotions such as fear, but can also induce other reactions, such as triggering a response of competition (Hodkinson, 2016), suggesting that FOMO can generate a variety of responses, which might strengthen males' memorability for FOMO inducing content.

In addition, earlier industry reports observed that young males report stronger feelings of missing out on social media compared to young females (JWT Worldwide, 2012). The results suggest that males specifically report stronger feelings of missing out if they see that their friends are doing something they are not doing or buying something that they do not have, and males also reported stronger feelings of being left out if their friends know about something before they do. Thus, another reason why males might have better memorability for FOMO inducing content in Facebook advertisements, might be because males are more prone than females to having overall feelings of missing out via social media.

7. Implications

The findings from this study provide novel theoretical and practical implications. Firstly, the results have implications for the use of FOMO within online advertising. The study suggests that eliciting FOMO in online advertisements can improve memory for the advertisements when compared to advertisements that do not include FOMO inducing content. Considering the strong movement towards targeting individuals through online advertisements, it is becoming increasingly expensive to both produce and publish advertisements on social media platforms ("The Cost of Social Media", 2014). For this reason, it is important to understand which factors will effectively enhance memory for the advertisements. While it has been demonstrated that advertising techniques such as in-

ducing moderate fear (e.g., Akram et al., 2018; Ray & Wilkie, 1970), including humour (Furnham, et al., 1998) and sexual content (King, et al., 2015) can effectively increase memorability for advertising information, the current study implies that generating FOMO in Facebook advertisements can also increase awareness and memorability for a brand. This may be of great importance to advertisers operating in an extremely competitive field.

The results from this experiment also provide implications for the interaction between gender and the FOMO phenomenon. The findings strongly suggest that males are particularly better at recognizing brand and product information that have been advertised using FOMO inducing content. This implies that FOMO might be an effective strategy to implement if advertisers particularly aim to target a male audience.

8. Limitations

The study has a number of limitations. First, the questionnaires used to assess participants' recognition and recall memory. Participants were asked to complete the questionnaires immediately after advertising exposure, and there was no testing after an extended time delay.

Secondly, the advertising condition was manipulated between-subjects, so participants in the FOMO condition were exposed to all five FOMO inducing advertisements within one Facebook feed. Whilst this methodology provided a powerful manipulation of the FOMO inducing material, it could be regarded as not being fully ecologically valid.

Finally, the advertisements were presented in a Facebook feed, which limits the findings specifically to that social media platform and its main target audience of young adults. As it has been observed that the effectiveness of advertising strategies depends on the medium within which they are presented (Sundar et al., 1998), it is possible that younger children, older adults or individuals exposed to FOMO inducing content on a different social media platform might react differently to FOMO inducing content.

Data Availability

This is obtainable from the first author upon request.

Ethics

This was sought and obtained (EP/2018/007).

Informed Consent

Participants gave consent for their anonymised data to be analysed and published.

Author Contribution

D. Weideinger: Data collection, Initial analysis and write up; A. McClelland: Su-

pervision; A. Furnham: Visualisation, Writing-review & editing.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Aaker, J. L., & Williams, P. (1998). Empathy versus Pride: The Influence of Emotional Appeals across Cultures. *Journal of Consumer Research*, *25*, 241-261. <https://doi.org/10.1086/209537>
- Akram, Z., McClelland, A., & Furnham, A. (2018). The Effect of Fear-Inducing Content on Memory for Advertisements and on Retroactive and Proactive Interference of Programme Information. *Applied Cognitive Psychology*, *32*, 413-419. <https://doi.org/10.1002/acp.3409>
- Al-Furaih, S. A., & Al-Awidi, H. M. (2020). Fear of Missing Out (FoMO) among Undergraduate Students in Relation to Attention Distraction and Learning Disengagement in Lectures. *Education and Information Technology*, *26*, 2355-2373. <https://doi.org/10.1007/s10639-020-10361-7>
- Ambler, T., & Burne, T. (1999). The Impact of Affect on Memory of Advertising. *Journal of Advertising Research*, *39*, 25-34.
- Baird, T. R., Wahlers, R. G., & Cooper, C. K. (2007). Non-Recognition of Print Advertising: Emotion Arousal and Gender Effects. *Journal of Marketing Communications*, *13*, 39-57. <https://doi.org/10.1080/13527260600942616>
- Bakalash, T., & Riemer, H. (2013). Exploring Ad-Elicited Emotional Arousal and Memory for the ad Using fMRI. *Journal of Advertising*, *42*, 275-291. <https://doi.org/10.1080/00913367.2013.768065>
- Barry, C., & Wong, M. (2020). Fear of Missing Out (FoMO): A Generational Phenomenon or an Individual Difference? *Journal of Personal and Social Relationships*, *37*, 2952-2966. <https://doi.org/10.1177/0265407520945394>
- Biener, L., Ji, M., Gilpin, E. A., & Albers, A. B. (2004). The Impact of Emotional Tone, Message, and Broadcast Parameters in Youth Anti-Smoking Advertisements. *Journal of Health Communication*, *9*, 259-274. <https://doi.org/10.1080/10810730490447084>
- Bradley, S. D., Angelini, J. R., & Lee, S. (2007). Psychophysiological and Memory Effects of Negative Political Ads: Aversive, Arousing, and Well-Remembered. *Journal of Advertising*, *36*, 115-127. <https://doi.org/10.2753/JOA0091-3367360409>
- Brody, L. R. (1993). On Understanding Gender Differences in the Expression of Emotion. In S. L. Ablon, D. Brown, E. J. Khantzian, & J. E. Mack (Eds.), *Human Feelings: Explorations in affect Development and Meaning* (pp. 87-121). Hillsdale, NJ: Analytic Press.
- Brody, L. R. (1999). *Gender, Emotion and the Family*. Cambridge, MA: Harvard University Press.
- Canli, T., Desmond, J. E., Zhao, Z., & Gabrieli, J. D. (2002). Sex Differences in the Neural Basis of Emotional Memories. *Proceedings of the National Academy of Sciences*, *99*, 10789-10794. <https://doi.org/10.1073/pnas.162356599>
- Chebat, J. C., Laroche, M., Badura, D., & Filiatrault, P. (1995). Affect and Memory in Advertising: An Empirical Study of the Compensatory Processes. *Journal of Social Psychology*, *135*, 425-437. <https://doi.org/10.1080/00224545.1995.9712212>
- Choti, S. E., Marston, A. R., Holston, S. G., & Hart, J. T. (1987). Gender and Personality Variables in Film-Induced Sadness and Crying. *Journal of Social and Clinical Psychol-*

- ogy, 5, 535-544. <https://doi.org/10.1521/jscp.1987.5.4.535>
- Collins, L., & Van Abeele, M. (2013). *FOMO and Mobiles Phones: A Survey Study*. Doctoral Dissertation Master Thesis, Tilburg: Tilburg University.
- Edell, J. A., & Burke, M. C. (1987). The Power of Feelings in Understanding Advertising Effects. *Journal of Consumer Research*, 14, 421-433. <https://doi.org/10.1086/209124>
- Eisenberg, N., & Lennon, R. (1983). Sex Differences in Empathy and Related Capacities. *Psychological Bulletin*, 94, 100-131. <https://doi.org/10.1037/0033-2909.94.1.100>
- Fischer, A. H., Rodriguez Mosquera, P. M., Van Vianen, A. E., & Manstead, A. S. (2004). Gender and Culture Differences in Emotion. *Emotion*, 4, 87-94. <https://doi.org/10.1037/1528-3542.4.1.87>
- Furnham, A., Gunter, B., & Walsh, D. (1998). Effects of Programme Context on Memory of Humorous Television Commercials. *Applied Cognitive Psychology*, 12, 555-567. [https://doi.org/10.1002/\(SICI\)1099-0720\(199812\)12:6<555::AID-ACP537>3.0.CO;2-X](https://doi.org/10.1002/(SICI)1099-0720(199812)12:6<555::AID-ACP537>3.0.CO;2-X)
- Galea, L. A., & Kimura, D. (1993). Sex Differences in Route-Learning. *Personality and Individual Differences*, 14, 53-65. [https://doi.org/10.1016/0191-8869\(93\)90174-2](https://doi.org/10.1016/0191-8869(93)90174-2)
- Good, M., & Hyman, M. (2020). Direct and Indirect Effects of Fear-of-Missing-Out Appeals on Purchase Likelihood. *Journal of Consumer Behaviour, Early View*. <https://doi.org/10.1002/cb.1885>
- Grossman, M., & Wood, W. (1993). Sex Differences in Intensity of Emotional Experience: A Social Role Interpretation. *Journal of Personality and Social Psychology*, 65, 1010-1022. <https://doi.org/10.1037/0022-3514.65.5.1010>
- Hayran, C., Anik, L., & Gürhan-Canli, Z. (2020) A Threat to Loyalty: Fear of Missing Out (FOMO) Leads to Reluctance to Repeat Current Experiences. *PLoS ONE*, 15, e0232318. <https://doi.org/10.1371/journal.pone.0232318>
- Herlitz, A., Nilsson, L.-G., & Bäckman, L. (1997). Gender Differences in Episodic Memory. *Memory and Cognition*, 25, 801-811. <https://doi.org/10.3758/BF03211324>
- Hill, R. D., Grut, M., Wahlin, A., Herlitz, A., Winblad, B., & Bäckman, L. (1995). Predicting Memory Performance in Optimally Healthy Very Old Adults. *Journal of Mental Health and Aging*, 1, 57-67.
- Hodkinson, C. (2016). "Fear of Missing Out" (FOMO) Marketing Appeals: A Conceptual Model. *Journal of Marketing Communications*, 25, 65-88. <https://doi.org/10.1080/13527266.2016.1234504>
- Homer, P. M. (1990). The Mediating Role of Attitude toward the Ad: Some Additional Evidence. *Journal of Marketing Research*, 27, 78-86. <https://doi.org/10.1177/002224379002700108>
- J. Walter Thompson (JWT) Worldwide (2012). *Fear of Missing Out (FOMO)*. <https://de.slideshare.net/jwtintelligence/the-fear-of-missing-out-fomo-march-2012-update>
- Kandell, J. J. (1998). Internet Addiction on Campus: The Vulnerability of College Students. *Cyberpsychology & Behaviour*, 1, 11-17. <https://doi.org/10.1089/cpb.1998.1.11>
- King, J., McClelland, A., & Furnham, A. (2015). Sex Really Does Sell: The Recall of Sexual and Non-Sexual Television Advertisements in Sexual and Non-Sexual Programmes. *Applied Cognitive Psychology*, 29, 210-216. <https://doi.org/10.1002/acp.3095>
- Lee, J. J., & Burns, L. D. (2014). Deliver Knowledge or Touch the Mind? The Effect of Informational and Emotional Advertisement Strategy on Fashion Sportswear Brand Attitude and Recall. *Journal of Global Fashion Marketing*, 5, 135-148. <https://doi.org/10.1080/20932685.2013.878109>
- Lithari, C., Frantzidis, C. A., Papadelis, C., Vivas, A. B., Klados, M. A., Kourtidou-Papadeli,

- C. et al. (2010). Are Females More Responsive to Emotional Stimuli? A Neurophysiological Study across Arousal and Valence Dimensions. *Brain Topography*, 23, 27-40. <https://doi.org/10.1007/s10548-009-0130-5>
- McMurty, J. (2017). *Using FOMO to Beat Your Competition*. <https://www.targetmarketingmag.com/post/using-fomo-to-beat-your-competition/>
- Moore, D. J. (2007). Emotion as a Mediator of the Influence of Gender on Advertising Effectiveness: Gender Differences in Online Self-Reports. *Basic and Applied Social Psychology*, 29, 203-211. <https://doi.org/10.1080/01973530701502954>
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, Emotional, and Behavioural Correlates of Fear of Missing Out. *Computers in Human Behaviour*, 29, 1841-1848. <https://doi.org/10.1016/j.chb.2013.02.014>
- Ray, M. L., & Wilkie, W. L. (1970). Fear: The Potential of an Appeal Neglected by Marketing. *Journal of Marketing*, 34, 54-62. <https://doi.org/10.1177/002224297003400113>
- Rayner, E., Baxter, S. M., & Ilicic, J. (2015). Smoker's Recall of Fear Appeal Imagery: Examining the Effect of Fear Intensity and Fear Type. *Australasian Marketing Journal*, 23, 61-66. <https://doi.org/10.1016/j.ausmj.2014.11.003>
- Riordan, B. C., Flett, J. A., Hunter, J. A., Scarf, D., & Conner, T. S. (2018). Fear of Missing Out (FoMO): The Relationship between FoMO, Alcohol Use, and Alcohol-Related Consequences in College Students. *Journal of Psychiatry and Brain Functions*, 2, 9. <https://doi.org/10.7243/2055-3447-2-9>
- Serrano, J. S. (2018). *7 FOMO Marketing Strategies to Cash in on Black Friday*. <https://www.business2community.com/marketing/7-fomo-marketing-strategies-to-cash-in-on-black-friday-02139997>
- Snipes, R. L., LaTour, M. S., & Bliss, S. J. (1999). A Model of the Effects of Self-Efficacy on the Perceived Ethicality and Performance of Fear Appeals in Advertising. *Journal of Business Ethics*, 19, 273-285. <https://doi.org/10.1023/A:1005822414588>
- Soares, A. M., & Pinho, J. C. (2014). Advertising in Online Social Networks: The Role of Perceived Enjoyment and Social Influence. *Journal of Research in Interactive Marketing*, 8, 245-263. <https://doi.org/10.1108/IRIM-08-2014-001>
- Sundar, S. S., Narayan, S., Obregon, R., & Uppal, C. (1998). Does Web Advertising Work? Memory for Print vs. Online Media. *Journalism & Mass Communication Quarterly*, 75, 822-835. <https://doi.org/10.1177/107769909807500414>
- The Cost of Social Media: 4 Reasons It's Getting More Expensive. (2014). <https://esmdigital.com/blog/the-cost-of-social-media-4-reasons-its-getting-more-expensive/>
- Walsh, S. (2015). *Winning with FOMO*. <http://marketingmag.ca/consumer/winning-with-fomo-column-155875/>
- Zelsink, E. M., Gilewski, M. J., & Schaie, K. W. (1993). Individual Differences in Cross-Sectional and 3-Year Longitudinal Memory Performance across the Adult Life Span. *Psychology and Aging*, 8, 176-186. <https://doi.org/10.1037/0882-7974.8.2.176>