The relationship between social media advertising factors and purchase intentions amongst millennials in Ireland: a quantitative study

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Abstract:

Introduction: While organisations using social media advertising to influence consumers' purchase intentions has become an increasingly relevant and vital topic within business and marketing areas, the research into assessing the relationship between the social media advertising factors and purchase intentions of millennial cohorts thus far has been limited, presenting the rationale for this study.

Research aims and hypothesis: This study aims to understand the relationship between the social media advertising factors of perceived relevance, informativeness and interactivity on the purchase intentions of millennials living in Ireland. The theories discussed concerning perceived relevance, interactivity and informativeness presented the basis for this study's 3 hypotheses.

Methods: A survey was completed by 145 participants using convenience sampling. After accounting for this study's inclusion-exclusion criteria, there were only 116 valid responses. After performing factor analysis, and normality tests, a Spearman's rho was deemed the most appropriate test for assessing the relationship between the social media advertising factors and the participants' purchase intentions.

Results: A valid total of 116 participants were analysed and interpreted based on the Spearman's rho's model findings. The key results of this model showed that a moderate positive relationship existed between the purchase intention of millennials in Ireland and the social media advertising factors of perceived relevance, informativeness and interactivity.

Discussion: Despite some previous conflicts within the literature, this study's model's results largely supported the existing literature findings that show a significant positive relationship. In addition, this study builds and extends on the literature with several theoretical implications and provides useful, practical implications for marketers targeting the millennial cohort.

Conclusion: This study was able to identify that a positive relationship existed between the social media advertising factors and the purchase intentions of millennials within Ireland. It also provides future research suggestions for social media advertising factors and purchase intention.

Declaration:

Submission of Thesis and Dissertation
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Research Students Declaration Form
(Thesis/Author Declaration Form)

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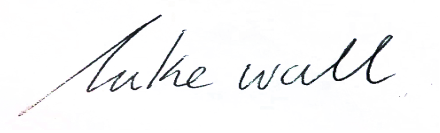
Signature of research student: 

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List of Figures:

List of Tables:

List of abbreviations:

SMA Social media advertising

IQR Interquartile Range

CSO Central Statistics Office

EWOM Electronic word of mouth

Mdn Median

SE Standard Error

Table of Contents:

Chapter 1

Introduction

1. Introduction:

1.1.1 Background:

Within social media advertising (SMA), organisations are increasingly challenged to switch to more cost-effective customer targeting measures (Akkaya, Akyol and ŞİMŞEK, 2017; Alalwan, 2018). Indeed, this challenge has resulted in numerous research efforts looking at how advertisers can use SMA to influence consumers' purchasing intentions (Alalwan, 2018; Nasir et al., 2021). However, although extensive research has shown how SMA factors such as interactivity, perceived relevance, and informativeness defined below in Table 1 are positively related to consumers' purchase intentions (Alalwan, 2018), these studies have yet to consider their impact on specific age cohorts or different geographical regions. Indeed, from Ireland's context, where business social media usage is the second highest in Europe (CSO, 2016) and their SMA expenditure is increasing annually (Statista, 2022a), limited research thus far has been conducted in understanding how these factors impact the purchase intentions amongst specific age cohorts. For example, when it comes to specific age cohorts within Ireland, such as millennials, which represent a significant proportion of the population at 1,216,653 (See Appendix H), limited research has been conducted to understand how these factors impact this cohort with Arora and Agarwal, (2020), being the only study thus far which examines this population.

1.1.2 Research problem:

While recent research has attempted to address the factors in SMA that influence consumers' purchase intentions (Alalwan, 2018; Nasir et al., 2021) and how they apply to specific age cohorts (Arora and Agarwal, 2020), no study thus far has looked at how these factors may apply within Ireland. Indeed, with Ireland's SMA spending rising annually (Statista, 2022a) and limited knowledge regarding how millennials in Ireland respond to these factors, this presents a significant opportunity and gap in the literature for this research study.

1.1.3 Proposed research study:

The study's primary aim and research question will address how SMA factors are related to the purchase intentions of millennials within Ireland. While previous research from Alalwan (2018) and Nasir et al. (2021) assessed how these factors impact consumers' purchase intentions, they do not consider how they apply to specific age cohorts. Therefore, this study will build on previous studies in providing evidence on how these factors apply to a particular age group. Furthermore, while Arora and Agarwal (2020) have considered how SMA impacts millennials' purchase intentions, their findings are explicitly limited to their geographic region and cannot be applied to Ireland. Therefore, by undertaking this study in Ireland, this study seeks to understand the relationship between these SMA factors on Ireland's millennial age cohort's purchase intentions to provide Irish businesses with helpful insights into this millennial consumer group's behaviour.

Table 1 Social media advertising factors and definitions

SMA Factor	Definition
Perceived relevance	Perceived relevance can be defined as the extent to which consumers perceive information relevant for achieving their online purchasing goals.
Informativeness	Informativeness can be defined as the supply of information through advertisements on social networks .
Interactivity	Interactivity can be defined as the ability of consumers to interact with brands over social media advertisements.

Note. Created using sources from Richard and Meuli (2013), Hanaysha (2022), Kim and Huh, (2017) and Wang and Chen, (2020)

1.1.4 Research objectives:

This study aims to understand the relationship between social media advertising factors of perceived relevance, interactivity, informativeness and the purchase intentions of millennials living in Ireland.

The main objectives of this study outlined below aimed to answer this study's research question, "The relationship between social media advertising factors and the purchase intentions of millennials within Ireland".

The 3 primary objectives below seek to address this study's research question.

1. To assess the relationship between the social media advertising factor of perceived relevance and the purchase intentions of millennials in Ireland.
2. To assess the relationship between the social media advertising factor of informativeness and the purchase intentions of millennials in Ireland.
3. To assess the relationship between the social media advertising factor of interactivity and the purchase intentions of millennials in Ireland.

Chapter 2

Literature review

2. Literature review:

2.1.1 Introduction:

A literature review related to the area of SMA assisted with the development of the research question, ‘’The relationship between social media advertising factors and the purchase intentions of millennials within Ireland’’. This section will review and examine the specific theoretical constructs that relate to SMA and, more specifically, the relationship between SMA factors and the purchase intentions of millennial consumers within Ireland.

2.1.2 Literature review structure:

Firstly, it introduces the topic of SMA and its context from an Irish perspective. It then looks to discuss the central premise behind this study in how SMA factors relate to consumers' purchase intentions and, more specifically, the Irish millennial cohort. After examining the research relating to the millennial cohort, this study then discusses the main factors of perceived relevance, interactivity and informativeness and how these factors are related to the purchase intentions of millennials within Ireland. Finally, from examining the literature and identifying the lack of research around how the SMA factors relate to the millennial cohort, specifically within Ireland, this study identifies a significant literature gap that provides the grounding and foundation for this study.

2.2.1 Social media advertising:

The swift uptake of social media users has created a new medium for organisations to use social media for advertising to consumers (KV, KP and Kamath, 2021). Indeed, as Karimi and Naghibi (2015) highlight, SMA allows organisations to market to wider audiences not accessible within conventional marketing avenues by using social media as a tool for their marketing purposes.

The concept of SMA can be defined as using social media technologies and channels to generate and deliver offerings that provide value to an organisation's stakeholders (Tuten and Solomon, 2018). Moreover, from synthesising findings in the literature, SMA fundamentally can be described as where organisations generate advertising on social media that allows consumers to communicate through the interactive features it provides (Knoll, 2016; Johnston et al., 2018).

The concept of SMA described above has become increasingly important as organisations are challenged to adopt efficient, cost-effective advertising methods to target customers (Akkaya et al., 2017; Arceo et al., 2018; Alalwan, 2018). Indeed, due to hyper-competitive modern heterogenic markets, it has become crucial for firms to adopt lower-costing targeted methods (Nasir et al., 2021), which social media provides over conventional advertising (Appel et al., 2020). As a result of these challenges, firms are adapting from conventional advertising to digital advertising (Shareef et al., 2019; KV et al., 2021). Moreover, this new adoption of advertising presents new challenges for firms. For instance, research has shown how advertisers are challenged to devise new methods to design more attractive advertisements to entice customers to purchase their brands (Alalwan, 2018). Indeed, these challenges form the basis of Alalwan's (2018) research on how firms can use SMA features to influence purchasing behaviours.

2.2.2 Social media advertising in Ireland:

Moreso, when assessing this challenge within Ireland, where enterprise usage of social media is second in Europe (CSO, 2016) and their SMA spending has increased from €272 Billion in 2020 to €286 Billion in 2021 (Statista, 2022a), understanding how to effectively utilise SMA to influence consumers purchase intentions should be of great concern. For example, as figures from Statista (2022b) highlight, when breaking down the various types of digital advertising, advertising on social media is the second highest. Interestingly, a report from PWC (2022) also corroborated this significant increase in digital advertising showing a percentage change increase of 40% in advertising spending that was attributed mainly to SMA.

One possible reason to explain this dramatic increase in SMA spending could be potentially related to enterprises increasing their social media usage, with findings from the CSO (2021) showing that almost a third of Irish enterprises increased their social media usage as a result of covid 19. For instance, as recent literature findings from Mason, Narcum and Mason (2021) highlight, as a result of covid 19, customers have increased their usage of social media for researching, evaluating and purchasing products. Therefore, by acknowledging that SMA spending is increasing in Ireland, and recent factors such as covid 19 have increased the potential effectiveness of SMA, understanding the factors that influence Ireland's consumers' purchase intentions is essential.

2.3.1 Social media advertising factors and consumers purchase intentions:

However, before identifying how SMA has influenced consumers' purchase intentions, it is first essential to identify what purchase intentions mean. Ertemel and Ammoura (2017) define purchase intentions as the process whereby consumers examine, purchase, and ultimately use products and services to satisfy their needs. Additionally, the concept of purchase intentions can be described as an attitudinal variable by Manzoor et al. (2020), whereby a consumer's intent to purchase products is specifically linked to their attitude towards that advertisement.

Moreover, when looking specifically at the SMA factors of perceived relevance, interactivity and informativeness (previously defined above in Table 1), while there have been extensive studies that have covered how these SMA factors influence consumers' purchase intentions, the differences should be acknowledged (Dehghani and Tumer, 2015; Kim and Huh, 2017; Akkaya et al., 2017; Arceo et al., 2018; Alalwan, 2018; Khan, 2022; Yeo et al., 2020; Nasir et al., 2021; Hanaysha, 2022). For example, Alalwan's (2018) and later Hanaysha's (2022) studies identified a significant positive relationship between purchase intentions and perceived relevance, interactivity, and informativeness.

Similarly, Nasir et al. (2021) study built on Alalwan's (2018) study, showing how the SMA factors differed between behavioural segments, with the personality profile of the consumers having an impact on the SMA factors of perceived relevance, interactivity and informativeness. Interestingly, however, whilst Nasir et al. (2021) study findings were mainly similar to Alalwan's (2018) study, they also differed by not establishing a significant relationship with the SMA factor of interactivity. Although, as Nasir's (2021) study acknowledged, their findings were influenced by factors, such as cultural idiosyncrasies that may have influenced their studies cohorts' perceptions of social media advertisements, which may explain the differences between their findings on interactivity as opposed to Alalwan (2018) study. Furthermore, while Sigurdsson et al. (2018) study was not explicitly related to SMA factors discussed in Nasir et

al. (2021) and Alalwan' (2018) study, their findings have shown how cultural factors between different countries can have a significant impact on consumers' attitudes towards digital advertisement factors, which in the case of SMA can be described as a type of digital advertising. Therefore, in the case of the differences between interactivity in Nasir et al. (2021) and Alalwan's (2018) study, it can be assumed with the assistance of Sigurdsson et al. (2018) findings that cultural differences could explain the dissimilarities between their study's findings on interactivity.

Additionally, other studies from Yeo et al. (2020) looked at interactivity and informativeness yet differed from the previous studies by looking at trust and brand image's influence on purchase intentions. In contrast, Khan (2022) takes a broader view from Alalwan (2018), and instead of looking at individual SMA factors, they identify how an organisation's broader social media activities influence consumers' purchase intentions. Additionally, studies from Akkaya et al. (2017) and Kim and Huh (2017) also differed from Alalwan's (2018) study by examining the mediating factors that influence an individual's attitudes towards advertisements, which in turn positively influence their purchase intentions, which conforms to the research by Khan (2022), that positive attitudes towards social media increase consumers purchase intentions. Therefore, while extensive research has been conducted in this area showing similarities within the literature, the differences are also vast based on their results, approaches, and experimental factors studied concerning purchasing intentions.

2.3.2 Social media advertising studies limited in not considering age:

One exclusion that some of these studies reference within their limitations (Alalwan 2018; Nasir et al., 2021) is the lack of insight into how SMA factors such as perceived relevance, informativeness, and interactivity apply to demographic characteristics such as age cohorts like millennials. However, before examining cohorts such as millennials (described in Table 2 below), it is necessary to assess the research already applied to this cohort.

2.3.3 Social media advertising factors on purchase intentions of millennials:

Millennials, broadly defined between 1981-1999 (Borges et al., 2006; Bolton et al., 2013; Ruzycki et al., 2019), have become a significant consumer group whose behaviours toward SMA are crucial for marketers (Duffett, 2015). For instance, as Naumovska (2017) highlighted, as opposed to previous generations, the millennial generation, in particular, has been significantly impacted by advancements in technology and digital media that make this group an attractive group for brands and advertisers. Furthermore, when it is considered by Bolton et al. (2013) and Pauliene and Sedneva (2019) that millennials generally rely on social media when looking for information to assist their decision-making process, it makes sense that marketers and brands would consider this group for their SMA efforts. Indeed, as numerous studies have highlighted, global companies have turned their attention towards millennials, as they represent a considerable global population with significant buying power (Dabija, Bejan and Tipi, 2018, Davidaviciene, Meidute-Kavaliauskiene and Paliulis, 2019). Furthermore, as Duffett (2021) highlighted, millennial consumers will make up 75% of the global workforce with a global buying power expenditure of $600 billion, making them a substantial target for marketers globally. Furthermore, when addressing Ireland specifically, millennials represent a significant proportion of Ireland's population at 1,216 653 (See Appendix H).

Moreover, from an academic perspective, numerous studies have been trying to identify the social media factors that influence millennials' purchasing intentions (Balakrishnan, Dahnil and Yi, 2014; Mohamad, Zawawi and Hanafi, 2018; Pauliene and Sedneva, 2019). Interestingly, when observing the findings within these studies, there are some similarities and differences to acknowledge. For example, in Pauliene and Sedneva (2019), electronic word of mouth increases purchase intention, whereas, in Mohamad et al. (2018), their findings identified consumer engagement as a factor that positively influences purchase intentions.

Table 2 Millennial's description related specifically to social media advertising

Age	23 – 41 (born between 1981 to 1999)
Consumer behaviour	• As opposed to previous generations, the millennial generation cohort illustrate distinct differences prior to previous generations, which warrants increase research. • Exhibits high levels of brand loyalty.
Social media usage	• Utilises social media in an interactive fashion to communicate, consume and share content across social media platforms.
Use of social media for purchasing	• Utilises social media platforms frequently to seek information or share opinions prior to purchasing products.

Note table created from Pauliene and Sedneva (2019), Prasad, Garg and Prasad (2019)

2.3.4 Limitations on social media advertising studies on millennials purchase intentions:

However, a few limitations exist within the above studies. For example, Pauliene and Sedneva's (2019) study focuses on the restaurant industry, whereas Balakrishnan et al. (2014) and Mohamad et al. (2018) studies focus on a specific geographical region, therefore, impacting the potential generalisability of both of these studies. Furthermore, while these studies examine numerous factors, the factors identified in Alalwan (2018), Nasir et al. (2021), and Arora and Agarwal (2020) studies, such as perceived relevance, informativeness and interactivity, have yet to be examined explicitly to millennial cohorts within Ireland. Therefore, this provides a valuable opportunity for Irish market research on how the factors of perceived relevance, informativeness and interactivity apply to millennial cohorts' purchase intentions in a country increasing their SMA expenditure, as previously mentioned. However, before understanding how these factors relate to millennials' purchase intentions, it is first essential to examine each factor and the previous literature findings on these factors.

2.4.1 Social media advertising factor- Perceived relevance:

Perceived relevance within the online advertising context can be defined as the extent to which consumers perceive information relevant for achieving their online purchasing goals (Kim and Huh, 2017). Indeed, recent studies have proven that when consumers perceive social media as relevant to their purchasing goals and preferences, this increases their purchase intention (Alalwan, 2018; Zhu and Chang, 2016). Additionally, findings from Dodoo and Wu (2019) and Reena and Udita (2020) also highlighted the positive relationship social media adverts have on a consumer's perceived relevance through ad personalisation which subsequently influences their purchase intention. Indeed, consumers provide a significant amount of personal information on their social networks, allowing marketers to personalise their advertising messages to a significant extent (De Keyzer, Dens and De Pelsmacker, 2015).

Furthermore, another reason it influences purchase intentions could be that perceived relevance is a moderating factor to advertising effectiveness, increasing consumers' attention to adverts (Jung, 2017), which influences a consumer's purchase intention by increasing their engagement (Akkaya et al., 2017). However, recent studies argue against the positive relationship between perceived relevance and purchase intentions (Sarraf and Teshnizi, 2020). Although Sarraf and Teshnizi (2020) acknowledge that their findings might vary due to their study's distinct population characteristics. Furthermore, Sarraf and Teshnizi's (2020) study focuses predominantly on social media advertisements related to cosmetic products, whereas Nasir (2021) and Alalwan's (2018) study's focused on generalised product advertising using social media. Moreover, as Fernandes, Semuel, and Adiwijaya (2020) highlighted when it comes to cosmetic beauty products advertised on social media, consumers tend to purchase them more for hedonic social reasons. Therefore, it may be likely that Sarraf and Teshnizi's (2020) study differs from previous findings due to differences in their population characteristics and the fact that it examines cosmetic products in SMA, which may have influenced their study's findings.

2.4.2 Social media advertising factor- Informativeness:

Informativeness has been conceptualised as advertising's ability to provide users with informed information regarding alternative solutions (Ducoffe, 1996). However, for a definition more applicable to social media, it could be generally defined by Richard and Meuli (2013) as the supply of information through advertisements, which according to Hanaysha (2022), provides crucial brand-specific information using a wide range of social media networks to influence their consumer's purchase intentions. Previous research on this factor shows that informativeness positively impacts consumer's purchase intentions on social media (Van-Tien Dao et al., 2014, Lee and Hong, 2016; Akkaya et al., 2017; Alalwan, 2018; Arora and Agarwal 2020; Yeo et al., 2020; Nasir et al., 2021). For example, as Lee and Hong (2016) highlight, it increases consumer purchase intentions by giving them the ability to make informed purchases.

Furthermore, as Prentice, Chen and Wang (2019) suggest, information within social media network advertisements is critical to assist consumers with evaluating products. Additionally, other studies have shown that as informativeness increases advertising favourability, consumer purchase intentions increase (Akkaya et al., 2017; Hamouda, 2018; Arora and Agarwal, 2020; Minbashrazgah, Qarahbolagh and Eynali, 2021). Indeed, Arli (2017) and Chen et al. (2021) also support these findings showing that informativeness is linked with creating advertising value and, subsequently, a positive attitude towards an organisation's social media which positively influences the consumer's purchase intentions. However, whilst the above studies show that informativeness increases consumers' purchase intention, the information generated on social media has been seen to positively influence consumers' purchase intentions only if they perceive it as helpful for evaluating and becoming familiar with a product's quality and performance (Fillieri et al., 2018). Although, as Prentice et al. (2019) highlight, social media platforms provide a wealth of information when assisting consumers' decision-making process when evaluating products.

Therefore, it can be suggested from the above findings that as social media advertising generally provides helpful information for consumers' product evaluation, this in turn positively influences their purchase intentions, with no study currently challenging this.

2.4.3 Social media advertising factor- Interactivity:

Interactivity is the degree of freedom between two or more individuals regarding their interaction and specific communication platforms utilised (Liu and Shrum, 2002). This concept relating to social media looks at how multimedia speed, communication, and control, can influence the perceived interactive level of that social medium (Ariel and Avidar, 2015). Although, a more social media-specific definition of interactivity could be thought of where a consumer can interact and offer their feedback directly to the social media advertisements posted by brands (Wang and Chen, 2020). Furthermore, as Wang and Chen (2020) proposed, the high degree of interactivity on social media, such as consumers interacting and providing their views and feedback, can positively influence their decision-making. Interestingly, as Rathore, Ilavarasan and Dwivedi (2016) highlight, consumers are now switching toward SMA over traditional advertising as it offers a highly interactive medium.

Moreover, in terms of influencing consumers' purchase intentions, previous academic findings suggested that interactivity positively influences purchase intentions (Alalwan, 2018), Liao, Chung, and Chang, 2019; Arora and Agarwal, 2020). For example, as Bozkurt, Gligor and Babin (2020) highlight, when consumers perceive a brand's social media as highly interactive, they are more likely to purchase their brand offerings. However, other research contradicts these findings (Nasir et al., 2021), highlighting no significant relationship between interactivity and purchase intentions amongst their different sample cohorts. Sreejesh et al. (2020) also show that the interactivity of social media can adversely impact the potential effectiveness of advertising. Therefore, whilst most studies found a significant positive relationship between these two factors, these mixed findings present the potential need for further study.

2.4.4 Perceived relevance impact on millennial's purchase intentions:

According to Nusair, Bilgihan and Okumus (2013), millennials' decisions come from reviewing online content to see if it provides value relative to their needs when making travel purchasing decisions. Therefore, as Arora and Agarwal's (2020) study findings suggest, when millennials perceive content online in the form of SMA relevant to their needs, this positively affects their purchase intentions.

2.4.5 Informativeness impact on millennial's purchase intentions:

In terms of informativeness's impact on influencing millennials' purchase intentions, research from Arora and Agarwal (2020) identified a significant positive relationship. However, their limitations highlight that their study's generalisability would be of concern given that it is situated within an Indian province and thus is affected by cultural influences. Although findings from a recent study by Wiese and Akareem (2020) supported the concept of social support theory that states globalised social media platforms lead to homogenous preferences amongst users (Wiese and Akareem, 2020). Therefore, regardless of geographic location, it could be assumed that findings will be similar among millennial consumers.

Moreover, another potential reason why informativeness may positively influence millennials' purchase intentions could be related to when the information regarding social media advertisements comes from online users using electronic word of mouth (EWOM). Indeed, as Pauliene and Sedneva (2019) study highlighted, EWOM positively influences millennial consumers' purchase intentions. However, it is Lim et al. (2017) study which creates the link between EWOM and informativeness, showing that consumers are more likely to listen to the knowledge and experiences of other users when making a purchasing decision. Therefore, in terms of millennials, it could be suggested that SMA effectively influences their purchase intentions on social media advertising when the information comes from other online consumers.

2.4.6 Interactivity impact on millennial's purchase intentions:

Similar to informativeness, Arora and Agarwal's (2020) study highlighted that interactivity positively affects millennials' intent to purchase products from SMA. One potential reason to explain this could be the online interactive nature that social media provides through its online communities. Indeed, as highlighted by Balakrishnan et al. (2014), online social media communities where consumers can share ideas and interact with each other have positively influenced millennials' purchase intentions.

2.5.1 Conclusion and research problem:

The above literature highlights significant opportunities in understanding how SMA factors relate to Ireland's millennials' purchase intentions. However, whilst considerable study and research in assessing interactivity, perceived relevance, and informativeness relationship on consumers' purchase intentions have been done (Alalwan, 2018, Nasir et al., 2021; Hanaysha, 2022), these studies do not apply to specific generational cohorts. Furthermore, while Arora and Agarwal (2020) considered these factors on millennials, their study's findings only applied to their particular locality. Therefore, this paper acknowledges a gap within the literature and an opportunity to extend the knowledge area concerning how SMA factors relate specifically to millennials' purchase intentions in Ireland, which could assist with gaining an understanding of this cohort within more regions. Moreover, as social media spending within Irish businesses increases annually (Statista, 2022a), this study provides valuable insights for organisations trying to target this generation more effectively with their SMA strategies.

Chapter 3

Research question, objectives and hypotheses

3. Research question, objectives and hypotheses:

3.1.1 Research question:

This study explores the SMA factors of perceived relevance, informativeness, interactivity and their corresponding relationship with the purchase intentions amongst the millennials in Ireland. This study's aims is to understand how Irish companies can use SMA more effectively to target millennials. To assist with this, the theory discussed in the literature review provides the primary foundation for this study's research objectives. This study's primary objectives and hypotheses below aim to answer the research question "The relationship between social media advertising factors and the purchase intentions of millennials within Ireland".

3.1.2 Research objectives and hypotheses:

The 3 research objectives and corresponding hypotheses below were formulated from identified gaps in the literature review above.

RO1 To assess the relationship between the social media advertising factor of perceived relevance and the purchase intentions of millennials in Ireland.

H1. *There is a significant positive relationship between perceived relevance and purchase intentions.*

RO2 To assess the relationship between the social media advertising factor of informativeness and the purchase intentions of millennials in Ireland.

H2. *There is a significant positive relationship between informativeness and purchase intentions.*

RO3. To assess the relationship between the social media advertising factor of interactivity and the purchase intentions of millennials in Ireland.

H3. *There is a significant positive relationship between interactivity and purchase intentions.*

Chapter 4

Methodology

4. Methodology

4.1.1 Introduction:

This chapter will discuss the research methods and approaches used in the current study. The chapter format begins with an overview of the research approach, design and instruments used. It also addresses the tests used when developing the research instruments for the full study, such as the pilot study and reliability and validity testing.

After establishing the research methods and instruments used, this chapter will focus on the sampling stage, which consists of the inclusion-exclusion criteria, sampling methods, sampling procedure and sampling size. Similar to the research instrument section, the sampling section focuses on using the inclusion-exclusion criteria and power analysis to justify the study's sample size and population characteristics.

Furthermore, before discussing the data analysis techniques, normality testing will be conducted to justify the specific inferential statistic tests used in this study.

Additionally, this chapter will discuss the specific data procedure and the descriptive and inferential statistics used in the actual data analysis.

Lastly, this chapter will discuss the ethical considerations and the methodological limitations that this study encountered during its undertaking.

4.2.1 Research approach:

This research employed a positivist approach that condenses research into quantifiable factors that test research questions (Creswell and Creswell, 2018). For example, as Aliyu et al. (2014) highlight, when describing the positivist research paradigm, the researcher takes the objective view that the world confirms specific guiding and unchanging principles, and impartial repeatable measurement studies overcome these intricacies and complexities. These views that researchers hold are known as an ontology, which along with epistemology, which according to Scotland (2012), concerns how information is researched, formulated and shared, determines the research paradigm, which in this study's case is positivist. This positivist approach can then examine construct relationships using statistical procedures (Creswell and Creswell, 2018). For example, in the case of the positivist research approach, methodologies comprising confirmatory and quantitative analysis are frequently used (Aliyu et al., 2014). This research approach can also be seen in the case of past studies similar to this study (Alalwan, 2018).

4.2.2 Research design:

The study employed a cross-sectional design, which captures observations on a selected group at one point in time to later measure with statistical procedures (Thiese, 2014; Creswell and Creswell, 2018). These studies are referred to as observational as their sole focus is on the researcher making observations (Mann, 2003; 2012). The reason for choosing this type of research design for this study came for several reasons. Firstly, this type of design is frequently employed for population-based questionnaires as it is a fast and low-cost method for measuring multiple outcomes (Levin, 2006; Thiese, 2014; Setia, 2016). Secondly, as this study is looking to examine how common or prevalent it is for SMA to be positively related to the purchase intentions of millennials, a cross-sectional study is most appropriate, according to Mann (2003) and is a research design typically employed within similar studies identified within the literature (Alalwan, 2018; Arora and Agarwal, 2020; Nasir et al., 2021).

4.2.3 Research instruments:

Data was collected using a questionnaire based on a 7-point multi-Likert scale used in Alalwan's (2018) study. The specific items used to construct this survey can be seen below in Table 3, which consisted of multiple Likert item scales which examined the constructs of perceived relevance, interactivity, informativeness and purchase intentions. Additionally, this study's survey also consists of demographic and descriptive questions in Appendix G that were necessary for the survey's sample inclusion-exclusion criteria in Table 6, seen below in the sampling section.

Furthermore, as this study's research question and objectives outlined above in Chapter 3 looked to examine the relationship between millennial consumer's purchase intentions and the social media advertising factors of perceived relevance, informativeness and interactivity, this study adopted the research survey instruments used and validated from previous studies examining the same relationship using a positivist quantitative paradigm (Alalwan, 2018; Nasir et al., 2021). Therefore, using these instruments that were implemented in previous studies allowed this study to answer the research question using an existing validated methodology.

Moreover, in addition to establishing the survey's relevance for answering this study's research question, there were other benefits of using a questionnaire. For example, questionnaires allow researchers to collect data from significant population proportions in a limited time and present other research-specific benefits such as convenience to the participant, reduced interview bias and anonymity (Elangovan and Sundaravel, 2021).

Table 3 Constructs and scale items for research questionnaire

Author	Construct	Items
Zeng, Huang and Dou (2009) **Zhu and Chang (2016)**	**Perceived relevance**	**(PRR1)** *Social media advertising is relevant to me* **(PRR2)** *Social media advertising is important to me* **(PRR3)** *Social media advertising means a lot to me* **(PRR4)** *I think social media advertising fits my interests* **(PRR5)** *I think social media advertising fits with my preferences*
Jiang et al. (2010)	**Interactivity**	**(INTER1)** *Social media advertising is effective in gathering customer's feedback* **(INTER2)** *Social media advertising makes me feel like it wants to listen to its customers* **(INTER3)** *Social media advertising encourages customers to offer feedback* **(INTER4)** *Social media advertising gives customers the opportunity to talk back*
Logan, Bright and Gangadharbatla (2012)	**Informativeness**	**(INF1)** *Social media advertising is a good source of product information and supplies relevant product information* **(INF2)** *Social media advertising provides timely information* **(INF3)** *Social media advertising is a good source of up-to-date product information* **(INF4)** *Social media advertising is a convenient source of product information* **(INF5)** *Social media advertising supplies complete product information*
Duffet (2015)	**Purchase intention**	**(PIN1)** *I will buy products that are advertised on social media* **(PIN2)** *I desire to buy products that are promoted on advertisements on social media* **(PIN3)** *I am likely to buy products that are promoted on social media* **(PIN4)** *I plan to purchase products that are promoted on social media*

4.3.1 Pilot study:

A pilot study was conducted prior to the main research study. The purpose of a pilot study is to develop and ensure that the research instruments used are adequate and feasible for the entire study (Connelly, 2008). Indeed, in the case of running this study, the researcher received feedback on their questionnaire research instrument from participants and their supervisor, such as ensuring that all questions were compulsory to reduce the chance of missing data and to present demographic questions after the survey Likert items, to reduce response bias.

4.4.1 Validity testing- Construct validity - Confirmatory factor analysis:

Another critical element within quantitative research is ensuring the construct validity of the research measurements used. Construct validity, described by Westen and Rosenthal (2003**),** identifies whether researchers can accurately make inferences about the specific concepts being tested, e.g., whether the constructs are valid for testing. Typically construct validity is established by addressing how constructs are theoretically correlated to each other (convergent validity) and where they differ from each other (discriminant validity) **(**Zhu, 2000**;** Westen and Rosenthal, 2003). To measure the construct validity of the item constructs of interactivity, perceived relevance, informativeness and purchase intentions seen above in Table 3, a confirmatory factor analysis using SPSS was conducted, which as Roberts and Priest (2006) suggest, is one way of identifying construct validity. KMO and Bartlett's test of sphericity was also run to ensure that the data was deemed acceptable for confirmatory factor analysis. Table A2 below in Appendix A showed a KMO value of 0.889 and a Barlett's test value of $P < .005$, which indicated that the data was adequate for CFA based on previous literature recommendations (Hutcheson, 1999; Pallant, 2020). After KMO and Bartlett's test, the CFA aimed to extrapolate the average variance extracted [AVE] and composite reliability for each item construct and identify the factors, e.g., questionnaire items loaded into their separate constructs.

When testing the convergent validity, research suggests an AVE > 0.50 to achieve convergent validity (Fornell and Larcker, 1981; Henseler, Ringle and Sinkovics, 2009; Hair Jr et al., 2017). Additionally, when examining discriminant validity, Ab Hamid, Sami and Sidek (2017) suggested using the Fornell Larcker model, which examines the square root of AVE against the latent construct's correlations, with a higher √(AVE compared to the latent constructs correlations indicating discriminant validity. As the rotated component matrix below in Table A1, Appendix A highlighted, four components were extracted based on an eigenvalue >1 with each of the individual factors of interactivity (INTER), informativeness (INF), and perceived relevance (PRR) loading into separate components.

However, when it came to identifying if the constructs achieved construct validity with an AVE > 0.50 and √(AVE) greater than the construct's correlations to measure discriminant validity, Table A5 below in Appendix A showed that the construct of INTER did not meet this criterion, with an AVE value of 0.499 and √(AVE of 0.706 < than its correlation with INF of 0.709. Moreover, Table A1 below in Appendix A highlighted that on closer inspection of the factor loadings, the factor loading value of Item 1 of INTER was significantly lower than the other items within its construct at 0.424. Furthermore, as research has shown, it is deemed acceptable to remove factor loadings within the range of 0.40 to 0.70 if its deletion will assist with increasing the construct's AVE and composite reliability (Hair Jr et al.,2017). Therefore, it was deemed acceptable to remove the factor Item 1 of INTER based on its loading value being between this range and its removal increasing AVE and CR. After removing Item 1 from the construct of INTER, the factor analysis was rerun with all of the constructs' AVE values within an acceptable range >0.50 seen in Table 4 below. All constructs, including INTER, now displayed discriminant validity, as seen below in Table 5, with an √(AVE being greater than correlations between the constructs in addition to a higher CR value, achieving construct reliability and meeting the conditions of removing a factor item from Hair Jr et al., (2017).

Table 4 Convergent validity and reliability measures post factor removal

Construct	AVE	CR	Cronbach's alpha	Item	Item loading	Mean	SD
Purchase intentions (PIN)	0.669	0.89	0.933	PIN1	0.818	4.420	1.658
				PIN2	0.790	4.000	1.725
				PIN3	0.788	4.170	1.716
				PIN4	0.872	3.950	1.667
Perceived Relevance (PRR)	0.532	0.85	0.894	PRR1	0.770	5.090	1.543
				PRR2	0.784	4.270	1.721
				PRR3	0.728	3.580	1.804
				PRR4	0.677	4.590	1.550
				PRR5	0.683	4.620	1.530
Interactivity (INTER)	0.583	0.846	0.890	INTER2	0.590	4.280	1.708
				INTER3	0.784	4.380	1.773
				INTER4	0.883	4.360	1.904
				INTER5	0.767	4.300	1.800
Informativeness (INF)	0.505	0.831	0.871	INF1	0.698	5.010	1.466
				INF2	0.756	4.910	1.448
				INF3	0.850	5.170	1.422
				INF4	0.742	5.430	1.239
				INF5	0.442	4.140	1.587

Note. Item loading figures were taken from Table A6, Appendix A. For Mean and Standard deviation, figures were taken from Appendix E descriptive statistics. Cronbach alpha values taken from APPENDIX C. CR and Ave were calculated in Excel.

Table 5 Construct's validity, convergent and discriminate validity post factor removal

Construct	**CR**	**AVE**	**PRR**	**INTER**	**INF**	**PIN**
PRR	0.850	0.532	**0.730**			
INTER	0.846	0.583	0.583**	**0.763**		
INF	0.831	0.505	0.580**	0.676**	**0.711**	
PIN	0.890	0.669	0.704**	0.514**	0.480**	**0.818**

Note. CR and Ave were taken from Table 4 above. The bold diagonal numbers are the constructs' AVE square root values. The off diagonals are the constructs' correlations between each other and are taken from Table A8 Appendix A. Alpha level: $P < 0.001$ = **

Please refer to Appendix A for detailed result on validity testing and Appendix B for the settings used to perform the confirmatory factor analysis on SPSS.

4.4.2 Reliability testing – Cronbach's Alpha:

After identifying construct validity, Cronbach's alpha was then used to examine the reliability of the research survey's constructs seen above in Table 3, with the exception of item 1 of INTER. The purpose of Cronbach's alpha is to examine the internal consistency, which looks to explain the degree to which scale items used in a test measure the same construct and, therefore, their interrelationship (Kimberlin and Winterstein, 2008; Tavakol and Dennick, 2011). Moreover, as Heo, Kim and Faith (2015) recommend, to increase the statistical power regardless of the research design or setting, developing research scales with greater Cronbach alpha values is crucial when using questionnaire items to assess research outcomes. Furthermore, to ensure the validity of the research test, Cronbach's alpha should be employed prior to the data analysis (Tavakol and Dennick, 2011). In the current study, for the constructs used in the survey, Table 4 above showed a Cronbach alpha range of 0.871 to 0.933. According to Taber (2018), this falls within both the reliable Cronbach alpha range of (0.84-0.90) and the strong range of (0.91 – 0.93), highlighting a solid interrelatedness. Therefore, it could be concluded that this study's research instruments were both valid and reliable.

Please refer to Appendix C for detailed result on reliability testing

4.5.1 Sampling - Sampling method:

For the sampling method, this study utilised a non-probability convenience sampling technique to be consistent with the sampling methods used in similar studies (Alalwan, 2018; Nasir et al., 2021). According to Etikan, Musa and Alkassim (2016), a convenience sampling method gathers participants based on criteria such as ease of access, local proximity, and willingness to participate. The benefits of choosing a convenience sampling approach come from its common application and low cost (Acharya et al., 2013). Other benefits stated by Bornstein, Jager and Putnick (2013) include its ease of use and speed for gathering responses, which in the study's case was greatly helpful due to the urgency of gathering responses in a short time.

4.5.2 Sampling – Inclusion - Exclusion criteria:

The inclusion-exclusion criteria in Table 6 below ensure that the population characteristics targeted by the research question are accurately assessed (Patino and Ferreira, 2018), and it is essential in creating high-quality research (Connelly, 2020). In the case of this study, the inclusion-exclusion criteria were crucial during the sampling process to ensure that the sample population was representative of the population this study was trying to research.

Table 6 Study inclusion-exclusion criteria

Inclusion Criteria	Exclusion Criteria
Human adult participants (aged – 23 - 41)	*No children, vulnerable people*
Proficient level of English	*Non-English speakers*
Uses at least one of the following social media platforms (Facebook, Tiktok, Linkedin, Snapchat, Instagram, Twitter, YouTube)	*Non-validated or incomplete questionnaire responses*
Participants must be living in Ireland	*Requests to be retracted from questionnaire survey*

4.5.3 Sampling - Sampling procedure:

In the case of this research paper, a sample flow chart below was created detailing the sampling process. The research survey was conducted online using the survey platform Survey Monkey between the 14th of June 2022 and the 23rd of June 2022. From the initial collection period, 145 respondents were initially gathered. After accounting for the inclusion criteria of criteria seen above in Table 6, the sample size was reduced to 116 respondents for the data analysis, with Figure 1 below detailing the sampling process.

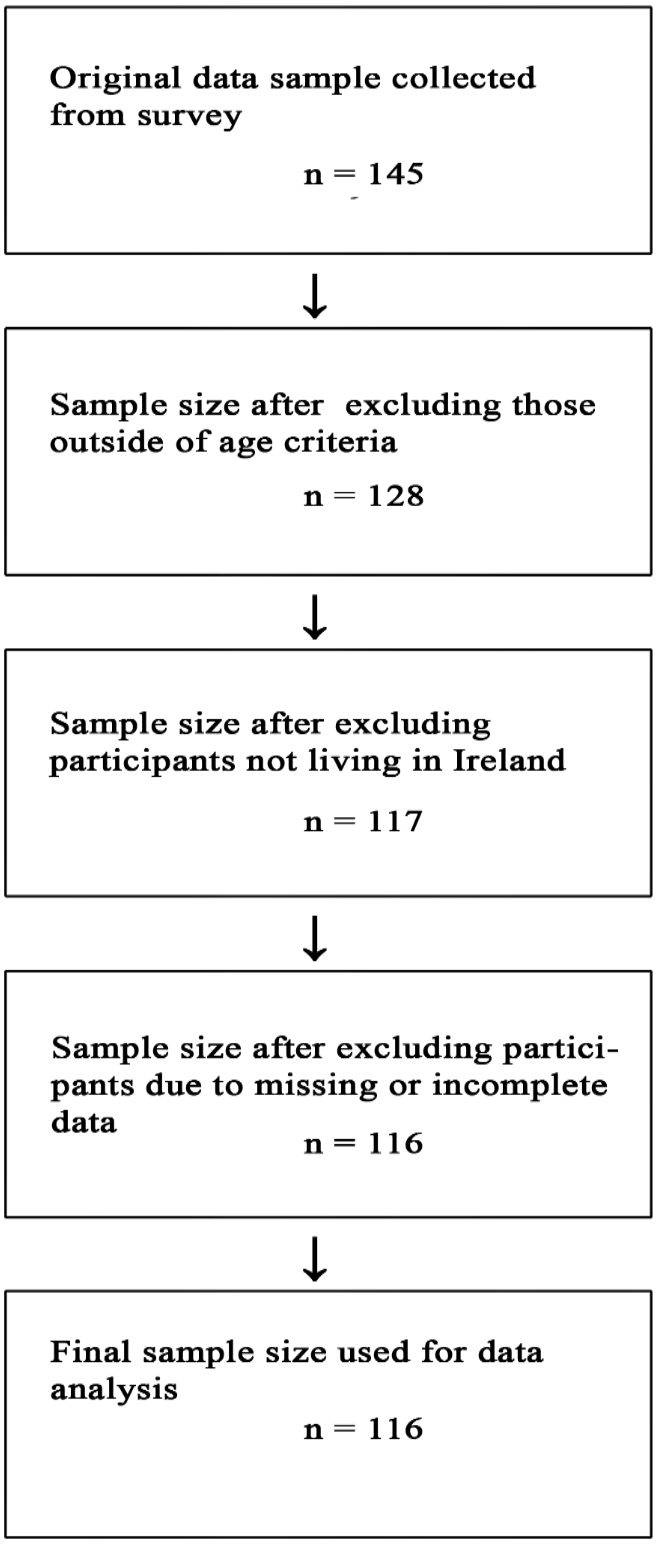
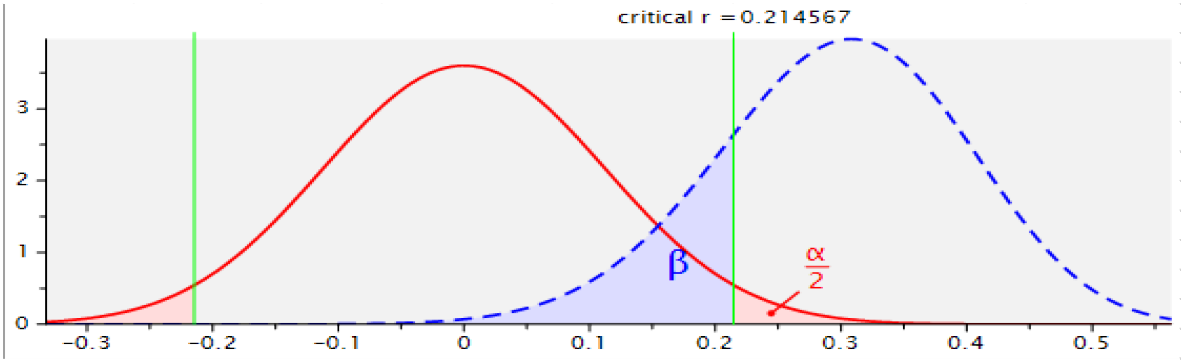


Figure 1 Sample flow chart of current study

4.5.4 Sampling - Sample size:

According to Morse (2000), when determining the study's sample size, one method is to refer to previous related studies. From assessing previous studies, the appropriate sample size was 400-600 (Alalwan, 2018; Nasir et al., 2021). However, for this study and the statistical methods used, a power analysis seen below in Figure 2 was firstly used to address the minimum appropriate sample size. For the power analysis, an alpha level of 0.05 was deemed appropriate based on its common use within numerous social media studies similar to this study (Agnihotri et al., 2016; Han and Kim, 2018; Sohaib, Hui and Akram, 2018). Additionally, when selecting the actual analysis setting, a bivariate analysis was chosen based on Pearson's correlation and Spearman's rho being computationally identical, with the only difference being that Spearman's rho is calculated based on transformed ranks (De Winter, Gosling and Potter, 2016). For the effect size, a medium effect size of 0.30 was chosen based on its appropriate use for market research studies (Cohen, 1992) or studies relating to human behaviour (Sawyer and Ball, 1981), which aligns with this research study. Lastly, a power level of 0.80 was chosen, which is considered an ideal power value for research (Serdar et al., 2021). After running the analysis, the necessary sample determined for a bivariate analysis was 84. Therefore, as this study had 116 participants, the size of this study's sample was deemed appropriate for the statistical analysis being performed.



Power	Alpha level	Effect size	Lower critical r	Upper critical r	Total sample size required	Actual power
0.8	0.05	0.3	-0.21	0.21	84	0.8003

Figure 2 Power analysis using G*Power to determine sample size for Spearman's rho

4.6.1 Normality testing - Shapiro Wilks test:

Normality tests were conducted before considering whether parametric or non-parametric measures were appropriate for the data analysis. These tests are essential because parametric statistical measures assume normal distributions (Razali and Wah, 2011), whereas, with non-normally distributed data, non-parametric measures are advised (Rana, Singhal and Dua, 2016; Andrade, 2021). The normality of the construct's perceived relevance, interactivity, purchase intentions and informativeness was assessed on SPSS using the Shapiro Wilks test, as it is frequently recommended over other similar methods (Steinskog, Tjøstheim, and Kvamstø, 2007; Ghasemi and Zahediasl, 2012). The basis behind this test is that it assesses whether a sample is normal by comparing the sample scores to those of a normally distributed sample, with the sample distribution deemed not normal if the test findings are significant (Ghasemi and Zahediasl, 2012). From analysing the constructs below in Table 7, the p-value for each construct was significant, P value of 0.05<. Therefore, the distributions for each construct were found not to be normally distributed.

4.6.2 Normality testing - Visual normality tests:

Normality was also tested using a histogram and QQ plot. The histogram checks normality by observing the plotted frequency of distributions to estimate the normal distribution, whereas the QQ plot compares the quantiles of the sample distribution with those of a theoretical normal distribution (Das and Imon, 2016). From examining the histogram charts, Figures D5, D7, D9 and D11 below in Appendix D showed that all constructs differed significantly from the overlaid normal distribution curve. Additionally, from analysing the QQ plots, Figures D6, D8, D10, and D12 below in Appendix D also showed deviations from normality for each construct, inferring a non-normal distribution. Therefore, by utilising both visual and statistical tests to measure the normality of the item constructs, the constructs were found not to be normally distributed in both tests.

Table 7 Normality tests on constructs- Shapiro-Wilk

Construct	Statistic	df	Sig.
Purchase intentions (PIN)	0.953694	116	0.000523
Informativeness (INF)	0.933102	116	0.000021
Interactivity (INTER)	0.95749	116	0.001013
Perceived relevance (PRR)	0.970672	116	0.012029

Please refer to Appendix D for detailed result on normality testing

4.7.1 Data analysis:

The following section details the data analysis methods that were applied to the data collected from the primary research survey conducted within this study.

4.7.2 Data analysis - Statistical procedures:

IBM SPSS and Microsoft Excel were used to perform the statistical analysis outlined within this research study. For this study, Microsoft excel was first used to code and prepare the data taken from Survey Monkey to be analysed within IBM SPSS. In SPSS, the 18 Survey Likert items involving perceived relevance, informativeness, interactivity and purchase intentions were coded and changed into ordinal data variables. They were then prepared into tables and box plots to describe the dataset's central distribution and variability using the median and interquartile range. Furthermore, frequency tables were used to discuss the respondents' demographic and social media user profiles. After discussing the individual Likert items, the 18 survey Likert items were summated and created into four separate constructs for inferential statistics. These constructs were then tested using Spearman's rho to identify the relationship between the construct of purchase intentions with the constructs of perceived relevance, informativeness and interactivity. For significance testing of the studies hypothesis, an alpha level of 0.05 was chosen to determine whether the test results were significant and whether the researcher should reject the null hypothesis.

4.7.3 Data analysis- Descriptive statistical methods:

The first section of the data analysis involved using descriptive statistics. Descriptive statistics are used to assist with summarising and describing the dataset's structure in order to inform more complex inferential statistical tests (Botti and Endacott, 2005).

4.7.4 Data analysis - Measures of central tendency:

According to Wilcox and Keselman (2003), measures of central tendency look to identify the value that represents the data's central location, which, according to Manikandan (2011), enables researchers to find the representative values of an entire distribution from this single value. For descriptive statistics that describe ordinal data (Allua and Thompson, 2009), measures such as the median were chosen based on Jamieson's (2004) suggestions that deem these appropriate over measures such as the mean for ordinal data. Therefore, when discussing the specific individual Likert items related to each construct seen above in Table 3, with the exception of item 1 of INTER, the median is the most appropriate measure for central tendency, according to Boone and Boone (2012). Although in the case of the constructs formulated from summating the individual Likert items and getting the total sum, these constructs form Likert scale data and can therefore be treated as interval or continuous variables. However, while Boone and Boone (2012) advised using the mean for the interval variables, Kaur, Stoltzfus and Yellapu (2018) argue against this, stating that the mean should only be used when data is normally distributed as the mean is heavily impacted by distribution skewness and outliers. Moreso, from acknowledging the normality testing findings above, this study decided on using the median over the mean.

4.7.5 Data analysis - Measures of dispersion:

Measures of dispersion are used to look at the degree of similarity or diverseness between responses within the sample (Kaur et al., 2018). In the case of this research, for Likert scale items and constructs deemed ordinal and interval, the interquartile range was used to describe

the variability or dispersion within the sample. The inter-quartile range addresses the variability or dispersion in a data set by identifying the difference between the lower quartile (25th percentile) and upper quartile (75th percentile) within the data set (Clark-Carter, 2005), with a more significant value signifying that that distribution spread between the first and third quartile is wider. Furthermore, while the range was considered for this study, the interquartile range is seen to be a more effective measure of dispersion due to it not being impacted by outliers in the data (Kaur et al., 2018). Additionally, similarly to the mean, the standard deviation was chosen not to be reported based on its requirement that the data being examined is normally distributed. Instead, in the case where data is ordinal or numerical but not normally distributed, Manikandan (2011) suggested using both the median and interquartile range.

4.7.6 Data analysis - Inferential statistics:

For research involving ordinal data Jamieson (2004) suggested using nonparametric inferential statistics for Likert data. Indeed, as parametric measures require the assumption of normality to be fulfilled, which in the case of this study was not, it was, therefore, deemed more appropriate for this study to use nonparametric measures. A Spearman's rho correlation was used to test the relationship between the data variables, consisting of four interval scaled items deemed not to be normally distributed. This measure, as opposed to the parametric Pearson's correlation, has an advantage when data is not normally distributed, with the latter having reduced power and a tendency to increase type 1 errors (De Winter et al., 2016). Furthermore, in terms of its use within social media research, Spearman's rho has been frequently used to test the relationship between advertising factors and consumer purchase intentions (Mekawie and Hany, 2019; Hermanda, Sumarwan and Tinaprillia, 2019; Ali Taha et al., 2021), therefore for this studies purposes, it was chosen as the most appropriate statistical measure.

4.8.1 Ethical considerations:

Ethical considerations regarding participant data, consent and data security were duly considered for this survey and highlighted within the submitted NCI ethics form.

4.8.2 Participant consent and anonymity:

Survey participants were also presented with a participation information sheet and informed consent form that made them explicitly aware of the purpose of the research study and that they were required to acknowledge the text in the above consent form before participating. After reading the informed consent form, participants were made aware that if they continued with the survey, they would be providing their consent and participation in the research study.

Additionally**,** before the commencement of the survey, participants were also made aware that their participation and data gathered from the survey would be treated anonymously. Consequently, no identifiable questions were asked regarding the survey participants, and no identifiable information such as participants' IP addresses were logged. Furthermore, as a result of ensuring participant anonymity, their responses could no longer be withdrawn once they had completed and submitted the survey. Additionally, while the researcher provided their email in case any participant had a concern or question, no responses were logged throughout the study.

4.8.3 Data security and storage:

Additionally, after the survey had gathered sufficient responses required for the survey, these responses were then exported into an Excel format, where they were then stored on the researcher's student one drive to ensure data security. Furthermore, the researcher's computer is password encrypted and has an anti-virus protection Kaspersky software to ensure data security against external threats. Additionally, as stated under NCI's data security policies, all data concerning the participants will be held from the period of the dissertation submission up until 6 months after, whereby it will then be deleted.

4.9.1 Limitations:

While the researcher in this study looked to ensure that the findings generated from the methodology section would provide highly valid and reliable results that can be generalised in further studies, several limitations must be acknowledged within the study's methodology. This study's first limitation concerned the weaknesses of the convenience sampling method. Indeed, utilising a convenience sampling method presented limitations in introducing self-selection bias (Brodaty et al., 2014) and issues around the generalisability of the study's findings, which applied only to the examined sample (Acharya et al., 2013; Bornstein, et al., 2013). To limit the impact of self-selection bias Skowronek and Duerr (2009) suggested reflecting the population's characteristics with the sample, which this study attempted to do by ensuring that the demographic of the sample population matched Ireland's millennial demographics of females at 51% and male at 49% (See Appendix H). However, as Table 8 below in the results section highlighted, the researcher could not get these specific demographics due to not having access to a greater range of female participants. Therefore, this limitation within the study needs to be acknowledged that whilst the participants in this sample are all within the millennial age cohort and living in Ireland, which matches the study's purpose, the specific demographic gender makeup of the sample population differed slightly from the actual population.

Another disadvantage that this study acknowledged was its use of a cross-sectional design. Indeed, while this design was chosen based on its appropriateness and prevalence within similar research studies, e.g. (Alalwan, 2018, Nasir et al., 2021), there are some limitations, according to Levin (2006), such as the difficulty in identifying causal relationships, due to these studies being based on a single point of time, where results could differ had a different period been chosen.

Another limitation of this study's methodology was using non-parametric tests such as Spearman's rho over parametric tests such as linear regression for significance testing. Indeed, as Kaur and Kumar (2015) have highlighted, parametric tests are generally more robust and generate more significant conclusions than non-parametric tests. However, as this study found the data not to be normally distributed, parametric tests were deemed inappropriate as they rely on the assumption of normality. Furthermore, although it has been stated that with large enough sample sizes greater than 40 that violating the assumption of normality does not lead to significant issues (Pallant, 2020) due to the central limit theorem assuming normality of distributions regardless of how the data is distributed (Field, 2013), this view has been argued. For example, Lumley et al. (2002) state that a larger sample greater than 500 is required to assume, on average, that the data is normally distributed. Furthermore, in the case of breaking the assumption of normality for linear regression, Li et al. (2012) suggest that a large sample size >3000 is required to disregard the assumption of normality. Therefore, while this study acknowledged that parametric measures might provide more significant results, this would only be the case if the data were normally distributed or if the sample size of this study, n=116, was large enough to disregard this assumption.

Another limitation that this study acknowledges is that in the case of the scale interactivity, as this study dropped item 1 of INTER, this has essentially altered the scale measurement, potentially impacting its validity. However, removing this item was required to achieve construct validity and also deemed appropriate based on research advice from (Hair Jr et al., 2017) that suggests removal of factors within the range of 0.40-0.70 if it increases the constructs' composite reliability and AVE values, which in the case of this research study it did.

Chapter 5

Results

5. Results:

5.1.1 Introduction:

This chapter details the results of the data analysis conducted on this study's sample to answer the proposed research question, "The relationship between social media advertising factors and the purchase intentions of millennials within Ireland", with the following hypothesis tested to address the research question.

H1. *There is a significant positive relationship between perceived relevance and purchase intentions.*

H2. *There is a significant positive relationship between informativeness and purchase intentions.*

H3. *There is a significant positive relationship between interactivity and purchase intentions.*

The analysis is presented in the following format: Firstly, the findings of the descriptive statistics starting with the participant demographic profiles are discussed using frequency tables. Secondly, descriptive measures of central tendency and dispersion on the Likert scale items from each construct are presented and discussed using descriptive tables and boxplots. Thirdly, the summated constructs are then discussed in terms of their central distribution, dispersion, skewness and kurtosis using descriptive tables. Lastly, Spearman's rho is used for inferential statistics that examine the relationship between the examined variables and test the above hypotheses.

5.2.1 Descriptive statistics - Participants demographics and social media usage:

145 responses were collected. However, after removing responses that did not fit the inclusion-exclusion criteria and missing data, 116 were deemed acceptable for further analysis. Of these responses, 56.9% were male and 43.1% female. The most significant percentage of participants were within the age groups of 27-30 at 34.5%, 31-34 at 26.7% and 23-26 at 22.4%, while the smallest group consisted of those within the age groups of 39-41 at 4.3% and 35-38 at 12.1%. It was also shown that respondents had an excellent education level, with 49.1% having a bachelor's degree, 31.9% having a master's degree, 1% being a PhD student or graduate, and 18.1% being an undergraduate or less.

Of the valid survey responses, all participants used at least one of the following social media platforms: Facebook, Instagram, Twitter, YouTube, LinkedIn, TikTok and Snapchat. The most significant proportion, 57.8%, had an Instagram account, followed by 51.8% with a Facebook account, 47% with a YouTube account, and 39.8% with a LinkedIn account. A smaller proportion of 28.3% of participants used Twitter, with 21.1% using Snapchat and 20.5% using TikTok. Additionally, of participant's daily social media usage, the most significant percentage of participants were seen to use social media less with 42.2% at 1-2hrs, 38.8% at 3-4hrs, with a smaller percentage using social media for a reasonable and extended period of time with 14.7% at 5-6hrs, 2.6% at 9-10 hrs and 1.7% at 7-8hrs.

Lastly, of participant's social media usage length (Years), the vast majority of users were seen to have been on social media for a significant period, with the majority of participants using social media for longer than 10 years at 54.3%, between 9-10 years at 21.6%, followed by 5-6 years at 12.1% and 7-8 years at 8.6%. Only a minor percentage of participants were seen to have used social media for a smaller period, with only 2.6% of users between 3-4 Years and 1% at 1-2 years. To see a summary of participants' demographic and social media usage profiles discussed above, please refer to Tables 8 and 9 below.

Table 8 Descriptive statistics - Participant demographics n = 116

	Items	Frequency	Percentage
Gender	Male	66	56.9
	Female	50	43.1
Age	23- 26	26	22.4
	27 - 30	40	34.5
	31 - 34	31	26.7
	35-38	14	12.1
	39-41	5	4.3
Education	Undergraduate or less	21	18.1
	Bachelor's degree	57	49.1
	Masters	37	31.9
	PHD student or graduate	1	1

Table 9 Descriptive statistics - Social media usage profile of millennial's n = 116

	Frequency	Percentage
Social media usage (Years)		
1- 2 Years	1	1
3 - 4 Years	3	2.6
5- 6 Years	14	12.1
7- 8 Years	10	8.6
9- 10 Years	25	21.6
> 10 Years	63	54.3
Social media daily usage (Hours per day)		
1-2 hours	49	42.2
3-4 hours	45	38.8
5-6 hours	17	14.7
7-8 hours	2	1.7
9 -10 hours	3	2.6
Social media platforms used		
Facebook	86	51.8
Instagram	96	57.8
Twitter	47	28.3
Snapchat	35	21.1
TikTok	34	20.5
LinkedIn	66	39.8
YouTube	78	47.0

5.2.2 Descriptive statistics - Perceived relevance Likert scale items:

The Median (Mdn) and the interquartile range (IQR) were calculated for all the scale items addressed within the current research study. As presented below in Table 10, all perceived relevance items except PRR3 had a median of 5 as the centre point of their distribution. This means that in their responses, the participants in this study generally agreed that SMA was relevant to their values and needs. IQR (Q1 – Q3), which covers the middle 50% of the data distribution (Krzywinski and Altman, 2014), showed values between 1-3, with the highest IQR belonging to items PRR2 and PRR3 (IQR = 3) and the lowest with PRR1 (IQR = 1). Figure 3's boxplot below illustrated the IQR, with the central blue box section, which visually showed that the level of variability within Likert items PRR2 and PRR3 was more significant over the other items within the scale. In contrast, with items PRR1 and PRR2, there was less variability, with the middle 50% of responses being more narrowly spread.

Table 10 Descriptive statistics - Perceived relevance Likert items

Item	N	Interquartile Range	Median
PRR1	116	1.00	5.0
PRR2	116	3.00	5.0
PRR3	116	3.00	4.0
PRR4	116	1.75	5.0
PRR5	116	2.00	5.0

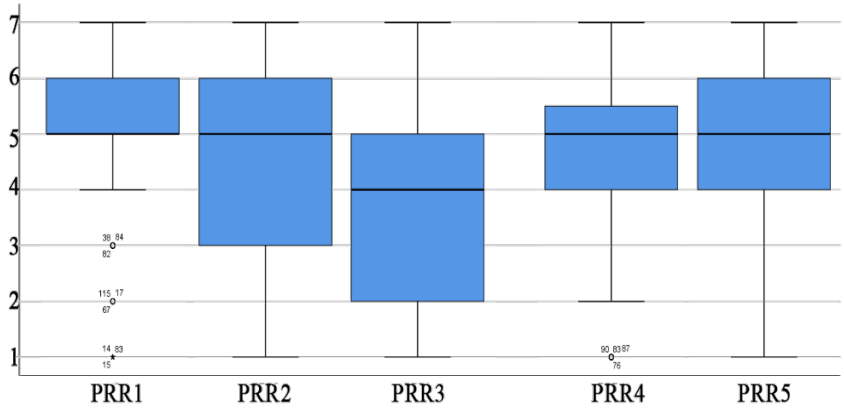


Figure 3 Boxplot of Perceived relevance Likert items

5.2.3 Descriptive statistics - Informativeness Likert scale items:

As presented in Table 11 below, in terms of informativeness, several different medians were observed within the informativeness items. For example, the highest median observed was 6 (INF4), whereas the lowest median score was 4 (INF5). It was also observed that informativeness had the most significant difference between medians of all Likert items examined. Additionally, the most common median was 5, and since only one median was below 5, it was surmised that generally, in their responses, participants within this study found SMA to be a good source of information. Futhermore, as the boxplot below in Figure 4 highlighted, it was seen that compared with the other Likert constructs of perceived relevance and interactivity, the level of variability within the middle 50% of distribution responses for informativeness overall was lower, with the highest IQR of 2 (INF2, INF5) and the lowest IQR of 1 (INF1, INF3, INF4).

Table 11 Descriptive statistics - Informativeness Likert items

Item	N	Interquartile Range	Median
INF1	116	1.00	5.00
INF2	116	2.00	5.00
INF3	116	1.00	5.50
INF4	116	1.00	6.00
INF5	116	2.00	4.00

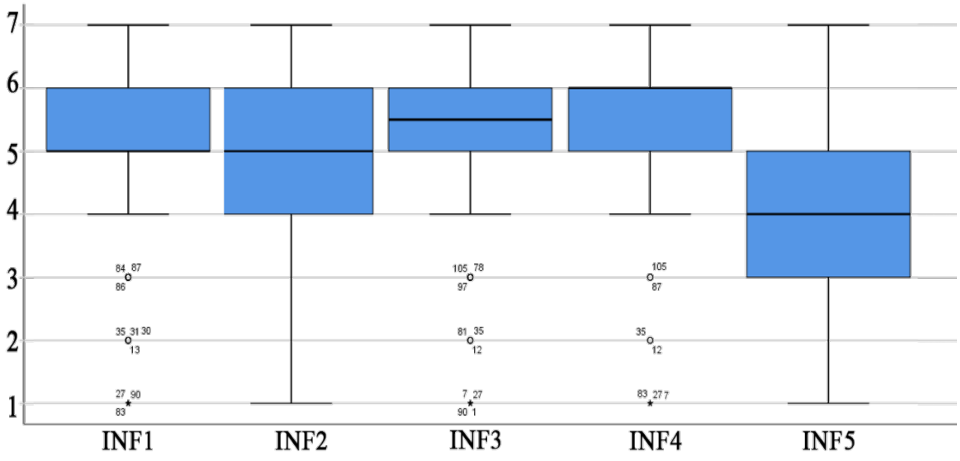


Figure 4 Boxplot of Informativeness Likert items

5.2.4 Descriptive statistics - Interactivity Likert scale items:

The Median and the interquartile range were also calculated for all the Likert items on interactivity. As presented below in Table 12, all interactivity items (INTER2→INTER5) had a median of 5, indicating the central point of the distribution of responses. This means that the in their responses, participants in this study generally agreed that SMA provided a high level of interactivity. IQR values for interactivity, as opposed to perceived relevance, were more consistent across each other, with all of the items having an IQR of 3 except INTER2. This can be seen below in Figure 5's boxplot, which showed that level of variability between 3 of the items (INTER 3,4,5) responses were more dispersed than INTER 2 within the middle half of the distribution.

Table 12 Descriptive statistics - Interactivity Likert items

Item	N	Interquartile Range	Median
INTER2	116	2.00	5.00
INTER3	116	3.00	5.00
INTER4	116	3.00	5.00
INTER5	116	3.00	5.00

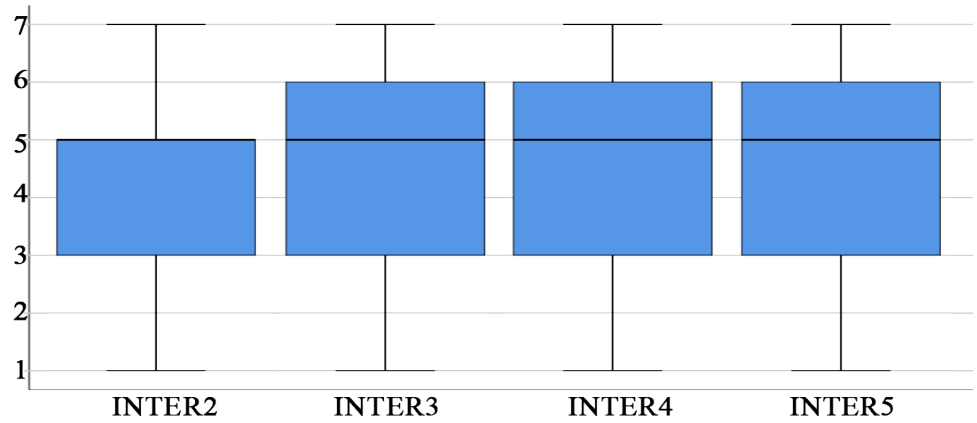


Figure 5 Boxplot of Interactivity Likert items

5.2.5 Descriptive statistics - Purchase intention Likert scale items:

As presented below in Table 13, in terms of purchase intentions, as opposed to the previous item scales where the most reported median across the items was 5, in the case of purchase intentions, it was found to be lower. For example, while the highest median observed in purchase intentions was 5 (PIN1), the majority of items had a median below 5 (PIN2, PIN3, PIN4) but above 3, therefore suggesting that while participants in this study did not disagree that they were going to purchase products through SMA, their responses were generally neutral. Additionally, as Table 13 highlighted, in terms of the level of variability between values, the IQR ranged from 2.75 for (PIN2, PIN3) to 3.00 for (PIN1, PIN4), showing that the level of variability within the middle 50% of the distribution between all of the scale items was quite close as can be seen below in Figure 6's boxplot.

Table 13 Descriptive statistics – Purchase intention Likert items

Item	N	Interquartile Range	Median
PIN1	116	3.00	5.00
PIN2	116	2.75	4.00
PIN3	116	2.75	4.50
PIN4	116	3.00	4.00

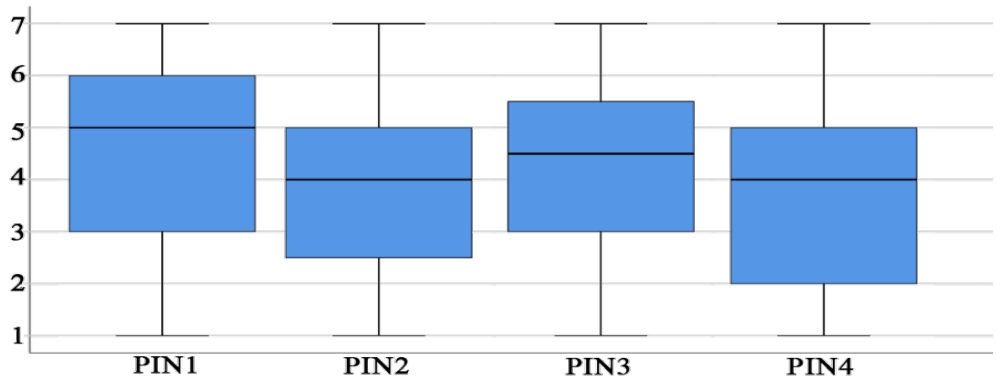


Figure 6 Boxplot of Purchase intention Likert items

5.2.6 Descriptive statistics - Summated constructs:

This section of the descriptive statistics looked to examine the constructed Likert scales relating to perceived relevance (PRR), interactivity (INTER), informativeness (INF) and purchase intentions (PIN). The Likert scales for each construct were created by summating the totals of each specific item relative to their construct. Indeed, as highlighted by Sullivan and Artino (2013) and Murray (2013), Likert type items are commonly grouped into a Likert scale, which can be calculated either by getting the mean score of all the Likert type items added together or by just summating all of the Likert type items. In the case of this research, the Likert scales for the constructs were created through summation of the individual Likert items. Furthermore, Boone and Boone (2012) highlighted that measures such as the standard deviation and the mean could be used on Likert scales and treated as interval variables instead of ordinal ones. However, this study chose not to use them as the standard deviation and mean required that the distributions are normal, a limitation mentioned previously in this study's methodology.

Table 14 below presented the descriptive statistics for the study's constructs. The study used a 7-point Likert scale for scoring constructs with a composite score of 4-28 for the 4 item scales of purchase intentions and interactivity and a composite score of 5-35 for the 5 item scales of informativeness and perceived relevance. Table 14 highlighted that the Interquartile range and median between constructs with four items INTER and PIN were the same (IQR=9, Mdn=18). In the case of 5 item scales of PRR and INF, the findings showed that INF had a lower IQR (IQR= 7) over PRR (IQR= 8.75) while having a higher median (Mdn=25) over PRR (Mdn = 23). Other findings noted in Table 14 showed that all of the constructs had negatively skewed distributions, with INF having a significantly skewed distribution of -1.059 (SE=0.225) compared to other distributions in addition to a significantly peaked distribution with a kurtosis value of 1,691 (SE=0.446).

Table 14 Descriptive statistics – Summated constructs

Construct	N	Median	Interquartile range	Skewness	Std. Error (SE)	Kurtosis	Std. Error (SE)
PRR	116	23.00	8.75	-0.498	0.225	-0.094	0.446
INTER	116	18.00	9.00	-0.404	0.225	-0.762	0.446
INF	116	25.00	7.00	-1.059	0.225	1.691	0.446
PIN	116	18.00	9.00	-0.391	0.225	-0.615	0.446

Please refer to Appendix E for detailed result on descriptive statistics

5.3.1 Inferential statistics:

This section of the results examined the relationship between the summated constructs variables shown above in Table 14 to establish if a significant positive relationship existed. As previously cited, one of the main tasks of this research study was to determine the relationship between the SMA factors of perceived relevance, interactivity, informativeness and purchase intentions. Additionally, as all variables in this study were tested and failed to meet the assumption of normality in the methodology section by both the Shapiro-Wilk test and visual analysis, non-parametric measures such as Spearman's rho were used to examine the relationships between these variables and the test hypotheses outlined within the research question section. Additionally, the hypotheses tested in this study were performed on the summated scores of the study's construct Likert scales and not the individual Likert-type items.

The hypotheses were tested based on their presented order within the research question section.

5.3.2 Inferential statistics- Spearman’s rho testing assumptions:

Before conducting the Spearman’s rho, the assumptions required for Spearman’s rho were firstly addressed. The first assumption stated that the two variables being measured needed to be on either an ordinal, ratio or interval scale (Laerd statistics, n.d.). In the case of this study, the variables intended for Spearman’s rho were deemed acceptable as they were on an interval scale after being summated and transformed into their constructs shown above in Table 14.

The second assumption stated that variables should be of paired observations (Laerd statistics, n.d.), e.g., for each participant, a single paired observation shows the score for both variables being observed. For example, in the case of this study, for 116 participants studied, there were 116 paired observations across all the examined variables, which can be seen in Table 14 above, where N = 116 across all examined constructs.

The last assumption then stated that a monotonic relationship between both variables must exist (Laerd statistics, n.d.), e.g., a positive relationship where when one variable increases, the other variables increases or an inverse relationship where when one value increases, the other decreases. In the case of examining this assumption, visual analysis of the scatterplots was used with a monotonic relationship observed in each of the examined variables, as visually seen below the scatterplot graphs in Figures 7, 8 and 9.

5.4.1 Inferential statistics - Hypothesis 1:

One of the main objectives of this research study was to determine the relationship between the social media advertising factor perceived relevance and the purchase intentions of millennials living in Ireland. The following null hypothesis and its corresponding alternate hypothesis were put forward to test this relationship.

H0: There is no significant relationship between perceived relevance and purchase intentions.

H1: There is a significant positive relationship between perceived relevance and purchase intentions.

5.4.2 Inferential statistics – Spearman's rho test for Hypothesis 1:

A Spearman's rho correlation was used to address this study's first research objective, which looked to assess the relationship between the SMA constructs of perceived relevance and the purchase intentions of millennials. As shown below in Table 15, a significant positive monotonic relationship existed between perceived relevance and purchase intentions Rs (116) =.679, $P < 0.001$, which suggested that a higher level of perceived relevance in SMA was correlated to a higher level of purchase intentions from SMA. The coefficient of determination R^2 value below in Figure 7 showed that perceived relevance accounted for 49.6% of the variance in purchase intentions. Furthermore, as Table 15 showed a moderate correlation between 0.40 - 0.69.9 (Dancey and Reidy, 2007) and was statistically significant at $P < 0.05$, it could be concluded that the null H0 was rejected, and the ***H1 hypothesis was supported, i.e., perceived relevance is positively related to purchase intentions.***

Table 15 Spearman's rho - Purchase intentions (PIN) and Perceived relevance (PRR)

Spearman rank order correlation		**PIN**	**PRR**
Purchase intentions (PIN)	Correlation Coefficient	1	.679**
	Significance (2 Tailed)		.000
	N (Number of observations)	116	116
Perceived relevance (PRR)	Correlation Coefficient (**Rs)**	.679**	
	Significance (2 Tailed)	.000	
	N (Number of observations)	116	116

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

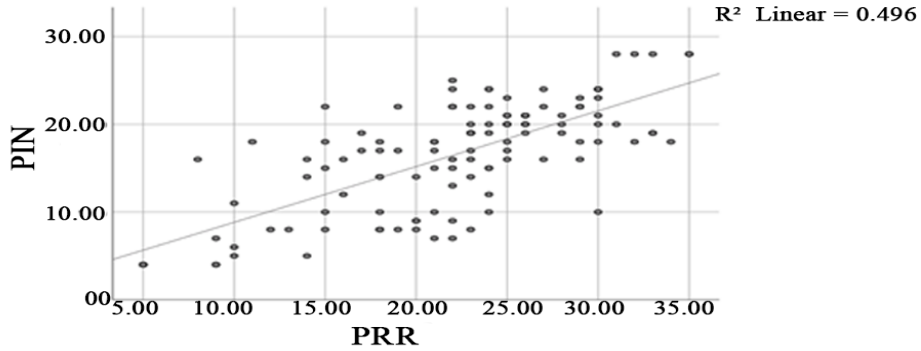


Figure 7 Scatterplot of Spearman's rho - Purchase intentions and Perceived relevance

5.4.3 Inferential statistics - Hypothesis 2:

One of the main objectives of this research study was to determine the relationship between the social media advertising factor informativeness and the purchase intentions of millennials living in Ireland. The following null hypothesis and its corresponding alternate hypothesis were put forward to test this relationship.

H0: There is no significant relationship between informativeness and purchase intentions.

H2: There is a significant positive relationship between informativeness and purchase intentions.

5.4.4 Inferential statistics - Spearman's rho test for Hypothesis 2:

A Spearman's rho correlation was used to address this study's second research objective, which looked to assess the relationship between the SMA construct of informativeness and the purchase intentions of millennials. As Table 16 below showed, a significant positive monotonic relationship existed between informativeness and purchase intentions **Rs** (116) =.424, $P < 0.001$, which suggested that a higher level of informativeness in SMA was correlated to a higher level of purchase intentions from SMA. The coefficient of determination R^2 value shown below in Figure 8 showed that informativeness accounted for 23% of the variance in purchase intentions. Furthermore, as Table 16 showed, a moderate correlation existed between 0.40 - 0.69.9 (Dancey and Reidy, 2007) and was statistically significant $P < 0.05$, it could be concluded that the null H0 was rejected, and the ***H2 hypothesis was supported, i.e., informativeness is positively related to Purchase intentions.***

Table 16 Spearman's rho - Purchase intentions (PIN) and Informativeness (INF)

Spearman rank order correlation		**PIN**	**INF**
Purchase intentions (PIN)	Correlation Coefficient	1	.424**
	Significance (2 Tailed)		.000
	N (Number of observations)	116	116
Informativeness (INF)	Correlation Coefficient (**Rs**)	.424**	
	Significance (2 Tailed)	.000	
	N (Number of observations)	116	116

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

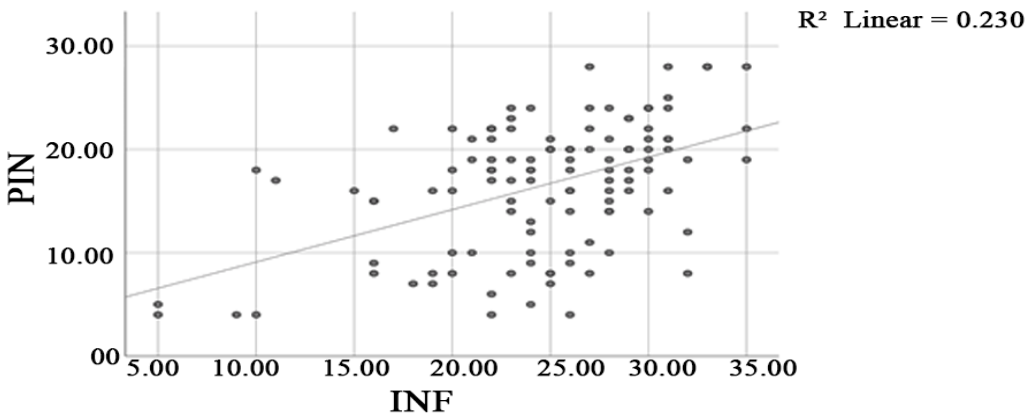


Figure 8 Scatterplot of Spearman's rho - Purchase intentions and Informativeness

5.4.5 Inferential statistics – Hypothesis 3:

One of the main objectives of this research study was to determine the relationship between the social media advertising factor interactivity and the purchase intentions of millennials living in Ireland. The following null hypothesis and its corresponding alternate hypothesis were put forward to test this relationship.

H0: There is no significant relationship between interactivity and purchase intentions.

H3: There is a significant positive relationship between interactivity and purchase intentions.

5.4.6 Inferential statistics - Spearman's rho test for Hypothesis 3:

A Spearman's rho correlation was used to address this study's third research objective, which looked to assess the relationship between the SMA construct of interactivity and the purchase intentions of millennials. As shown below in Table 17, a significant positive monotonic relationship existed between interactivity and purchase intentions **Rs** (116) =.480, P < 0.001, which suggested that a higher level of interactivity in SMA was correlated to a higher level of purchase intentions from SMA. The coefficient of determination R^2 value shown below in Figure 9 showed that interactivity accounted for 26.4% of the variance in purchase intentions. Furthermore, as Table 17 showed a moderate correlation between 0.40 - 0.69.9 (Dancey and Reidy, 2007) and was statistically significant P < 0.05, it could be concluded that the null H0 was rejected and the ***H3 hypothesis was supported, i.e., interactivity is positively related to purchase intentions.***

Table 17 Spearman's rho - Purchase intentions (PIN) and Interactivity (INTER)

Spearman rank order correlation		**PIN**	**INTER**
Purchase intentions (PIN)	Correlation Coefficient	1	.480**
	Significance (2 Tailed)		.000
	N (Number of observations)	116	116
Interactivity (INTER)	Correlation Coefficient (**Rs**)	.480**	
	Significance (2 Tailed)	.000	
	N (Number of observations)	116	116

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

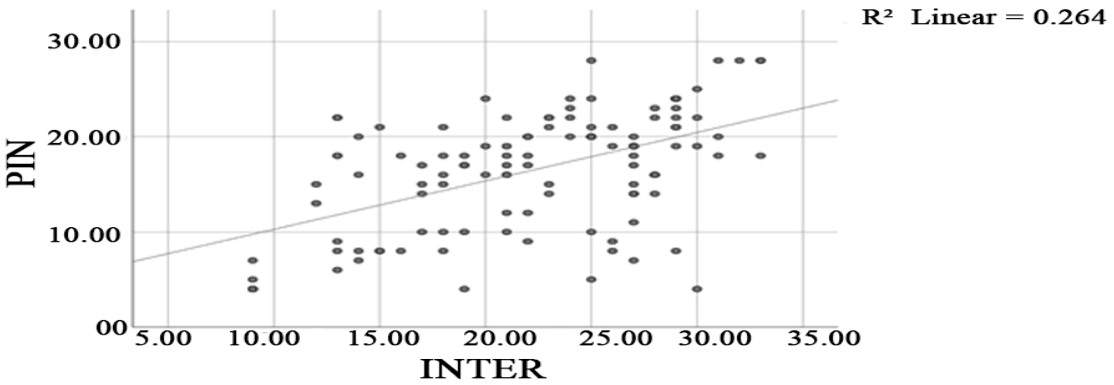


Figure 9 Scatterplot of Spearman's rho - Purchase intentions and Interactivity

Chapter 6

Discussion

6. Discussion:

6.1.1 Discussion introduction into main study findings:

This study was undertaken to understand how social media advertising (SMA) factors relate to millennials' purchase intentions in Ireland. On reviewing the literature related to the areas of SMA and, more specifically, the factors in SMA that relate to the purchase intention of millennials, this study was able to identify 3 factors (perceived relevance, interactivity and informativeness), that are positively related to purchase intentions. From examining this study's key statistical findings, all of the observed factors were seen to be significant and positively related to purchase intentions: (perceived relevance, R**s** 0.679, $P < 0.001$), (interactivity, R**s** 0.480, $P < 0.001$) and (informativeness, R**s** .424, $P < 0.001$), which in turn validated this study's nonparametric model for assessing the research objectives and hypothesis in this study, which looked to address the research question.

6.2.1 Discussion on Spearman's rho model findings – Perceived relevance:

As seen above in Table 15, perceived relevance displayed the strongest positive relationship with the purchase intentions of millennials in Ireland. This suggests that millennials in Ireland who perceived SMA to be more relevant to their needs correlated higher when it came to exhibiting purchase intention behaviours for products presented in SMA. Indeed, it can be seen that if the content is relevant to consumers, they are more likely to participate and be involved with brands, which in turn encourages them to purchase products (Ansari et al., 2019). Moreso, making advertisements more relevant to consumers increases their attention to the advert and thus the advertisements' effectiveness (Jung, 2017). Additionally, increasing the advertisement's effectiveness through more relevant content positively affects consumers' value towards advertisements and thus their purchase intentions (Alalwan, 2018). As expected, the results of this study were consistent with numerous literature findings that show a positive relationship between perceived relevance and purchase intentions (Alalwan, 2018, Arora and Agarwal, 2020; Lutfie and Marcelino, 2020; Hanaysha, 2022, Nasir et al., 2021).

Additionally, this study's findings have also been confirmed in Arora and Agarwal's (2020) study, who also found a positive relationship between perceived relevance and purchase intentions concerning the millennial cohort.

Moreover, these findings on perceived relevance have implications for marketers who, according to Munsch (2021), are increasingly challenged in devising SMA methods to target the millennial generation more effectively. Indeed, acknowledging that designing advertisements that are more relevant to the needs and preferences of their consumers on social media presents positive implications for SMA companies in Ireland, which, as previously addressed by findings in Statista (2022a), are continuously increasing their SMA spending.

6.2.2 Discussion on Spearman's rho model findings - Informativeness:

As expected, informativeness also had a significant positive relationship with purchase intentions. This suggested that the informative nature of SMA providing good sources of product information was positively correlated with their purchase intentions. Indeed, as Shareef et al. (2019) have highlighted, informational advertising has become increasingly important as consumers turn to social media for information. Moreover, due to the significant amount of highly valued and accurate information, online advertising provides a powerful mechanism for influencing the behaviour of consumers (Yeo et al.,2020). Indeed, as Lee and Hong (2016) highlight, customers have been seen to respond positively to the information contained within social media advertisements, which in turn positively influences their intent to purchase products advertised within social media. As expected, the results of this study were consistent with numerous literature findings that showed a significant positive relationship between informativeness and purchase intentions (Alalwan, 2018, Yeo et al., 2020, Lutfie and Marcelino, 2020; Hanaysha, 2022; Nasir et al., 2021) with Arora and Agarwal's (2020) study showing that in particular to millennials, a statistically significant positive relationship existed. However, as opposed to perceived relevance and interactivity, informativeness had a slightly weaker moderate positive relationship with consumers' purchase intentions in this study.

Interestingly, these findings were similar to Arora and Argarwal's (2020) study, which showed a weaker positive relationship with informativeness compared to interactivity on purchase intentions and Alalwan's (2018) study, which showed a weaker positive relationship with informativeness compared to perceived relevance on purchase intentions. One potential reason to explain this weaker relationship could be because millennials, as seen in Pauliene and Sedneva's (2019) study, are influenced more by information from other online users than the actual social media advertisement itself. Moreover, from an Irish perspective, while the factor of informativeness is not as strong as perceived relevance or interactivity, the findings within this study still showed a significant positive relationship, which shows that millennials find information on SMA in Ireland helpful in assisting them with purchasing products.

6.2.3 Discussion on Spearman's rho model findings - Interactivity:

As expected., interactivity was seen to have a significant positive relationship with purchase intentions. This suggested that the interactive nature of SMA that allows customers to engage in conversation was positively correlated with their purchase intentions. Indeed, social interactive activities such as commenting and sharing content between the brands and customers has been seen to significantly improve the engagement between consumers and their brands on social media platforms (Ting, Abbasi and Ahmed, 2020), which in turn positively influences their purchase intentions through both engagement and interactivity (Liao, Chung and Chang, 2019). Similarly, in their study looking specifically at millennials, Mohamad et al. (2018) found that consumer engagement had a significant effect on millennial's purchase intentions, which could be partly attributed to interactivity which increases consumer engagement. Additionally, as Pauliene and Sedneva (2019) highlighted, millennials, as opposed to generation z, are seen to use social media generally for interaction purposes such as sharing experiences and communicating on social networks. Therefore, it makes sense that interactivity in SMA is positively related to their purchase intentions due to increasing their engagement with the brands on these social networks.

Moreover, as expected, the results in this study were generally consistent with numerous literature findings that showed a significant positive relationship between interactivity and purchase intentions (Alalwan, 2018; Lutfie and Marcelino, 2020; Yeo et al., 2020, Hanaysha, 2022), with Arora and Agarwal's (2020) study showing that in particular to millennial's, a statistically significant positive relationship existed. Interestingly, however, some studies did not find a significant relationship between interactivity and purchase intentions (Nasir et al., 2021), with some studies even showing an adverse relationship (Sreejesh et al., 2020) with the interactive nature of SMA coming off as intrusive. However, this can be explained by Sreejesh et al. (2020), whose findings showed that when the interactive nature of social media adverts does not convey relevant messages, this can negatively impact the effectiveness of their advertisements and feel intrusive. Therefore, it can be suggested that in most of these studies where participants showed a positive relationship with interactivity, the consumers in these studies may have been presented with less intrusive social media advertisements that were more relevant to them. For example, as Lee, Kim and Lee (2022) have shown, advertisements that are more personalised to the consumer have reduced intrusiveness and increased purchase intentions. Furthermore, while no study thus far has examined culture's influence on SMA factors, Nasir et al. (2021) did reference that cultural differences may have impacted their results. Therefore, it could suggest that cultural differences may have contributed to the contrasting results between the above studies on the SMA factor of interactivity.

Moreover, from an Irish perspective, this study provides an important implication to Irish marketers and organisations by showing that millennials living in Ireland positively identify with SMA's interactive nature when purchasing products.

However, to expand on the importance and implications of this study's findings from an Irish perspective, this next section will discuss the practical implications for Irish marketing companies in how they can use this study's research to assist with their SMA strategies.

6.3.1 Practical Implications:

From a practical viewpoint, this study has provided several significant implications for marketers and organisations within Ireland regarding how they could utilise their SMA to be more effective. For example, this study highlighted that perceived relevance was moderately related to a millennial's purchase intention. Therefore, when designing advertisements, organisations should try personalising them so that they are more relevant to the values and needs of this consumer base, which could help create a positive impression on this cohort. Indeed, as Odoom (2022) highlights, advertising personalisation has been seen to positively influence consumers' purchase intentions.

Informativeness was also seen to be positively related to purchase intention. Therefore, when designing social media adverts, organisations and marketers should try to design adverts that provide consumers with clear and reasonable quality information. Indeed, as Wirani, Diniputri and Romadhon (2020) highlight, good quality information has been seen as a critical factor relating to information on SMA influencing consumers' purchase intentions. More specifically, however, when it comes to millennials' information adoption patterns online, they are more likely to respond favourably to electronic word of mouth of other users (Pauliene, Sedneva, 2019). Therefore, in addition to designing adverts that contain high-quality and transparent information, organisations should also encourage their user base to spread information about their products across their social networks.

Lastly, as this study found interactivity to be positively related to purchase intentions, it suggests that marketers focus on creating a more engaging and interactive medium for consumers to communicate with their brands. One way to do this would be by creating branded stories on their social media networks that help create a conversation and strengthen the relationship between the brand and its consumers (Gensler et al., 2013).

Moreover, when brands afford their consumers conversation interactivity, e.g., their availability online to interact, this implies a high level of interactivity in the eye of their consumers (Ansari et al., 2019). More so, when it is considered that millennial cohorts predominantly use social media to engage and communicate (Munsch, 2021), ensuring their SMA promotes a high level of interactivity could assist brands in influencing this cohort's purchase intentions.

6.3.2 Theoretical contributions:

There are several theoretical contributions this study has made. Firstly, by applying previously validated variables within a new context and toward the millennial cohort, this study has been able to validate and expand on the research instrument's usability from previous studies (Alalwan, 2018) and further the established theory and understanding of how these SMA factors relate to the millennial cohort. Indeed, as research around how these factors relate to the millennial cohort was limited apart from Arora and Agarwal (2020), this study was able to identify the relationship of these factors on millennials in Ireland and validate the previous findings in Arora and Agarwal's (2020) study. Another contribution this study has made is showing how different methodological frameworks can be used to examine positive associations between SMA factors and purchase intentions. Indeed, as related studies thus far in the literature utilised parametric models (Alalwan, 2018, Nasir et al., 2021), this study elected to utilise non-parametric models, which were deemed more suitable over parametric models for the ordinal type variables (Jamieson, 2004) and still provided empirical evidence, that a positive association exists between this studies variables.

6.4.1 Limitations:

Although this study successfully identified a positive relationship between the factors within this study, several limitations need to be acknowledged. Firstly, as this study utilised a cross-sectional study, the findings within this research cannot establish a causal relationship between this study's variables. Additionally, by using a convenience type of sampling, this study acknowledges this sampling technique critique by Bornstein et al. (2013) that the findings within this research sample are only valid to the sample within this study. Therefore, while this study successfully identified a positive relationship between purchase intentions and the variables of perceived relevance, interactivity and informativeness, it must be acknowledged that these findings apply specifically to the sample used in this study.

Furthermore, while this study utilised nonparametric methods, due to these methods being more suited for data analysis involving non-normally distributed and ordinal variables, research from Rana et al. (2016) have shown that parametric tests may be more superior due to greater statistical power. Furthermore, while it was not appropriate in this study to use linear regression based on the assumptions of normality not being fulfilled, this provided a limitation in not being able to examine the predictive relationships between variables. However, while previous studies have utilised linear regression models (Alalwan, 2018; Nasir et al., 2021), they were still cross-sectional in design and were not as strict on the assumptions of normality compared to this study. Therefore, their ability to identify predictive relationships is still limited. Moreover, while this study does not explicitly identify predictive relationships, it obeys normality assumptions and uses appropriate statistical measures for examining bi-variate relationships.

Chapter 7

Conclusion

7.1.1 Conclusion:

This study was conducted to gain an understanding of the relationship between factors associated with social media advertising (SMA) and their relationship to the purchase intentions of millennials in Ireland.

From reviewing the literature on how SMA influences consumers' purchase intentions, this study identified 3 factors (perceived relevance, informativeness and interactivity) to be positively related with purchase intentions. However, while these factors had been examined within numerous studies, up until this research study, only one had examined millennials, with no studies being applied within an Irish context.

Moreover, the lack of research and understanding of the relationship between these SMA factors and the purchase intentions of millennials in Ireland provided a significant gap in the literature and a strong rationale for this project's research aims. From identifying the literature gap, the main research objectives of this study were to ascertain if a significant positive relationship existed between the SMA factors of perceived relevance, interactivity and informativeness.

After establishing the research objectives, the data relating to this research study was then collected from SurveyMonkey using a convenience sampling approach, where a questionnaire was administered to participants mainly in Ireland. After verifying that participants' responses were valid with the inclusion-exclusion criteria, 116 responses were targeted for further data analysis using Spearman's rho.

From the Spearman's rho model findings, the study identified a positive relationship between Ireland's millennials' purchase intentions and the examined factors of perceived relevance, informativeness and interactivity, which were found to be significantly correlated with purchase intentions.

After analysing the findings, they were then discussed in light of this studies justification for examining these social media factors. In this section, the results were interpreted and related to previous studies that argued and discussed similar findings relating to SMA.

Furthermore, from discussing the results, this paper acknowledged several theoretical contributions that extend the area of SMA in terms of millennial research and methodological approaches that can be utilised within this area. Additionally, in light of this study's findings, several practical implications were put forward for marketers looking to design more effective social media advertisements.

Lastly, certain limitations, such as the research design and sampling technique in addition to its use of non-parametric measures, did provide some limitations that were acknowledged and discussed in relation to this study's findings. The last section of this paper will now focus on identifying important new areas of research that could be considered for future research studies directions.

7.2.1 Future direction for research:

While this study successfully established that a positive relationship existed between the millennial cohort's purchase intentions and the SMA factors relating to perceived relevance, interactivity and informativeness, there were a number of areas and methods that this study did not examine which could be considered for future research. For example, while this study looked at how these factors influence the millennial cohort, it did not address how these factors may differ between other generation groups such as generation z. As generation z are also an influential consumer group in Ireland, it could be helpful for marketers and academics to understand how these SMA factors apply to this generation cohort or how they may differ from the millennial cohort.

Additionally, this study does not look at how demographic factors such as gender may moderate the relationship between these factors and consumers' purchase intentions. Indeed, understanding how gender may influence the relationship between consumers' purchase intentions concerning these SMA factors could provide valuable insights into how marketers could target specific gender groups.

Futhermore, while this study did capture the social media platforms its participants used, e.g. (Facebook, Instagram, Twitter, TikTok, LinkedIn, YouTube, and Snapchat), it does not address if these social media platforms may have an impact on the relationship between these SMA factors and a consumers purchase intention. Therefore, it could be helpful to assess whether differences in the relationship between these factors exist between groups in terms of the social media platform they use.

Lastly, as this study acknowledges in its limitations, the methodology used in this study relied explicitly on a quantitative method survey and non-parametric techniques. Therefore, in future studies, where researchers can prove the assumption of normality, more statistically powerful parametric techniques could be used to identify causal relationships between these factors. Additionally, qualitative-based interview techniques could be used in tandem with this survey in a mixed methods approach to provide more evidence and understanding of these factors from a more qualitative perspective.

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Appendices

Appendix A: Validity testing

Table A1 Rotated component matrix pre factor removal generated from confirmatory factor analysis

Rotated Component Matrix[a]

	Component			
	1 (INF)	2 (Perceived relevance)	3 (PIN)	4 (Inter)
INF3	.854		.134	.105
INF2	.750	.274	.219	.268
INF4	.739	.159		.297
INF1	.700	.151	.145	.393
INTER1	.530	.303	.150	.424
PRR2		.776	.294	.286
PRR1	.181	.771	.224	
PRR3		.719	.309	.326
PRR5	.324	.684	.332	.177
PRR4	.423	.677	.308	.122
PIN4	.136	.273	.876	.102
PIN1	.278	.258	.810	
PIN2		.280	.793	.321
PIN3	.125	.469	.786	.190
INTER4	.246	.161	.161	.879
INTER3	.262	.258		.786
INTER5	.335	.107	.203	.762
INTER2	.270	.287	.422	.585
INF5	.430	.272	.261	.443

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table A2 KMO and Barlett's test pre question removal

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.889
Bartlett's Test of Sphericity	Approx. Chi-Square	1701.169
	df	153
	Sig.	.000

Table A3 Convergent validity and composite reliability measures pre factor removal

Factors	λ	λ²	ε	N (number of factors)	AVE	Cr
PIN4	0.876	0.768	0.232	4	0.668	0.889
PIN1	0.810	0.656	0.344			
PIN2	0.793	0.629	0.371			
PIN3	0.786	0.618	0.382			
Sum	3.265	2.670	1.330			
PRR2	0.776	0.602	0.398	5	**0.528**	**0.848**
PRR1	0.771	0.594	0.406			
PRR3	0.719	0.516	0.484			
PRR5	0.684	0.468	0.532			
PRR4	0.677	0.458	0.542			
Sum	3.626	2.638	2.362			
INTER1	0.424	0.180	0.820	5	0.499	0.825
INTER4	0.879	0.772	0.228			
INTER3	0.786	0.618	0.382			
INTER5	0.762	0.581	0.419			
INTER2	0.585	0.342	0.658			
Sum	3.436	2.493	2.507			
INF3	0.854	0.729	0.271	5	0.503	0.829
INF2	0.750	0.563	0.437			
INF4	0.739	0.546	0.454			
INF1	0.700	0.490	0.510			
INF5	0.430	0.185	0.815			
Sum	3.474	2.514	2.486			

[AVE] Average variance extracted formula = (Sum of λ²/ N (number of factors)

[CR] Composite reliability formula = (Sum of λ ^2 / (Sum of λ^2 + sum of ε)

Note. Item loading figures were taken from Table A1. CR and Ave were calculated in Excel.

Table A4 Bivariate correlations between item constructs pre factor removal

		PRR	INTER	INF	PIN
PRR	Pearson Correlation	1	.608**	.580**	.704**
	Sig. (2-tailed)		.000	.000	.000
	N	116	116	116	116
INTER	Pearson Correlation	.608**	1	.709**	.530**
	Sig. (2-tailed)	.000		.000	.000
	N	116	116	116	116
INF	Pearson Correlation	.580**	.709**	1	.480**
	Sig. (2-tailed)	.000	.000		.000
	N	116	116	116	116
PIN	Pearson Correlation	.704**	.530**	.480**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	116	116	116	116

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

Table A5 Construct's validity, convergent and discriminate validity pre factor removal

Construct	CR	AVE	PRR	INTER	INF	PIN
PRR	0.848	0.528	**0.726**			
INTER	0.825	0.499	0.608	**0.706**		
INF	0.829	0.503	0.580	0.709	**0.709**	
PIN	0.889	0.668	0.704	0.530	0.480	**0.817**

Note. CR and Ave were taken from Table A3 above. The bold diagonal numbers are the constructs' AVE square root values. The off diagonals are the constructs' correlations between each other and are taken from Table A4 above. Alpha level: P < 0.001 = **

Table A6 Rotated component matrix post factor removal generated from confirmatory factor analysis

Rotated Component Matrix[a]

	Component			
	1	2	3	4
INF3	.854		.134	.105
INF2	.750	.274	.219	.268
INF4	.739	.159		.297
INF1	.700	.151	.145	.393
INTER1	.530	.303	.150	.424
PRR2		.776	.294	.286
PRR1	.181	.771	.224	
PRR3		.719	.309	.326
PRR5	.324	.684	.332	.177
PRR4	.423	.677	.308	.122
PIN4	.136	.273	.876	.102
PIN1	.278	.258	.810	
PIN2		.280	.793	.321
PIN3	.125	.469	.786	.190
INTER4	.246	.161	.161	.879
INTER3	.262	.258		.786
INTER5	.335	.107	.203	.762
INTER2	.270	.287	.422	.585
INF5	.430	.272	.261	.443

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

Table A7 KMO and Barlett's test post question removal

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.896
Bartlett's Test of Sphericity	Approx. Chi-Square	1786.758
	df	171
	Sig.	.000

Table A8 Bivariate correlations between item constructs post factor removal

Correlations

		PRR	INTER	INF	PIN
PRR	Pearson Correlation	1	.608**	.580**	.580**
	Sig. (2-tailed)		.000	.000	.000
	N	116	116	116	116
INTER	Pearson Correlation	.608**	1	.709**	.530**
	Sig. (2-tailed)	.000		.000	.000
	N	116	116	116	116
INF	Pearson Correlation	.580**	.709**	1	.480**
	Sig. (2-tailed)	.000	.000		.000
	N	116	116	116	116
PIN	Pearson Correlation	.704**	.530**	.480**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	116	116	116	116

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

Appendix B: Confirmatory factor analysis settings used SPSS

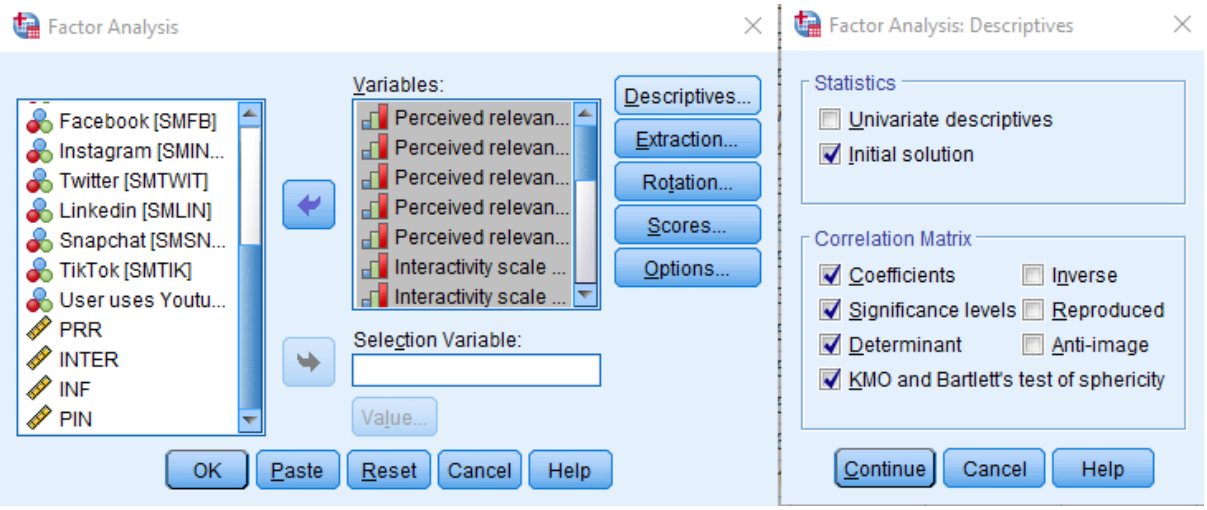

Figure B1 Factor analysis Step 1 – Inputting Variables and inputting descriptive options

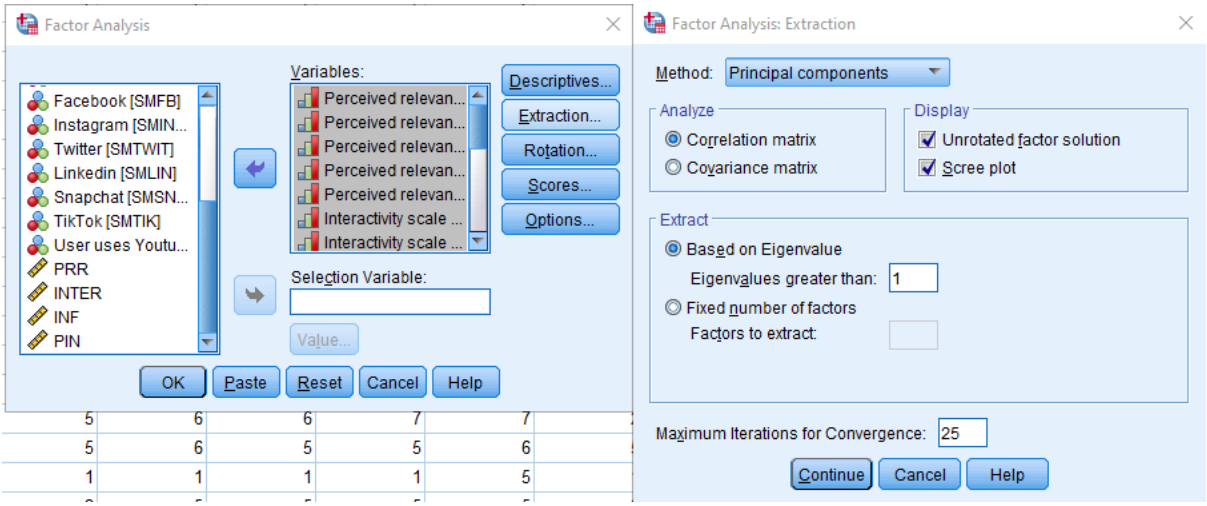

Figure B2 Factor analysis Step 2 – Selecting principal components in method to undertake a confirmatory factor analysis

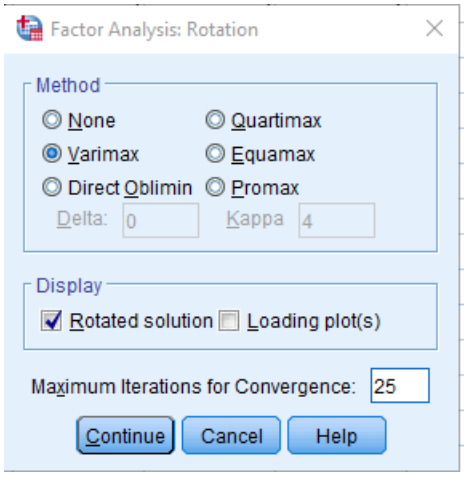

Figure B3 Factor analysis Step 3- For factor rotation input, Varimax has been choosen which is widely used for Confirmatory factor analysis

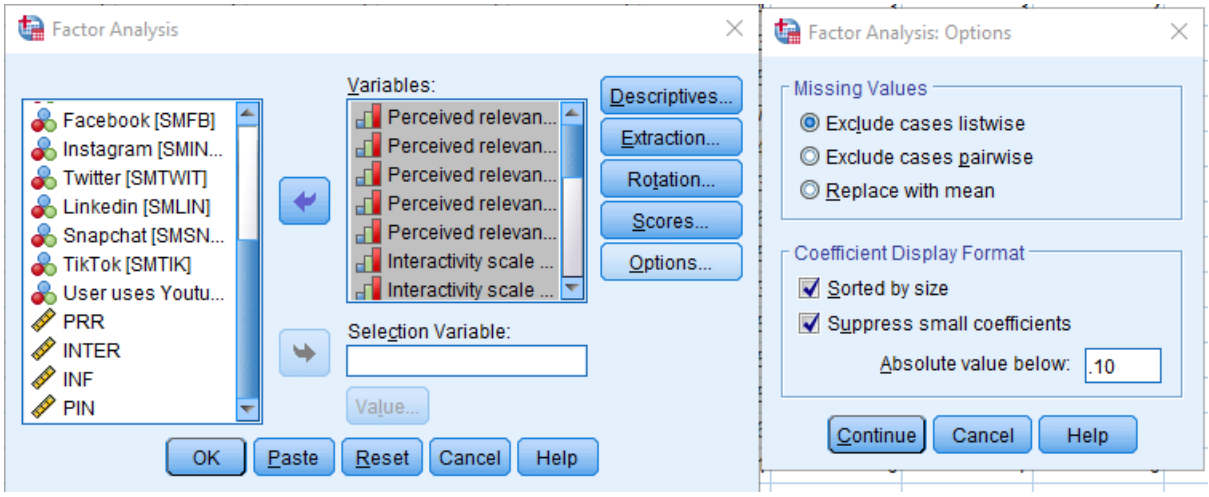

Figure B4 Factor Analysis Step 4 – Options setting sorted by size and supress small coefficients are checked before clicking ok and performing factor analysis

Appendix C: Reliability testing Chronbach's alpha

Reliability Statistics

Cronbach's Alpha	N of Items
.894	5

Figure C1 Cronbach's alpha for Perceived relevance (PRR)

Reliability Statistics

Cronbach's Alpha	N of Items
.890	4

Figure C2 Cronbach's alpha for Interactivity (INTER)

Reliability Statistics

Cronbach's Alpha	N of Items
.871	5

Figure C3 Cronbach's alpha for Informativeness (INF)

Reliability Statistics

Cronbach's Alpha	N of Items
.933	4

Figure C4 Cronbach's alpha for Purchase intentions (PIN)

Appendix D: Normality testing

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PRR	.104	116	.004	.971	116	.012

a. Lilliefors Significance Correction

Figure D1- Normality tests for perceived relevance (PRR)

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
INTER	.114	116	.001	.957	116	.001

a. Lilliefors Significance Correction

Figure D2- Normality tests for Interactivity (INTER)

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
INF	.117	116	.000	.933	116	.000

a. Lilliefors Significance Correction

Figure D3- Normality tests for Informativeness

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PIN	.119	116	.000	.954	116	.001

a. Lilliefors Significance Correction

Figure D4- Normality tests for Purchase intentions

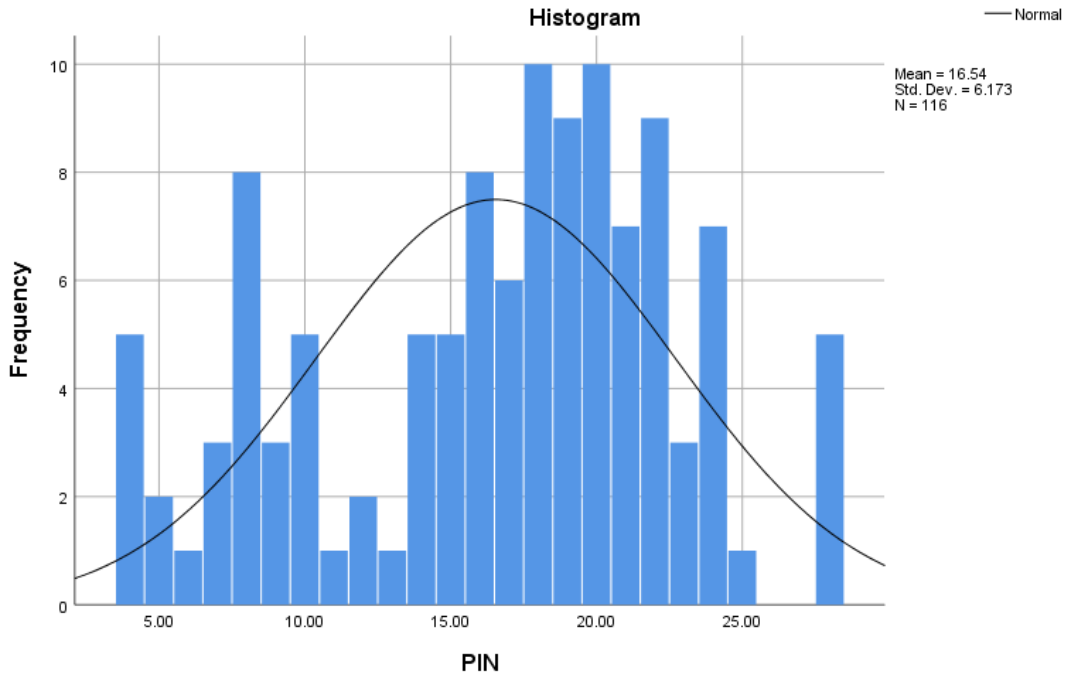

Figure D5 Histogram chart measuring normality for purchase intentions

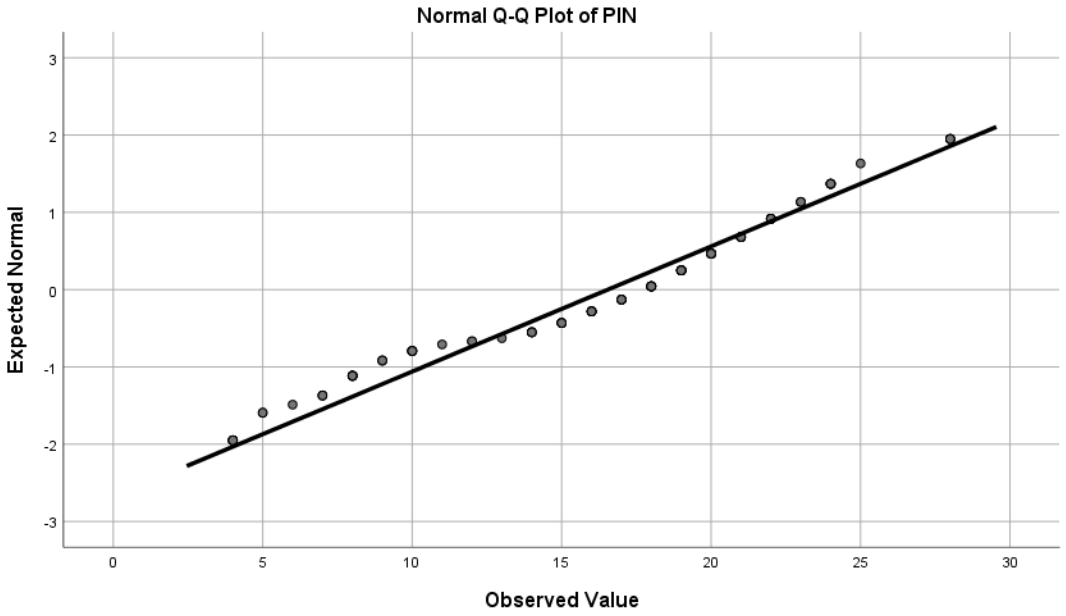

Figure D6 Normal Q-Q plot measuring normality for purchase intentions

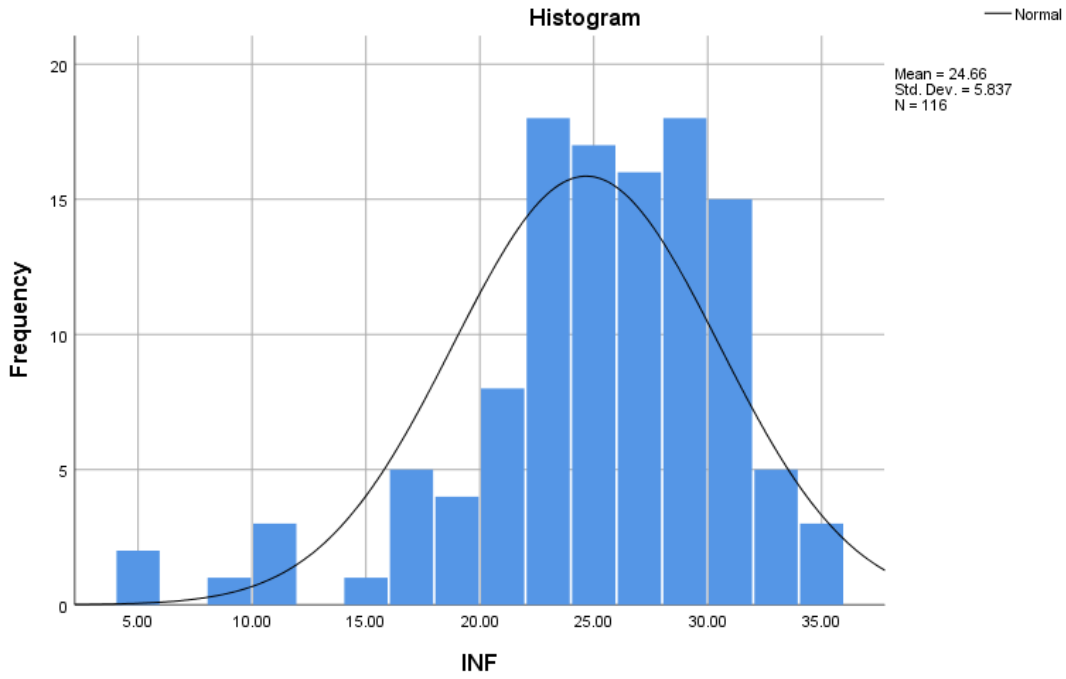

Figure D7 Histogram chart measuring normality for informativeness

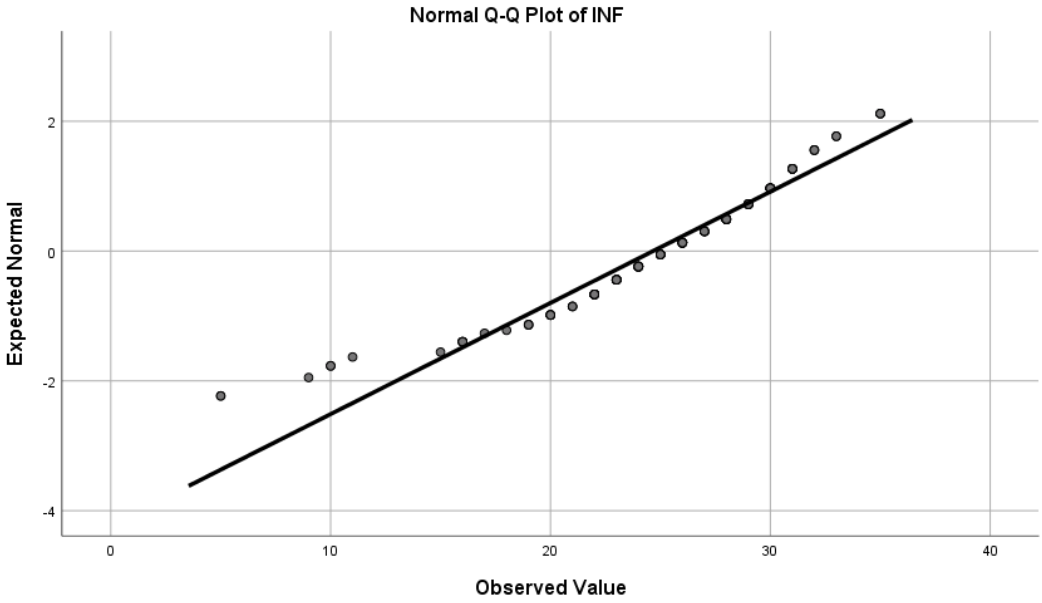

Figure D8 Normal Q-Q plot measuring normality for informativeness

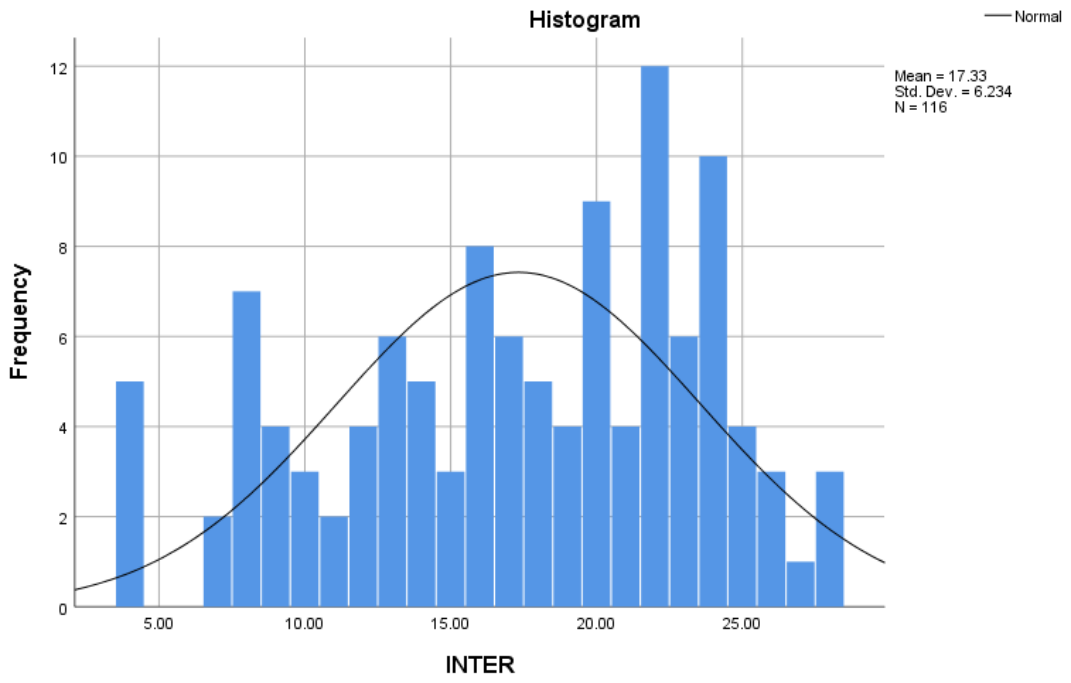

Figure D9 Histogram chart measuring normality for interactivity

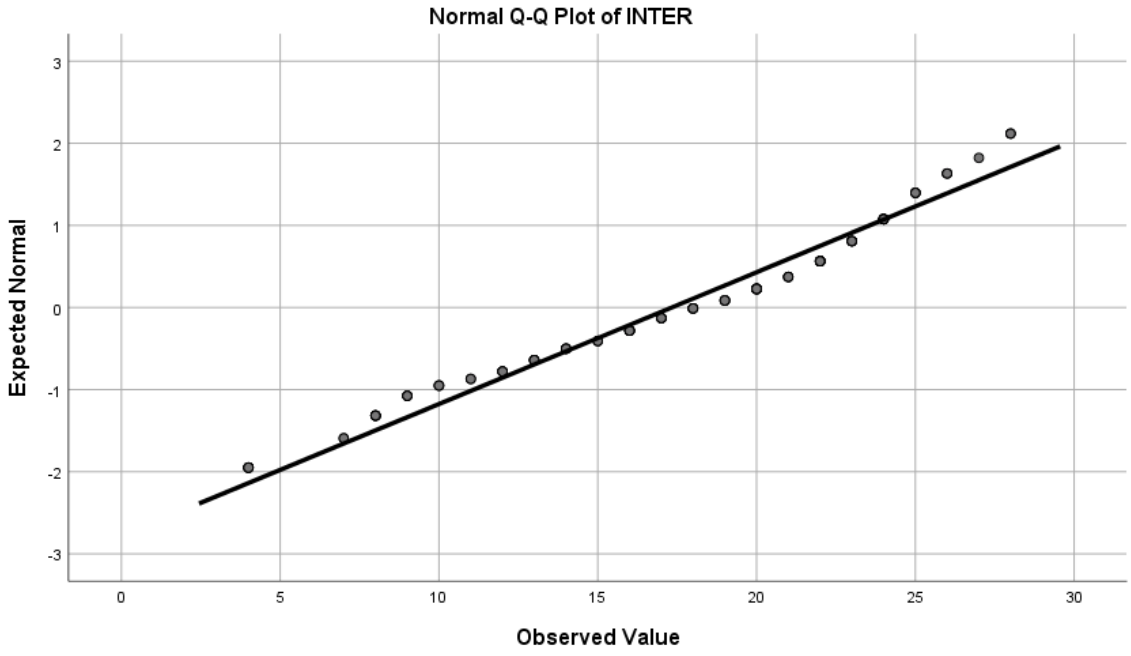

Figure D10 Normal Q-Q plot measuring normality for interactivity

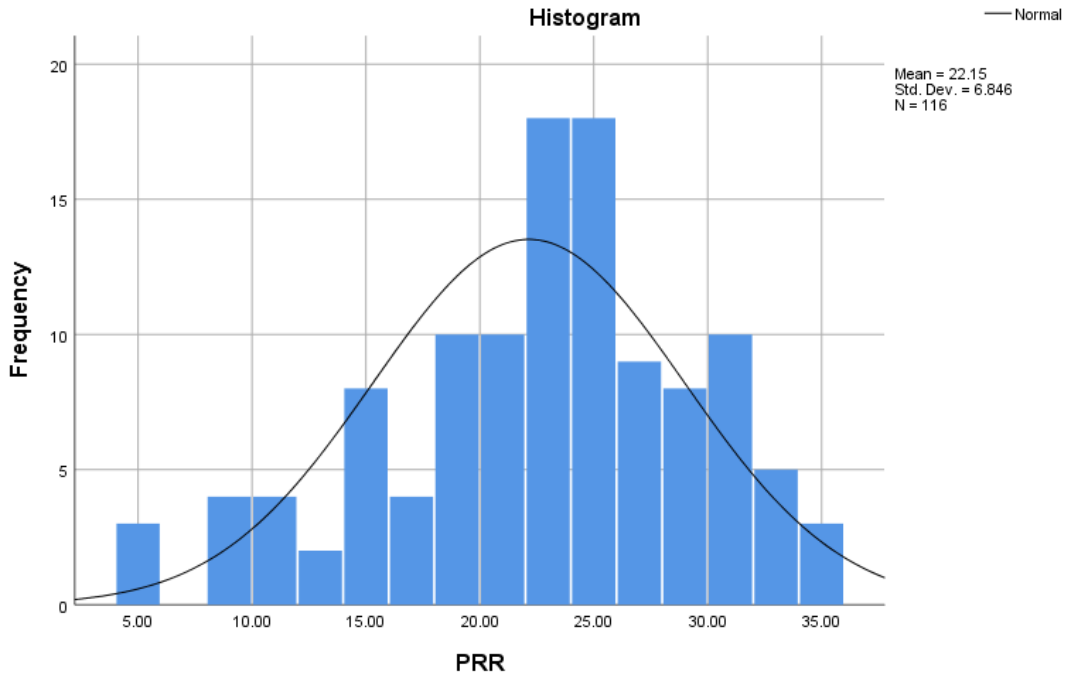

Figure D11 Histogram chart measuring normality for perceived relevance

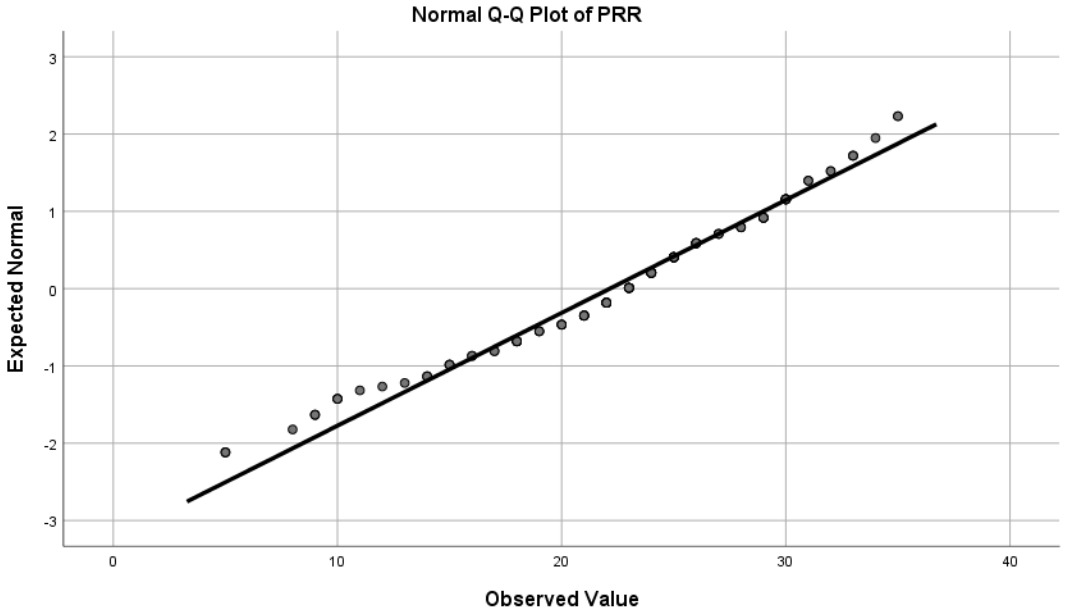

Figure D12 Normal Q-Q plot measuring normality for purchase intentions

Appendix E: Descriptive statistics for all Likert scale items and summated constructs

Table E1 Scale items descriptive statistics – Perceived relevance

Descriptives

			Statistic	Std. Error
PRR1	Mean		5.09	.143
	95% Confidence Interval for Mean	Lower Bound	4.81	
		Upper Bound	5.38	
	5% Trimmed Mean		5.21	
	Median		5.00	
	Variance		2.382	
	Std. Deviation		1.543	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		1	
	Skewness		-1.013	.225
	Kurtosis		.639	.446
PRR2	Mean		4.27	.160
	95% Confidence Interval for Mean	Lower Bound	3.95	
		Upper Bound	4.58	
	5% Trimmed Mean		4.30	
	Median		5.00	
	Variance		2.963	
	Std. Deviation		1.721	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.445	.225
	Kurtosis		-.854	.446
PRR3	Mean		3.58	.168
	95% Confidence Interval for Mean	Lower Bound	3.25	
		Upper Bound	3.91	
	5% Trimmed Mean		3.53	
	Median		4.00	
	Variance		3.255	

	Std. Deviation		1.804	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		.084	.225
	Kurtosis		-1.003	.446
PRR4	Mean		4.59	.144
	95% Confidence Interval for Mean	Lower Bound	4.30	
		Upper Bound	4.87	
	5% Trimmed Mean		4.65	
	Median		5.00	
	Variance		2.401	
	Std. Deviation		1.550	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		2	
	Skewness		-.721	.225
	Kurtosis		.084	.446
PRR5	Mean		4.62	.142
	95% Confidence Interval for Mean	Lower Bound	4.34	
		Upper Bound	4.90	
	5% Trimmed Mean		4.68	
	Median		5.00	
	Variance		2.342	
	Std. Deviation		1.530	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		2	
	Skewness		-.625	.225
	Kurtosis		-.208	.446

Table E2 Scale items descriptive statistics – Interactivity

Descriptives

			Statistic	Std. Error
INTER2	Mean		4.28	.159
	95% Confidence Interval for Mean	Lower Bound	3.97	
		Upper Bound	4.60	
	5% Trimmed Mean		4.32	
	Median		5.00	
	Variance		2.918	
	Std. Deviation		1.708	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		2	
	Skewness		-.316	.225
	Kurtosis		-.795	.446
INTER3	Mean		4.38	.165
	95% Confidence Interval for Mean	Lower Bound	4.05	
		Upper Bound	4.71	
	5% Trimmed Mean		4.42	
	Median		5.00	
	Variance		3.142	
	Std. Deviation		1.773	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.336	.225
	Kurtosis		-1.064	.446
INTER4	Mean		4.36	.177
	95% Confidence Interval for Mean	Lower Bound	4.01	
		Upper Bound	4.71	
	5% Trimmed Mean		4.40	
	Median		5.00	
	Variance		3.624	
	Std. Deviation		1.904	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	

	Skewness		-.288	.225
	Kurtosis		-1.209	.446
INTER5	Mean		4.30	.167
	95% Confidence Interval for Mean	Lower Bound	3.97	
		Upper Bound	4.63	
	5% Trimmed Mean		4.34	
	Median		5.00	
	Variance		3.239	
	Std. Deviation		1.800	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.263	.225
	Kurtosis		-1.106	.446

Table E3 Scale items descriptive statistics – Informativeness

Descriptives

			Statistic	Std. Error
INF1	Mean		5.01	.136
	95% Confidence Interval for Mean	Lower Bound	4.74	
		Upper Bound	5.28	
	5% Trimmed Mean		5.11	
	Median		5.00	
	Variance		2.148	
	Std. Deviation		1.466	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		1	
	Skewness		-1.145	.225
	Kurtosis		.989	.446
INF2	Mean		4.91	.134
	95% Confidence Interval for Mean	Lower Bound	4.65	
		Upper Bound	5.18	
	5% Trimmed Mean		5.00	
	Median		5.00	
	Variance		2.097	
	Std. Deviation		1.448	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		2	
	Skewness		-.879	.225
	Kurtosis		.411	.446
INF3	Mean		5.17	.132
	95% Confidence Interval for Mean	Lower Bound	4.91	
		Upper Bound	5.43	
	5% Trimmed Mean		5.29	
	Median		5.50	
	Variance		2.022	
	Std. Deviation		1.422	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		1	

	Skewness		-1.123	.225
	Kurtosis		1.146	.446
INF4	Mean		5.43	.115
	95% Confidence Interval for	Lower Bound	5.20	
	Mean	Upper Bound	5.66	
	5% Trimmed Mean		5.56	
	Median		6.00	
	Variance		1.534	
	Std. Deviation		1.239	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		1	
	Skewness		-1.515	.225
	Kurtosis		3.343	.446
INF5	Mean		4.14	.147
	95% Confidence Interval for	Lower Bound	3.85	
	Mean	Upper Bound	4.43	
	5% Trimmed Mean		4.16	
	Median		4.00	
	Variance		2.520	
	Std. Deviation		1.587	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		2	
	Skewness		-.284	.225
	Kurtosis		-.838	.446

Table E4 Scale items descriptive statistics – Purchase intentions

Descriptives

			Statistic	Std. Error
PIN1	Mean		4.42	.154
	95% Confidence Interval for Mean	Lower Bound	4.12	
		Upper Bound	4.73	
	5% Trimmed Mean		4.47	
	Median		5.00	
	Variance		2.750	
	Std. Deviation		1.658	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.513	.225
	Kurtosis		-.656	.446
PIN2	Mean		4.00	.160
	95% Confidence Interval for Mean	Lower Bound	3.68	
		Upper Bound	4.32	
	5% Trimmed Mean		4.00	
	Median		4.00	
	Variance		2.974	
	Std. Deviation		1.725	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.166	.225
	Kurtosis		-.911	.446
PIN3	Mean		4.17	.159
	95% Confidence Interval for Mean	Lower Bound	3.86	
		Upper Bound	4.49	
	5% Trimmed Mean		4.19	
	Median		4.50	
	Variance		2.944	
	Std. Deviation		1.716	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	

	Skewness		-.378	.225
	Kurtosis		-.900	.446
PIN4	Mean		3.95	.155
	95% Confidence Interval for Mean	Lower Bound	3.64	
		Upper Bound	4.25	
	5% Trimmed Mean		3.94	
	Median		4.00	
	Variance		2.780	
	Std. Deviation		1.667	
	Minimum		1	
	Maximum		7	
	Range		6	
	Interquartile Range		3	
	Skewness		-.226	.225
	Kurtosis		-.844	.446

Table E5 Descriptive statistics for summated constructs

Descriptives

			Statistic	Std. Error
PIN	Mean		16.5431	.57319
	95% Confidence Interval for Mean	Lower Bound	15.4077	
		Upper Bound	17.6785	
	5% Trimmed Mean		16.6188	
	Median		18.0000	
	Variance		38.111	
	Std. Deviation		6.17342	
	Minimum		4.00	
	Maximum		28.00	
	Range		24.00	
	Interquartile Range		9.00	
	Skewness		-.391	.225
	Kurtosis		-.615	.446
PRR	Mean		22.1466	.63568
	95% Confidence Interval for Mean	Lower Bound	20.8874	
		Upper Bound	23.4057	
	5% Trimmed Mean		22.3506	
	Median		23.0000	
	Variance		46.874	
	Std. Deviation		6.84646	
	Minimum		5.00	
	Maximum		35.00	
	Range		30.00	
	Interquartile Range		8.75	
	Skewness		-.498	.225
	Kurtosis		-.094	.446
INTER	Mean		17.3276	.57883
	95% Confidence Interval for Mean	Lower Bound	16.1810	
		Upper Bound	18.4741	
	5% Trimmed Mean		17.4962	
	Median		18.0000	
	Variance		38.866	
	Std. Deviation		6.23423	
	Minimum		4.00	
	Maximum		28.00	
	Range		24.00	
	Interquartile Range		9.00	

	Skewness		-.404	.225
	Kurtosis		-.762	.446
INF	Mean		24.6638	.54194
	95% Confidence Interval for Mean	Lower Bound	23.5903	
		Upper Bound	25.7373	
	5% Trimmed Mean		25.0632	
	Median		25.0000	
	Variance		34.069	
	Std. Deviation		5.83683	
	Minimum		5.00	
	Maximum		35.00	
	Range		30.00	
	Interquartile Range		7.00	
	Skewness		-1.059	.225
	Kurtosis		1.691	.446

Appendix F: Spearman Rho calculations

Table F1 Spearman Rho calculations between constructs Purchase intentions (PIN), Perceived relevance (PRR), Interactivity (INTER) and Informativeness (INF)

Correlations

			PIN	PRR	INTER	INF
Spearman's rho	PIN	Correlation Coefficient	1.000	.679**	.480**	.424**
		Sig. (2-tailed)	.	.000	.000	.000
		N	116	116	116	116
	PRR	Correlation Coefficient	.679**	1.000	.561**	.531**
		Sig. (2-tailed)	.000	.	.000	.000
		N	116	116	116	116
	INTER	Correlation Coefficient	.480**	.561**	1.000	.661**
		Sig. (2-tailed)	.000	.000	.	.000
		N	116	116	116	116
	INF	Correlation Coefficient	.424**	.531**	.661**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	116	116	116	116

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

Appendix G: Participant information sheet, informed consent form and survey questionnaire

The influence of social media advertising factors on purchase intentions:

Participant Information sheet

Dear Participant, you are invited to participate in the research assignment titled "The influence of social media advertising factors on purchase intentions amongst millennials in Ireland: A quantitative study". Before deciding on whether you will participate in this assignment, it is firstly essential that you understand the reason for this project's undertaken and what it will involve. Please take your time to read the following information carefully, and if you have any questions or concerns, feel free to contact me or discuss them with anyone else if you wish. My Name Is Luke wall, and I am currently undertaking an MSC in Management at The National College of Ireland. As part of my master's thesis, I must conduct a primary field research survey to assess how social media advertising can influence purchase intentions amongst millennial consumers in Ireland.

Participation in this study will involve an online questionnaire using Surveymonkey.com. The study aims to assess how the social media advertising factors of interactivity, perceived relevance, and informativeness may influence your intention to purchase products. The questionnaire will first consist of 19 questions with seven responses, ranging from 1 Strongly Disagree to 7 Strongly Agree. Please select the option that best reflects how you feel about the question. Afterwards, you will be then asked demographic and social media-related questions. This study should take 5 - 10 minutes to complete but feel free to take as long as you like. Furthermore, if you are unsure about anything concerning the survey, please feel free to email me at the researcher's email address below in the consent form, and I will be happy to answer all your questions.

OK

NEXT

The influence of social media advertising factors on purchase intentions

INFORMED PARTICIPANT CONSENT FORM

Consent to take part in research-

I voluntarily agree to participate in this research study.

I understand that I have to be 18 or over to give consent to this survey.

I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences or penalties of any kind.

I understand that I can withdraw permission to use data from my survey within two weeks after the survey, in which case the material will be deleted.

I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

I understand that participation involves participating in a 5–10-minute online survey.

I understand that I will not benefit directly from participating in this research.

I understand that all information I provide for this study will be treated confidentially.

I understand that in any report on the results of this research my identity will remain anonymous.

I understand that if I inform the researcher that I or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.

I understand that signed consent forms and online surveys gathered will be retained in a secure encrypted password-protected hard drive and only the researcher and research committee will have access to this data up until the period from when the exam board confirms the results of the student's dissertation.

I understand that data gathered from this survey will be destroyed 5 years after the study's completion in line with National college of Ireland guidelines.

I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Please note: By acknowledging the above text and continuing with the survey you are providing your informed consent to participate in this study.

Researcher name: Luke wall

Researcher Email address: X18110673@student.ncirl.ie

OK

The influence of social media advertising factors on purchase intentions

Survey specific questions (All questions must be answered)

For each of the following questions below, tick the response that best identifies your feelings on the statement.

* 1. Social media advertising is relevant to me 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 2. Social media advertising is important to me 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 3. Social media advertising means a lot to me 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 4. I think social media advertising fits my interests 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 5. I think social media advertising fits with my preferences 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 6. Social media advertising is effective in gathering customers feedback 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 7. Social media advertising makes me feel like it wants to listen to its customers 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 8. Social media advertising encourages customers to offer feedback 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 9. Social media advertising gives customers the opportunity to talk back 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 10. Social media advertising facilitates two-way communication between the customers and the firms 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 11. Social media advertising is a good source of product information and supplies relevant product information 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 12. Social media advertising provides timely information 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 13. Social media advertising is a good source of up-to-date product information 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 14. Social media advertising is a convenient source of product information 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 15. Social media advertising supplies complete product information 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 16. I will buy products that are advertised on social media 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 17. I desire to buy products that are promoted on advertisements on social media 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 18. I am likely to buy products that are promoted on social media 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

* 19. I plan to purchase products that are promoted on social media 0

- ◯ 7 Strongly agree
- ◯ 6 Agree
- ◯ 5 Somewhat agree
- ◯ 4 Neither agree nor disagree
- ◯ 3 Somewhat disagree
- ◯ 2 Disagree
- ◯ 1 Strongly disagree

The influence of social media advertising factors on purchase intentions

Demographic and descriptive questions (All questions must be answered)

* 20. What gender group do you belong to ? 0

- ◯ Male
- ◯ Female
- ◯ Other (please specify)

* 21. What age are you? 0

* 22. What country are you currently living in? 0

* 23. Do you have a good understanding of the English language? 0

- ◯ Yes
- ◯ No

* 24. What is your current level of education? 0

- ◯ Undergraduate student or less
- ◯ Bachelor's Degree
- ◯ Masters
- ◯ PhD student or graduate

* 25. What social media platforms do you use? 0

- ☐ Facebook
- ☐ Instagram
- ☐ Twitter
- ☐ Linkedin
- ☐ Other (please specify)
- ☐ Tiktok
- ☐ Snapchat
- ☐ Youtube

* 26. What is your social media usage per day (Daily Hours)? 0

- ◯ 1 Hour
- ◯ 2 Hours
- ◯ 3 Hours
- ◯ 4 Hours
- ◯ 5 Hours
- ◯ 6 Hours
- ◯ 7 Hours
- ◯ 8 Hours
- ◯ 9 Hours
- ◯ 10 Hours

* 27. How long have you been using social media? 0

- ◯ 1 Years
- ◯ 2 Years
- ◯ 3 Years
- ◯ 4 Years
- ◯ 5 Years
- ◯ 6 Years
- ◯ 7 Years
- ◯ 8 Years
- ◯ 9 Years
- ◯ 10 Years
- ◯ More than 10 Years

Appendix H: Irish millennial population calculation from 2016 census

Table H1 Ireland's Population demographic 1997-1981 from 2016 census

Year born	Females	Males	%Females	% Males
1999	29911	31383	2%	3%
1998	28253	29319	2%	2%
1997	27829	28508	2%	2%
1996	26990	27407	2%	2%
1995	27026	27326	2%	2%
1994	26663	27272	2%	2%
1993	27544	27071	2%	2%
1992	28484	28794	2%	2%
1991	28574	27683	2%	2%
1990	31413	30239	3%	2%
1989	31004	28452	3%	2%
1988	32738	30054	3%	2%
1987	35595	32752	3%	3%
1986	35533	32801	3%	3%
1985	37562	34210	3%	3%
1984	39714	35990	3%	3%
1983	40392	37426	3%	3%
1982	41705	39840	3%	3%
1981	42304	40892	3%	3%
Total per gender	619234	597419	51%	49%
Total overall	1216653			

Note. Figures taken from CSO (n.d.) and calculated using Microsoft excel