Investigation of generational differences in advertising behaviour and fake news perception among Facebook users

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Abstract: Facebook is the largest social media platform that is used by all generations of users, as well as small and large businesses. Many users consider Facebook as a primary news source even though the news on Facebook is not authenticated. This 'fake news' can be used for financial or political gain and can also impact consumer behaviour towards products. The purpose of this study was to investigate advertising response behaviour and fake news perception among multi-generational Facebook users, in conjunction with other variables such as gender. Using a survey, data were collected from a multi-stage quota sample of 400 respondents in the USA. A scale was developed and psychometrically tested as part of the study to determine fake news perception. Findings of this study showed that the frequency of Facebook use was consistent among generations, with Baby Boomers being most active in reading posts, and Gen Y users being most active in posting to Facebook. Gen Y users found Facebook advertisements to be most relevant. Results can be used to drive engagement with Facebook users and develop campaigns that use actionable segmentation schemes. Implications of fake news perception are discussed, and future research directions are provided.

Keywords: Facebook; fake news; market segmentation; political marketing; multigenerational differences.

Biographical notes: Sunil Hazari is a Professor of Marketing in the Richards College of Business, University of West Georgia, USA. He has authored several peer-reviewed journal publications in digital marketing, information technology, business education, and social media. He has presented papers at national conferences and is on editorial board of several journals.

1   Introduction

With the widespread availability of internet and cell phone access, social media sites such as Facebook have become popular and play a significant role in facilitating collaboration among individuals, groups, and businesses. Social media offers opportunities to reach a large number of people without the added cost of resources needed for traditional print and television advertising. Social media platforms, such as Facebook and Twitter, have a large user base that has grown over the years at an exponential rate. Facebook has 2.7 billion monthly active users in 2020, which has more than doubled the one billion active monthly users mark in 2012 (Noyes, 2020). The platform is being used by multi-generational users who access Facebook mostly from mobile devices. The large user base gives businesses a tremendous opportunity to reach customers and that is why many small and large organisations use Facebook for advertising and promotion. Although Facebook was first developed to be used primarily as a communication channel between family and friends, it has grown beyond sharing personal information and pictures, and now includes features such as the ability for individuals and companies to run businesses, a marketplace for buying and selling, networking, marketing, and outreach. There are many Facebook apps that allow individuals to engage in messaging, gaming, ecommerce, and promote social causes (Appel et al., 2020). Businesses are leveraging the power of Facebook to create brand awareness and engage customers with creative content which can be liked and shared on the social network. This is done using direct advertising, content engagement using Facebook groups and pages, and customised targeting.

Political candidates have also recognised the reach and importance of social media platforms and are leveraging the power of social media to influence voters (Bonilla and Rosa, 2015; Bakir and McStay, 2018). Facebook is used as a marketing channel to create awareness, foster community, raise funds, lead generation, recruit volunteers, organise meetings, run online advertisements, and provide updates on issues related to their political campaign (Bode, 2016). The goal of *micro-targeting* each message is to garner likes and encourage users to share the message (whether positive or negative) with other connected users on the social network. In the 2016 US presidential election, candidates used Facebook actively to reach potential voters, and interact with their user base by posting information, videos, news links, and discrediting other candidates (Allcott and Gentzkow, 2017; Pennycook and Rand, 2019). In many cases, negative advertising was used to disparage other candidates by creating a negative image of that candidate (Jost, 2017). Another popular use of Facebook is related to news where it is possible for individuals or companies to report on news items related to current events, politics, sports, entertainment, and opinion, which is like traditional newspaper journalism. The main difference is that Facebook news is not authenticated or verified, and can be shared very easily as Facebook users who find the news interesting can help create a network effect which can make the news item go viral which results in a large number of likes, shares, and comments. This type of news that is not authentic has been called *fake news* (Egelhofer and Lecheler, 2019). Fake news is often used to provide misleading facts or inferences about candidates or events, spread falsehoods, report selective information, or deliver misleading statements or endorsements using ambiguous facts (Tandoc et al., 2018). The same message sent by a political candidate may be perceived differently based on users' characteristics such as age (generation), gender, and political affiliation.

There can also be a significant effect when paid advertisements are used to boost page posts in comparison to pages being used for social interaction (Mochon et al., 2017).

Because fake news is a relatively new phenomenon with high stake implications that are being propagated on social media platforms, researchers have called for investigation of a problem that can be useful to scholars and professionals in the areas of marketing, technology, politics, journalism, and psychology (Jost, 2017; Kumar and Shah, 2018; Murungi et al., 2019). Therefore, there is a need for further investigation by researching issues surrounding advertising response behaviour of users on Facebook, the nature of fake news, and user perceptions of fake news based on demographics and political affiliation. Another concern addressed by this study was that most social media research has used a convenience sample of a certain segment (e.g., college students using Facebook). As a result, the findings of those studies cannot be generalised beyond that segment which is why we investigated Facebook use and advertising response behaviour among multiple generations of Facebook users. The objective of this study was to provide a better understanding of fake news perception as perceived by different generations of users on Facebook. This study can guide marketers on how to use Facebook as a marketing channel for targeting, segmentation, and positioning which is significant given the ability of Facebook to reach users in a magnitude that has never been seen in the past. It is intended that this study will contribute to research in the relatively new domain where fake news is prevalent due to the ability to spread virally on social media platforms.

The types of digital advertising on social media platforms can include banner ads, clickable links, and opt-in advertising where the user agrees to receive email promotions from the advertiser or political candidate. Interaction on social media can be used to engage the user by influencing them with messages that educate or inform users on the candidates' policies and views on various issues. By using analytics available on social media platforms, messages can be targeted to users by looking at demographic and psychographic variables. A candidate may aim to improve public relations with voters by communicating a positive image to seek goodwill which will favour the candidate if the message is shared and read by many users of the social network. This provides an opportunity for the message to become viral, thereby making it rank higher in the newsfeed of users (Akpinar and Berger, 2017). This opportunity to reach many targeted users can be leveraged by businesses, individuals, and campaigns to market their products and services by using paid advertisements that run alongside political messages.

Fake news uses the conduit of social media platforms to disrupt society and sow discord among users by providing 'mis-information' which are then propagated on the social network. In previous US presidential elections, many first candidates of a generation (e.g., John F. Kennedy and Bill Clinton) have ridden the wave of youth enthusiasm (Robertson, 2020). This support for generational identity can attract many voters to candidates depending on how messages are framed to appeal to members of a certain generation. Because Facebook has become a multi-faceted marketing channel, this study may also help marketers determine how Facebook use can influence political dialog as it is more important than ever to understand, compare, and contrast how social media is being used across generations, genders, and group affiliations. To help investigate the dual purpose of this study (advertising behaviour response and fake news perception), a scale was developed and psychometrically tested as part of the study.

2   Review of literature

The role and importance of social media platforms have garnered more attention within the past year as a result of worldwide events such as the COVID-19 pandemic, national elections, political discourse, police brutality, and civil unrest such as the Black Lives Matter movement. These controversial issues had given rise to incendiary speech and controversial posts along with fake news information on Facebook. Although researchers have reported on generational use of Facebook (Alemdar and Köker, 2013; Hayes et al., 2015; Loos and Nijenhuis, 2020), there is a dearth of research on generational comparison in relation to multigenerational use of Facebook users in context of fake news. Most studies on Facebook have used a convenience sample of users (e.g., college students) so the results cannot be generalised to a broader population. To address gaps in literature, there is a need for studies which investigate controversial topics such as business and political fake news from a broader perspective of user segments. The review of literature focused on areas of Facebook marketing, politics and marketing, and fake news phenomenon. Given that the empirical setting for this study was related to advertising response behaviour (such as the relevance of ads and ad clicks), perceptions of fake news that had the potential to be most impacted by emotional content was explored further as part of the research review. The theoretical framework and literature review on these topics led to the formation of hypothesis for this study.

2.1   Theoretical framework

The theoretical foundation of this study was based on a need to understand Facebook users' motivations to either read or create Facebook content relating to information such as fake news and marketing messages posted on Facebook. Users share information with other users in their network by providing personal commentary, opinions, and views. By understanding Facebook users' interaction and involvement on Facebook pages and posts, a better understanding can be gained from a marketing perspective. Based on the variables and constructs of this study, uses and gratification theory (UGT) helped us understand how and why people seek specific media channels to satisfy specific needs (Katz et al., 1974). The UGT theory has been updated to included Internet use (Eighmey and McCord, 1998; Ruggiero, 2000), and recently it has been further extended to include use of video sharing sites and social media (Phua et al., 2017; Leiner et al., 2018). By sharing information, the theory stated that users experience a gratification effect by becoming active participants in the media consumption process. Shao (2009) observed that users consume content to meet their information needs, then these users participate by interacting with the content and creating social connections in virtual communities. Content is produced for self-expression and self-actualisation which is also applicable to why users post on Facebook. From a socio-psychological communication perspective (Ruggiero, 2000), any Facebook user can produce content that has the possibility of being shared, tagged, pinned, or liked. This content can go viral based on Facebook algorithm that ranks high-value engagement of the content, which in turn affects reach to other Facebook users consistent with expectations of UGT.

2.2   Facebook marketing

Facebook offers tremendous marketing potential for small and large businesses as it provides the ability for companies to connect with customers and build engagement with the brand (Mathur, 2018). As users have a choice to select and use various social media platforms (e.g., Facebook, Instagram, YouTube, Snapchat), marketers should be using different marketing strategies across the various platforms to exploit the unique nature and properties of each platform. Businesses seeking to monetise digital content on social media platforms should understand how users interact, participate, and are affected by social influence (Susarla et al., 2012). Interaction with customers can lead to better brand recognition and increased sales. Facebook has algorithms that determine which content a user would find appealing. Based on the users' behaviour and interests, Facebook populates newsfeeds for the users. Facebook pages have customer-initiated social interaction and firm-initiated promotional communication. Facebook also sells advertisements to companies and individuals who want to provide content to users. Paid advertisement makes it possible for users to see advertisements of companies which they may not have seen otherwise (Mochon et al., 2017). A large part of Facebook revenue comes from advertising. In 2019, Facebook collected $22 billion in advertising revenue (Noyes, 2020). Facebook marketing can also be used for political gain, as will be discussed later. Social media posts can be shared very easily, and the network effect can very quickly help information reach an exponential number of users on the social media platform. The degree of sharing may be impacted by various factors.

Malhotra et al. (2013) offered techniques for companies to successfully create brand engagement (likes, comments, or shares) on Facebook. They recommended using images, topical messages, sharing success stories and achievements, creating informational value, humanising the brand with emotions, and using humour. Personal influence among connected individuals on Facebook has been shown to increase the likelihood that users in a network are more likely to read and act on shared content from friends (Anspach, 2017). Encouraging the sharing of content provides validation to a user as a self-appointed brand ambassador who can extend the reach of the brand (John et al., 2017). Social media pages where like-minded users gather can offer brands unique customer intelligence and feedback from a crucial cohort. To influence users in this cohort, Facebook ads can be customised based on objectives needed for the Facebook marketing campaign. Some of these objectives can be to boost posts, promote pages, send users to a website, increase conversions on website, get app installs, increase engagement in apps, reach local customers near the business, raise attendance at an event, promote offers, or get more video views (Berger and Milkman, 2012). Facebook *likes* can influence users by causing a behavioural change due to the number of likes and shares that promote the content based on Facebook algorithm. It may be also be possible that the endorsement of a brand (or political candidate) by publicly liking or sharing it on Facebook can cause other connected users to create a positive network effect.

Since marketing relating to politics relies on evoking emotions, information on emotional issues in marketing should be considered since there may be parallels that can be applied to marketing in the political context. It is well known in marketing that advertising content can reach consumers by providing information or by evoking emotions (MacInnis and Jaworkski, 1989; Drengner et al., 2008). Emotional responses are feelings that are elicited during exposure to the message and can be linked to various levels of brand processing. The response can be generated because of empathic

identification, interpretive inferences, message-relevant cues, credibility and comprehensibility, association with elaboration and memories, or due to the viewing context (MacInnis and Jaworksi, 1989). Advertising message content may also have stimuli which can cause physical or psychological association and trigger an emotional response (Mehrabian et al., 1988). Singh and Cole (1993) investigated how emotional aspects of television advertisements can impact consumer engagement. In their study it was found that emotional content can influence viewers' learning of brand name and attitude. Further, they also found that viewers who experience intense emotional reaction to message content are emotively powerful because they associate the brand name with the central part of the message. More recently, Tellis et al. (2019) also investigated use of emotions that influence ad sharing on social media networks and found that content that is most likely to be shared includes positive emotions of inspiration, warmth, amusement, and excitement.

Researchers generally have found that specific cognitive and emotional responses are linked to various levels of brand processing which may cause anticipation and excitement towards a brand. Verbal cues in a message may evoke emotions such as fear. Further, emotional linkage may be created between the message content and brand which can lead to repeated association between the brand and become a conditioned stimulus for evoked feeling. This may result in the brand being able to generate affective reactions on its own (Aaker et al., 1986). There is also a relationship of emotional content to virality (sharing) as content that evokes high-arousal positive (awe) or negative (anger or anxiety) emotions tends to be more viral (Berger and Milkman, 2012). For emotion to shape social transmission, it needs to be practically useful, interesting, and surprising. However, Stephen et al. (2015) caution that core principles of traditional advertising may not only apply in social media platforms such as Facebook. They found other drivers of engagement, with the most important being those associated with persuasion and emotion-related elements which are liked and shared by users. An important relevant finding for this study was that emotional elicitation can also emerge due to audience characteristics (Goldstein and Michaels, 1985), and more specifically, psychological processes of individuals that drive social transmission (Berger, 2011). This aspect can be relevant for political messaging and fake news communication by looking at user behaviour and interaction on the Facebook platform.

2.3   *Politics and marketing*

As a result of interaction on social media, consumer behaviour and attitudes have evolved, and user generated content has become a huge factor in influencing decisions related to acceptance and affinity towards companies and brands (Goh et al., 2013; Sethna et al, 2017), and political candidates (Bode, 2016). To test the hypothesis that political influence can spread through an online social network, Bond et al. (2012) conducted a voter mobilisation experiment on 61 million users who logged into Facebook on the US Presidential Election Day in 2010. On that day, a user was randomly assigned to one of three groups. In the first social message group, a message was shown in the user's newsfeed encouraging the user to vote and a clickable counter was showing displaying the number of other Facebook users who had previously voted. Also shown were profile pictures of six Facebook friends who had voted. In the second informational message group, a message was shown encouraging the user to vote, but profile pictures of

other users were shown. The control group users did not receive any message in their newsfeed. Results of this study showed that the online messages in the social message group and informational message group influenced voting behaviour of people. The real-world voting effect was greater than the direct effect of only online messages. In related research, Bakshy et al. (2015) also observed that Facebook friends' connections are ideologically segregated. Among democrat as well as republican users, the median share of friends who have opposite ideology is approximately 20%.

Social media platforms allow users to discuss any topic using one-to-one or group communication. By creating echo chambers (DiFranzo and Gloria-Garcia, 2017) within which topics are discussed, along with the *economy of attention* associated with it, there emerges an underlying trend of the filter bubble effect of social media (Pariser, 2011). Emotional integral ads generate more favourable inferences about persuasion, and advertisements with emotions can encourage people to share content while boosting positive inferences and increasing brand knowledge (Akpinar and Berger, 2017). This finding is relevant to fake news that has emotional content because persuasion is one of the goals of political advertising. For political candidates interested in having their message become viral, previous research in marketing can help content development on Facebook that has a high propensity to be shared. Although political candidates can run Facebook campaigns like corporations, the nature of Facebook makes it conducive for two specific aspects of marketing: segmentation and emotional marketing (because of fake news) which were investigated in this study. It is possible for advertisers to use micro-targeting and send the advertisements only to users who would be most receptive to the message, and those users who would be most willing to share the content on their social network.

Previous research has looked at relationship between politics and marketing in areas such as consumerism (Zhao and Belk, 2008). Political candidates typically use social media platforms for marketing that involve opinion-building and movement-building which helps them reach out to the user base, as well as recruit people who previously were at the margins of politics (Bartlett et al., 2013). It can also help politically disaffected individuals to find one another and unite around candidates (Gerbaudo, 2018). Liberals and conservatives differ in terms of personality, cognitive processing style, motivational concerns, personal values, neurological structures and functions, and are persuaded by different types of messages through different psychological routes (Fernandes and Mandel, 2014; Jost, 2017). Shavitt (2017) also noted that differences between conservatives and liberals emerge as a "… fundamental distinction, spanning a range of personality, cognitive, motivational, and linguistic differences, as well as the neurological and physiological processes that underpin them" (p.500). Since several experiments have shown that liberals and conservatives are persuaded by different types of messaging, for marketing effectiveness, campaigns can be tailored based on political ideology (Jost, 2017). As an example of differences in political ideology and consumerism, Kim et al. (2018) investigated effects of political ideology (democrats vs. republicans) on desire for luxury goods and recommended running targeted marketing campaigns on media platforms that support specific ideology, in geographic areas which are known to favour a political party, or by utilising digital footprints indicative of political ideology. There has also been research done on how candidates use personality traits, advertising spending, and negative advertising to influence voters (Hoegg and Lewis, 2011). The widespread use of social media to exploit political ideological differences has given rise to misinformation and fake news (Zhang and Ghorbani, 2020).

2.4 Fake news

Polletta and Callahan (2019) observed that fake news has the virtue of drawing connections between what people assume to be true about the way the world works, deep stories, what they learn from TV, radio, and social media, what they hear in conversations with friends, and what they directly experience. Social media platforms such as Facebook have made it possible for anyone to report, film, or manufacture *facts* or *news* and make it available to the general public (Atkinson, 2018). False news reports can go viral and be widely disseminated within a short time frame. Because of the ease of accessing different types of content on social media platforms such as Facebook, many people rely on social media to consume news over traditional news sources such as print and television (Nelson and Taneja, 2018; Gerbaudo, 2018). Fake news, disguised as real news, makes it almost impossible to detect as most individuals may not be able to determine the authenticity that separates facts from made up 'news' (Pennycook and Rand, 2019). Polarising messages on Facebook can be used to create fear or anger which would cause the message to be shared for higher reactions and engagement. Iosifidis and Nicoli (2020) state that during times of unrest deepfakes could swing opinions one way or another. Fake news messages compel readers to imagine themselves in a scenario by building mental models of events that may impact their lives. This immersive feeling that is crafted around multimedia messages on Facebook that are liked and shared, and cause readers to be influenced by persuasive messaging (McLaughlin and Velez, 2019). By promoting these types of messages, it allows Facebook to retain users on its platform for a longer time and provide higher advertising value. Further complexities arise when consuming social media content because users can control the type and quality of information one expects to see in their account. Another feature of Facebook is Facebook Groups which is a community of like-minded users. It is possible to promote fake groups and increase membership in these groups so fake news content can be seeded to amplify differences and generate emotional reactions (Lazer et al., 2018; Nelson and Taneja, 2018).

Researchers have been training systems by using algorithms to detect fake news and have suggested interventions by making users more aware of fake news by using techniques such as rhetoric studies, which can help users be critical of what they read online to combat bias through awareness (Roozenbeek and van der Linden, 2018). Some characteristics of fake news include items that are shorter in length, easier read, use simplistic language, contain fewer punctuation marks, contain more proper nouns, are less formal (e.g., use first names), contain more profanity and spelling mistakes, and use more first-person pronouns (Owen, 2019). When it comes to fake news content sharing, other researchers have found that content with negative emotions such as surprise, disgust, fear, and anger are shared more (Bakir and McStay, 2018). Factors such as confirmation bias and naive realism cause consumers to be more accepting of fake news (Shu et al., 2017). In social psychology, the term naive realism refers to the idea that the consumers perceive the world they see as most objective, whereas people who do not agree with the same view are irrational or biased (Waisbord, 2018). By crafting messages and sharing fake news related to a specific ideology (liberal or conservative), it is therefore possible to have people believe, reinforce, and share their pre-existing notions thereby increasing misperceptions among other users with similar ideology who may be seeking confirmation bias.

Fake news can be spread by using fake accounts or bots which are engineered using artificial intelligence to make up and populate users' newsfeeds on sensitive current topics. These accounts even include realistic profile pictures that are generated by algorithms. The topics populated by fake accounts are intended to evoke strong emotional response from users on social media platforms and are intended to create consensus by using social capital (e.g., like, share, re-tweets) which makes the news appear to be true and create trustworthiness for the news item (Ferrara et al., 2016). The bots act as catalyst in further amplifying agreement and suppressing voices that disagree with the fake news information. This strategy of spreading misinformation can be considered effective and highly impactful due to high engagement which achieves the purpose of creating discourse around the fake news item and the agenda it was intended to promote. Due to complexities of privacy controls that are a moving target, as well as perpetual changes to its privacy policy, Facebook users have found it difficult to determine what information about them is being shared with advertisers. The most egregious case of using unauthorised Facebook data was when British firm Cambridge Analytica acquired user data from millions of Facebook accounts to influence the 2016 US presidential election. According to Larson and Vieregger (2019), Cambridge Analytica was able to surreptitiously use data mining techniques to link Facebook data to users' email and phone numbers. Using this data helped identify political affiliation and voting preferences. Cambridge Analytica then was able to create targeted campaign messaging to build software to create and spread targeted campaign messaging which could be used to predict and influence voting choices.

2.5   *Generational differences*

Because Facebook is used by all generations of users, it was worth investigating how marketers can leverage Facebook for marketing based on variables that include user behaviour on Facebook platform, while also taking into consideration generation, gender, and political affiliation of users. Most previous studies on Facebook have used a convenience sample of one generation. In this study we used a cross section of users that included Baby Boomers (1944–1964), Generation X (1965–1980), Generation Y/Millennials (1981–1996), and Generation Z (1997–2001). Browsing behaviour and interaction with content on Facebook (session time, reading/posting, liking, sharing etc.) leaves a digital footprint that can be used by advertisers or politicians to serve targeted ads based on profile information that is collected by Facebook. According to Alemdar and Köker (2013) people use Facebook for different reasons such as social surveillance, recognition, emotional support, social connect (network extension, network maintenance), entertainment, ease to use, narcissism and self-expression. However, the usage motivations may differ based on generation (age) of users. Common (or distinguishing) characteristics of each generation may be able to predict consumer behaviour based on media selection (in this case Facebook), as well as perceptions about fake news communication on Facebook.

Previous researchers have noted that the older generation did not grow up with technology and were therefore slow to adopt social media because of cognitive barriers and attitude towards value of technology (Hargittai, 2010). In contrast Generation Y and later generations that grew up with technology and felt comfortable with instant messaging, photo sharing, making connections online, and documenting personal stories on social media platforms such as Facebook (Hayes et al., 2015). Social media use has

also impacted youth political participation more than older generation (Kahne and Bowyer, 2018). Loos and Nijenhuis (2020) reported other research that found during the 2016 election, "older users shared nearly seven times as many articles from fake news domain as the youngest age group" (p.6). With these differences in mind, there is a need to research attitude of different generations towards fake news communication which has become prevalent in marketing communication (Bode, 2016), and political marketing (Barberá et al., 2015). The political ideology and party affiliation of consumers can provide marketing managers insights into segmentation (Weinstein, 2004). By using demographic and psychographic characteristics of users, Facebook analytics makes it possible to identify segments of the population which can be targeted with specific messages. Although there is some research on association between social media and news consumption (Pentina and Tarafdar, 2014; Flintham et al., 2018; Loos and Nijenhuis, 2020), with increased use and access to social media, there is a need for additional research on political affiliation and fake news perception, especially in association with demographic and psychographic variables.

The above review of literature leads to the following hypothesis and research questions:

H1 The four generations (Baby Boomers, Gen X, Gen Y/Millennials, and Gen Z) differ significantly with respect to

    a   frequency of accessing Facebook

    b   reading posts on Facebook

    c   posting on Facebook

    d   session time on Facebook.

H2 There is a significant difference in perception of advertisement relevance between the four generations of Facebook users, while controlling for

    a   gender

    b   political affiliation.

H3 There is a combination of gender, generation, and political affiliation that can predict whether Facebook ads will be

    a   clicked

    b   found relevant.

H4 There is a significant difference in fake news perception on Facebook for

    a   gender

    b   political affiliation

    c   generation.

    3   Methodology

3 Methodology

The goal of this study was to determine advertising behaviour and fake news perceptions among users of Facebook by using demographic and psychographic variables. According

to US Census Bureau (File, 2017), the voter population 18 years and older in the USA for the 2016 presidential election was 227,019,486. Although there have been recommendations provided by researchers that sample size can be determined by using 10 responses per indicator (Nunally, 1978), we used a more stringent criteria for determining sample size by using 99% confidence level, standard deviation of 0.5, and ±1% margin of error (Krejcie and Morgan, 1970; Westland, 2010). Based on these criteria the lower bound on sample size was calculated to be 384 cases which was based on ten indicator variables which assessed fake new perception using a statistical power of 0.80 and significance of 0.05. We pilot tested the survey after approval was granted by the Institutional Research Board for the university. Informed consent, introduction, and screener questions for Facebook use (minimum two years) was used for all survey participants. We administered the survey to a sample size of 400 respondents using proportionate multistage quota sampling for representation of groups and generations. The survey was administered anonymously by using a professional experience management company (Qualtrics). The average time to complete the survey was fifteen minutes. The study used review of literature to identify variables which were subjected to hypothesis testing, inferential tests, parametric and non-parametric analysis to draw conclusions which can provide additional insights on advertising behaviour and fake news perception as experienced by users on Facebook social media platform.

3.1   Scale development

Although fake news has been used by companies and politicians for a long time, the 2016 US presidential election made this term popular. There is no research on measurement of fake news construct and there is a need to operationalise the perceptions of fake news. If operationalised, such a construct can present opportunities for marketers to observe how consumers respond to advertisements that appear alongside fake news and based on the results this avenue of advertising with fake news can be utilised (or avoided). Therefore, as part of the study, an instrument was developed to capture construct related to perception of fake news on Facebook. Using guidelines provided by Jarvis et al. (2003) a construct was designed with ten indicator items which were extracted from sources provided earlier in the review of literature on fake news. Since this was a reflective construct, the direction of causality was from the construct to the indicators. It was intended that the fake news perception construct would be a linear combination of its indicators and the construct would be tested using exploratory factor analysis (EFA). Research supports inclusion of items related to news in the scale as Facebook is used as a primary news platform by many users (Allcott and Gentzow, 2017; Gerbaudo, 2018). Using a composite mean score of Likert scale items, a high score on this construct indicated more awareness of fake news on Facebook. To establish a common reference for fake news, a definition of fake news was developed and provided in the survey before Likert scale indicator items were presented. This definition stated fake news as *alternative information reported as news about an event, position or point of view that is not necessarily substantiated with facts.* The representation to capture the fake news perception construct can be seen in the indicator items shown in Table 1. As can be seen from Table 1, items in the scale exhibited good factor loading scores. Cronbach's alpha reliability of the 10-item fake news scale was found to be 0.71 which met the accepted level of .70 (Nunally, 1978; Thorndike, 1996). Because a new scale was being tested, all

ten items were retained and are being presented (including those with comparatively low factor loading) so further research can be done on items (see Table 1).

Table 1   Reliability parameters of fake news perception construct

	Scale mean if item deleted	Cronbach's alpha if item deleted	Item factor loading
I do not consider Facebook as a reliable news source	29.84	0.70	0.790
I do not rely on Facebook as my primary news source	29.42	0.74	0.872
I may have been fooled by fake news on Facebook which was presented as real news	30.07	0.72	0.522
On Facebook I can tell the difference between real news and fake news	29.75	0.76	0.820
I consider most of the news on Facebook as fake news	29.96	0.66	0.697
In the last presidential election, Facebook was the major source of fake news	29.67	0.66	0.669
Government intervention is needed to regulate Facebook so fake news can be controlled	30.00	0.67	0.668
Facebook should be held accountable for spreading fake news	29.57	0.65	0.743
On Facebook, I am concerned about being exposed to fake news	29.85	0.66	0.745
Fake news is more common on Facebook than on any other social media site	29.85	0.66	0.749

Note: AVE = 0.53; CR = 0.912

As part of EFA, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated and found to be 0.77. A value greater than 0.7 is considered the minimum requirement for obtaining distinct and reliable factors (Kline, 2013). Also, Bartlett's test of sphericity was found to be significant ($p < .001$) which shows a relationship between indicator items. Average variance extracted (AVE), which is the average of estimated indicator reliability, for all items was 0.53, which is more than the minimum threshold of 0.5 to establish satisfactory convergent validity. Composite reliability, which is the share of construct variance of total variance of composite (Peterson and Kim, 2013), was also calculated and found to be 0.91 which exceeds the minimum threshold of 0.8 (Netemeyer et al., 2003). Following EFA in which validity and reliability of the measurement model were established, the next step was to perform confirmatory factor analysis (CFA) (Malhotra et al., 2004). The CFA model was tested using AMOS 27 software and after the first iteration, modification indices covariances were added to refine the model. The scale met fit criteria for CMIN/df, comparative fit index (CFI), GFI and root mean square of approximation (RMSEA) using threshold values recommended by Hox and Bechger (1998). CMIN $\chi 2$/df index, which is a goodness of fit index for the model was 4.486 (threshold value <5); CFI which compares the model being studied with an alternative model, such as the null or independence model was found to be 0.915 (threshold value >.9); root mean residual (RMR) which provides an estimate of the average misfit for each estimated versus observed variance/covariance parameter was .08 (threshold value <.08); RMSEA, which is less sensitive to sample size in comparison to $\chi 2$ test, was also

computed and found to be .093 (threshold <0.1). Based on above information, the indices suggest an acceptable model-to-data fit for the scale. As recommended by Podsakoff et al. (2012), we investigated possibility of common method bias by using a marker variable and found that common method bias was not an issue for this study. Since this was an attempt at new scale creation for fake news perception items, further development of items in future research would be helpful to establish better convergent validity.

3.2   Demographic information

There were 400 respondents to the survey. Multistage quota sampling was used for generation, gender, and political affiliation. For this study, the main segmenting variable was generation and four generations were considered when identifying similarities and differences in their perceptions towards fake news. Although there is debate on range of exact years for each generation, for the purpose of this study, and consistent with Pew Research Center designation (Dimock, 2019), the following range was used when selecting respondents for the study: Baby Boomers (1944–1964), Generation X (1965–1980), Generation Y/Millennials (1981–1996), Generation Z 1997–2001 (note: Generation Z has a range of 1997–2012, but for this study, 2001 was used as cutoff year because the minimum legal voting age in US presidential election is 18 years). There were respondents from 44 US states. Table 2 shows demographic characteristics of respondents.

Table 2   Demographic information

Measure	Items	n	%
Gender	Male	200	50.0
	Female	200	50.0
Generation	Baby Boomers	100	25.0
	Generation X	100	25.0
	Generation Y (Millennials)	100	25.0
	Generation Z	100	25.0
Political affiliation	Democrats	200	50.0
	Republicans	200	50.0
Facebook use	Less than once per week	13	3.3
	Once per week	15	3.8
	2–3 times per week	32	8.0
	Once a day	71	17.8
	Several times a day	269	67.3
Voted in 2016 election	Yes	308	77.0
	No	92	23.0
Intend to vote in 2020	Yes	359	89.8
	No	23	5.8
	Maybe	18	4.5

4   Results

H1 The four generations differ significantly with respect to
   a   frequency of access
   b   reading
   c   posting
   d   session time.

a   A chi-square test of independence was calculated comparing the results of different generations and frequency of access. No significant relationship was found ($\chi2(12) = 20.22$, $p > .05$). Across all generations, the frequency of access was the same across categories of generations with Facebook mostly being accessed several times during the day.

b   A chi-square test of independence was calculated comparing the results of number of times Facebook users read posts during a session. A significant interaction was found ($\chi2(12) = 21.51$, $p < .05$, Somer's d = .025). The data showed Baby Boomers reading posts mostly once a day, Gen X users reading posts mostly once a week, Gen Y users were split evenly, and Gen Z users mostly reading posts less than once per week.

c   A chi-square test of independence was calculated comparing the results of number of times Facebook users made posts during a session. A significant interaction was found ($\chi2(12) = 22.67$, $p < .05$, Somer's d = .029). The data showed Gen Y users being most active in posting to Facebook several times a day. Gen Z users were least active in posting to Facebook.

d   A chi-square test of independence was calculated comparing the results of different generations and session time. No significant relationship was found ($\chi2(12) = 18.55$, $p > .05$). Across all generations, the session time on Facebook was the same across categories of generations.

H2 There is a significant difference in perception of advertisement relevance between the four generations of Facebook users, while controlling for
   a   gender
   b   political affiliation.

A three-way chi-square test of independence was calculated comparing the results of differences in generations regarding relevance of Facebook ads while controlling for gender. For male respondents, a significant interaction was found ($\chi2(3) = 23.07$, $p < .05$. For female users of Facebook, no significant relationship was found between generations regarding relevance of ads ($\chi2(3) = 5.45$, $p > .05$). The data showed Gen Y users found ads to be most relevant. Baby Boomers found the ads to be of least relevant. We can conclude that when controlling for gender, the relationship between generations and relevance of ads shows partial association for male users. Respondents gender does have an effect whether different generations will find the ads relevant.

When controlling for political affiliation, a three-way chi-square test of independence was calculated comparing the results if different generations found Facebook ads relevant, while controlling for political affiliation (republican vs. democrat). For republicans, a significant interaction was found $\chi2(3) = 24.49$, $p < .05$. The data showed

Gen Y being the generation that found ads most relevant. Baby Boomers found the ads least relevant Facebook. For democrats on Facebook, no significant association was found between generations regarding relevance of ads. ($\chi2(3) = 6.93$, $p > .05$). We concluded that when controlling for political affiliation, the relationship between generations and relevance of ads showed a partial association for only republican users of Facebook. Political affiliation did have an effect whether different generations found the ads relevant.

H3 There is a combination of gender, generation, and political affiliation that predicts whether Facebook ads will be

    a   found relevant

    b   clicked.

Logistic regression was conducted to assess whether the three predictor variables, gender, political affiliation, and generation can significantly predict whether a user would find Facebook advertisements relevant. When all three predictor variables were considered together, they overall significantly predicted whether the Facebook advertisement would be found relevant, $\chi2 = 16.38$, df = 3, $N = 400$, $p < .001$.

    Table 3 presents the odds ratios, which shows that the odds of estimating correctly whether the advertisements would be found relevant improve by 50% if one knows the generation (age) of the user.

Table 3   Logistic regression for predicting if ads will be found relevant

	β	S.E.	Odds ratio	p
Gender	−.385	.245	.421	.680
Generation	.408	.112	1.50	.000
Affiliation	−.084	.244	.919	.729
Constant	−1.604	.603	.201	.008

Logistic regression was conducted to assess whether the three predictor variables, gender, political affiliation, and generation, can significantly predict whether a user would *click* on a Facebook advertisement. When all three predictor variables were considered together, they overall significantly predicted whether the Facebook advertisement would be clicked, $\chi2 = 7.34$, df = 3, N = 400, $p < .001$.

    Table 4 presents the odds ratios, which suggest that the odds of estimating correctly whether the advertisements would be clicked improve by 23% if one knows the generation (or age) of the user. These results of finding Facebook advertisements relevant or clicking on Facebook advertisements have implications (discussed in later section) for placing political ads on Facebook based on demographic data that Facebook provides advertisers (political candidates) for targeting users.

Table 4   Logistic regression for predicting if ads will be clicked

	β	S.E.	Odds ratio	p
Gender	−.734	4.479	.480	.034
Generation	.211	.151	1.235	.162
Affiliation	−.276	.335	.759	.410
Constant	−1.264	.805	.283	.283

H4 There is a significant difference in fake news perception on Facebook for

    a   gender

    b   political affiliation

    c   generation.

First, all independent variables (gender, political affiliation, gender) were taken together to predict fake news perception. Generation and gender (but not political affiliation) were found to have relative importance and were significant predictors in explaining fake news perception among Facebook users. It was found that generation and gender explained a significant amount of the variance in fake news perception score ($F(3,396) = 6.09$, $p < .05$). Results for variables then taken individually are presented below.

a   An independent samples t test comparing the mean fake news perception scores of males and females found a significant difference between the means of two groups ($t(398) = 3.307$, $p < .05$). The mean of males was significantly higher ($m = 3.27$, $sd = .59$) than mean of females ($m = 3.08$, $sd = .57$).

b   An independent samples t test comparing the mean fake news perception scores of republican and democrat users of Facebook found no significant difference between the scores of two groups ($t(398) = -1.495$, $p > .05$). The mean of democrats ($m = 3.22$, $sd = .59$) was not significantly higher than mean of republicans ($m = 3.13$, $sd = .58$)

c   One-way ANOVA was used to compare fake news perception score of the four generation of Facebook users. A significant difference was found among the generations ($F(3, 396) = 4.29$, $p < .05$). Tukey's *HSD* was used to determine the nature of the differences between generations. This analysis revealed that Gen X users ($m = 3.02$, $sd = .57$) scored lower than Gen Y users ($m = 3.31$, $sd = .57$) on fake news perception score. Baby Boomers ($m = 3.18$, $sd = .57$) using Facebook were not significantly different from either Gen X, Gen Y, or Gen Z users ($m = 3.15$, $sd = .62$) of Facebook. Gen Z users of Facebook were not significantly different from either Gen X, Gen Y, or Baby Boomers users of Facebook.

An analysis of covariance was used to assess whether Facebook users from different generations have different fake news perception score after controlling for political affiliation and gender. Results indicate after controlling for political affiliation, there was no significant difference between generation of users in fake news perception score ($F(1, 393) = .024$, $p = .877$). Similarly, after controlling for gender, there was also no significant difference ($F(1, 393) = 2.856$, $p = .092$) in FNP score. The interaction between political affiliation and gender was also not significant ($F(1, 393) = .441$, $p = .507$).

    Generational differences might contribute to fake news perception score, but that effect may differ across gender. A between-subjects factorial ANOVA was calculated comparing fake news perception level between different generations and gender. The main effect for generational differences was significant ($F(3,392) = 4.36$, $p < .05$, $\eta^2 = .032$). Gen X users of Facebook had the lowest score ($m = 3.02$, $sd = .56$) and differed from Gen Y users of Facebook ($m = 3.32$, $sd = .57$). A significant main effect for gender was found ($F(1, 392) = 11.15$, $p < .05$, $\eta^2 = .028$) with males scoring higher ($m = 3.26$) than females ($m = 3.08$). Finally, the interaction was not significant ($F(3,392) = .268$, $p > .05$).

Similarly, generational differences might contribute to fake news perception score, but that effect may differ across political affiliation. A between-subjects factorial ANOVA was calculated comparing fake news perception level of different generations and political affiliation. The main effect for generational differences for fake news perception score was significant ($F(3,392) = 4.36$, $p < .05$, $\eta^2 = .032$). The main effect for political affiliation was significant ($F(1, 392) = 2.218$, $p <. 05$, $\eta^2 = .006$) The interaction was not significant ($F(3,392) = 1.61$, $p > .05$). Across all four generations, republicans scored higher on fake news perception score, except for Gen Z users which showed disordinal interaction where democrats scored higher than republicans (see Figure 1).

Figure 1   Estimated marginal means of mean of fake news scale across generations (see online version for colours)
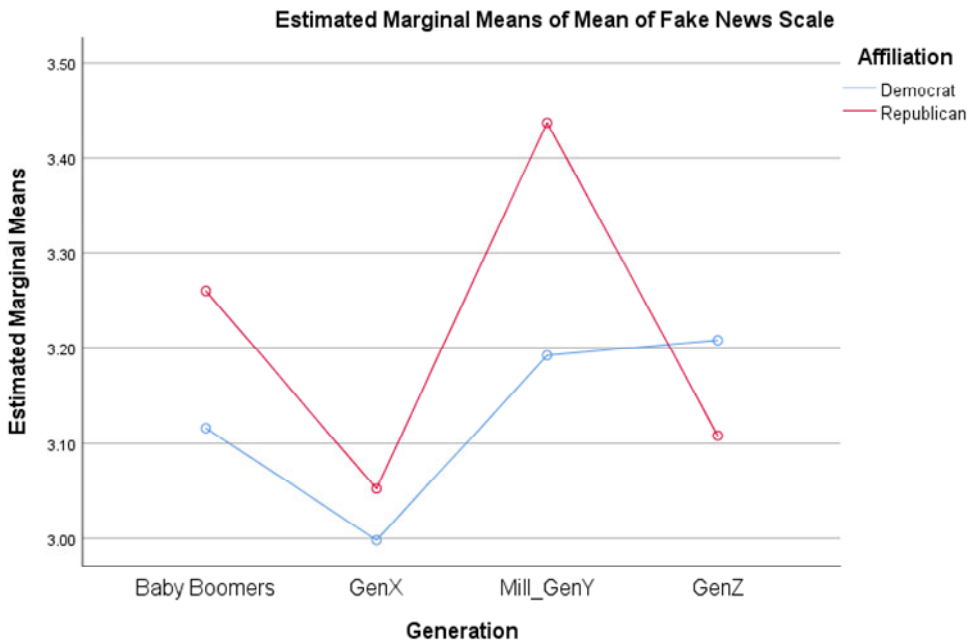
5   Discussion and implications

The role of social media and its impact on day-to-day lives of citizens has grown at a tremendous rate since social networks first started becoming popular. Social media has given rise to public activism, such as the Arab Spring in 2010, Black Lives Matter in 2013, and *Me Too* movement in 2017. National and international events such as political elections and global pandemics have used social media as a platform that can unite or divide users. With 2.7 billion users in 2020, Facebook remains an influential platform that can shape business, social, and political discourse. Analysis of social networks and platforms needs a better understanding of interpersonal influence and individual behaviour (Susarla et al., 2012). This study addressed the gap in literature related to use of social media for advertising and fake news among different generation of users who are being targeted by individuals, businesses, social and political organisations, and

campaigns. The extent to which Facebook is used by different categories of users, and patterns of engagement can be used as variables for segmentation of Facebook users (Yung, 2018). Findings of this study have practical managerial implications by offering insights on whether targeting a segment based on generation, gender, and/or political affiliation on the Facebook platform, and running targeted communication as part of marketing campaigns can result in successful messaging by political candidates and advertisers. Marketers can use various strategies to target Facebook users. User data is available for purchase directly from Facebook, or it is also possible from a technical perspective to classify Facebook profiles based on their demographic, psychometric, lifestyle and value, and location to identify key marker items that determine distinct user segments (Risius and Aydingül, 2018). By understanding characteristics and preferences of each generation, Facebook can be used as part of distribution channel to optimise targeted content marketing for each generation which will help establish a long-term connection with the brand. There are different ways of segmentation of Facebook users which can be used for motivation and demographic segmentation strategy for Facebook users (Shao et al., 2015). In addition to demographic segmentation, this study also considered psychographic segmentation (political affiliation) and behavioural segmentation (engagement and interaction on Facebook) to help marketers determine if there was value in observed differences between segments. Being able to identify, segment, and target the right users based on criteria used in this study, such as psychographic and demographic variables that include generation, gender, advertising response behaviour, and political affiliation can help resource allocation of marketing budgets and management of social media presence across Facebook and other platforms.

UGT proposed that media use and effects are best understood within the context of the individual's characteristics, as well as his/her motives for using the medium (Katz et al., 1974). This study provided additional insight in the use and consumption of content based on multi-generational differences. This study extends previous research by framing Facebook use with UGT. People use Facebook because media selection of Facebook platform meets social and interactive needs which are consistent with similar constructs identified in UGT theory when it was first proposed by Katz et al. (1974). Other than satisfying users' needs and wants, Facebook has become a medium where expected outcomes continue to be gratified as more people continue to use it for socialising as well as business needs. Berezan et al. (2020) found that a need to belong in a community may be the primary psychological need that drives Facebook usage. This research extended UGT from multi-generation, gender, and political affiliation perspective which can directly influence marketing strategy as shown by findings of this study. The findings of this study also add to previous literature on UGT and social media use. The study updates and validates UGT in context of the largest and most dominant social media network.

Facebook is used by users of all generations who spend time reading, posting, and interacting with content posted by individuals and businesses. Each generation brings with it defining characteristics, features, and value judgments which can impact and change the social and political landscape (Berkup, 2014). Marketers who can appeal to salient aspects that resonate with each generation can successfully influence purchase decisions. Advertising on Facebook provides an opportunity to establish and maintain a social media presence for users from all generations. Going beyond just frequency of accessing Facebook, this study went deeper into Facebook user behaviour by investigating measure of engagement, which included session time, reading of posts, and

posting content to Facebook (H1). Increased customer engagement results in better consumer brand-relationships, customer satisfaction and loyalty, stronger brand affinity, and higher purchase intention (Brodie et al., 2013; Laroche et al., 2013). In this study it was found that there is no significant difference in frequency of access and session time among different generation of Facebook users (H1). This contradicts findings from few years ago which found Facebook was being used more by younger generation of users, and with increasing age, Facebook activity dwindles (McAndrew and Jeong, 2012; Malik et al., 2016). Results of this study (H1) showed that Gen Y users engage with Facebook than any other generation. This may be because other social media platforms, such as Instagram, and Snapchat, have become popular among younger users who have migrated from Facebook to these newer platforms. The characteristics of newer social media platforms are more aligned with user expectations which include extemporal communication using multimedia. Also, with more interaction, communication, and experience within social media platforms, older users have become comfortable with using information and communication technologies which drives use of legacy social networks such as Facebook.

Findings of this study shed new light on generational marketing. There were significant differences found in generations for reading and posting on Facebook (H1). Regarding reading Facebook posts, in this study it was found there was a significant difference between generation of Facebook users. Baby Boomers showed most engagement with content when reading posts which has implications for showing relevant content by advertisers. When posting on Facebook, Gen Y users were most active as they posted several times a day. Marketers can use targeted ads and content marketing strategy on their Facebook pages to engage Gen Y users by showing content that would be relevant to users from that generation which would increase engagement for the most active generation of users on Facebook. Akpinar and Berger (2017) had observed that advertisements that include emotional eliciting strategies are more likely to be shared. Gen Y users are most responsive to recommendations from friends and family, feel comfortable with online shopping, and use Facebook to select businesses. Also, brands with organic, ethically produced products would see greater return on investment for marketing to Gen Y users since these users are more likely to buy a service or product that benefits society or environment (Lister, 2019). Results of this study also showed that reading and posting on Facebook is not as popular among Gen Z users (H1, H2). Based on open-ended comments provided by respondents in the survey, it appeared that Gen Z users were more attracted to Snapchat social media platform because it allows the ability to quickly send messages, photos, videos. Instagram social media platform was another preference mentioned because it is more mobile friendly (as compared to Facebook) and is primarily image-based which attracts individuals, celebrities, and brands (Lister, 2019). This is consistent with previous research by Francis and Hoefel (2018) who observed that with vast amounts of information at their disposal, Gen Z users are more pragmatic and analytical about their decisions than members of the previous generations, which affects their relationship with brands.

There are different motivations for using social media platforms and there have been gender differences noted for usage and behaviour on Facebook (Malik et al., 2016). While females used Facebook more for entertainment and interpersonal communication, which also made them more connected on social media, males used Facebook more for seeking connections, seeing photos and videos, accessing special interest groups, and finding events. Many brands have discovered that customers who interact with them on

social media do spend more money than other customers (John et al., 2017). Results of H2, which investigated whether the four generations of male and female users would be significantly different in finding Facebook ads relevant, showed that there was no significant difference in females among different generations. There was significant difference across generations for males, where Gen Y males found ads to be most relevant, and Gen Z males found the ads least relevant. Therefore, this study shows that marketers would benefit when targeting ads to Gen Y male users as it would offer the highest return on investment. Values and attitudes associated with political ideology can also be associated with branding and marketing strategies (Oyserman and Schwarz, 2017). For H2, in republican users, a significant relationship was found between generations who found Facebook ads relevant. Political campaigns can use marketing and consumer psychology to impact voter attitude and behaviour (Rao, 2017). Understanding the values, behaviours, and characteristics of micro-targets (in this study, Gen Y republicans who can be micro-targeted by using Facebook), can be profitable when consumers or voters are shown relevant Facebook advertisement. This study also found in H3 that marketers are able to increase the odds that Facebook users would find an ad relevant, and the ad would be clicked if the generation of the user is known, which Facebook makes possible based on the demographic data they collect from users. Previous marketing literature has shown that males and females respond differently to advertising based on specific needs or social roles (Dahl et al., 2009; Hazari et al., 2017, Erkan and Elwalda, 2018). It has also been found that that consumers do not trust advertising, but persuasion tactics can generate reactions (Fransen et al., 2015) which feeds algorithms on Facebook and other social media networks to encourage liking and sharing of similar content. This study extended previous literature by looking at gender differences in fake news perception for gender (H4). There are significant gender differences in the evaluation of social media sites with females consistently showing higher social media site satisfaction and loyalty than males which can lead to higher trust of content (including fake news) seen on social media sites (Lim et al., 2014).

In this study there were significant differences in fake news perception between males and females (H4) with males showing higher perception of fake news on Facebook. Trust can impact content sharing intentions (Shin, 2010), which can cause fake news posts to go viral on Facebook. Since female users are more active and participate in various forms of activities, including photo sharing and self-disclosures (Litt, 2013), they may find Facebook information to be more reliable, and be willing to believe, as well as share fake news content that appears in ads or in their newsfeed. The interaction between generation and gender for fake news perception (H4) was not significant in this study. This contradicts previous research (Park, 2015) which had found that older generation of females were vulnerable to data exposure and privacy issues. Previous research had also found younger users trust Facebook more than older users (Malik et al., 2016). Also, Loos and Nijenhuis (2020) conducted a study on fake news generational differences among European respondents and found from less than 15% of Facebook users who clicked the fake news posts, the highest consumption of fake news was by Baby Boomers. Results of this study provide additional information by showing significant differences in fake news perception between generation of users, especially between two specific generations. As mentioned in H4c, Gen X had lower fake news perception than Gen Y/Millennials. An additional finding of this research was that Baby Boomers and Gen Z users are not significantly different from other generations. It would be interesting

to further investigate characteristics and social media behaviour of Gen Y users as they seem to show higher awareness of fake news in comparison to Gen X users. It may possibly be because Gen Y users grew up with technology, are considered to be the most educated generation, have high adaptation capacity, and are able to compile useful information from different sources by filtering information (Berkup, 2014).

Hypothesis H4c investigated fake news perception which showed no significant interaction in main effect between generation and political affiliation. Individuals are more likely to share information they have received from ideologically similar sources than to pass on information from dissimilar sources (Barberá et al., 2015). Results of this study (H4c) showed across all four generations, republicans scored higher on fake news perception score, except for Gen Z republican users who scored lower than Gen Z democrats on Facebook. This phenomenon for fake news perception for Gen Z Facebook users' needs further investigation. Political ideologies stick with people because they resonate with their traits and characteristics which can drive consumer choice and behaviour (Oyserman and Schwarz, 2017). Political affiliation can therefore be used to segment people by ideologies they support. Based on trends observed from the previous US presidential elections, Facebook can play an important role for politicians and advertisers to promote their brand image or brand. Results of this study provide insight into how Facebook marketing can be used based on generation, gender, political affiliation, and Facebook interaction by users which affects advertising response behaviour. To restrict the spread of fake news on its platform, Facebook has taken several steps to legitimise news sources ahead of the 2020 US presidential elections. Some of the steps taken include better controls to hide articles, topics and publishers, better personalisation by using machine learning to present relevant news based on users' interests, better fake news detection, news curation by Facebook staff, and use of third party fact checkers (Brown, 2019).

Political campaigns can use sophisticated marketing tools and techniques based on data provided by Facebook analytics which can be used for segmentation and micro-targeting of voters based on demographic and psychographic variables. It has been known that variables such as education, age, and media consumption can provide more accurate perceptions of user belief whether the information is true or false (Allcott and Gentzkow, 2017). As shown in this study, by using additional information such as gender, generation (age), and political affiliation, it is possible to create sophisticated customised messaging for individual users of Facebook based on their profiles. Fake news on social media platforms such as Facebook can have a huge impact and presents a growing problem for individuals and businesses. This provides an opportunity for researchers and practitioners to study how the challenge of fake news can be overcome. This study has provided new knowledge regarding advertising behaviour and fake news in the context of generational, gender, and political differences that can impact consumer psychology and behaviour.

6   Limitations

Despite limitations of this study listed below, the main contribution made by this study is that it adds new knowledge regarding Facebook advertising behaviour across generations, gender, and political affiliation. Also, this study investigated the important topic of fake news and perceptions of fake news across generations, gender, and political affiliation

which can be useful to academics and practitioners in multi-disciplinary areas such as marketing, psychology, politics, communication, and information science. This study developed and investigated a new measure of fake news perception that has not been previously considered in literature prior to this study. Since one of the goals related to this study was to develop a new scale that measured perceptions of fake news construct, there were limitations related to scale development. It may be possible that fake news perception may have measures that are caused by more than one underlying construct. This would make the scale comprised of formative measures which need not be correlated (Fornell and Bookstein, 1982; Bollen and Lennox, 1991) because the construct can be represented by mutually exclusive behaviour. The use of formative indicators to develop and measure a construct is challenging because it does not follow the traditional model of reflective indicators measurement which relies on classical test theory and factor analysis models to account for observed variances or covariances (Jarvis et al., 2003). It is also likely that the fake news perception construct used in this study possesses other meaning (multi-dimensionality) beyond what was captured in the indicator items. It is because of these limitations, the authors reported all indicator items, including those with low factor loading so these can be reviewed and revised in further research. Because this was not an experimental study, responses rely on authentic reporting of respondents. In an experimental study it would be possible to show and observe effects of fake news advertisements on user behaviour on Facebook. In this study, any advertisement that users were exposed to in the past when using Facebook was used as a proxy for political advertisements that may be shown by politicians to users in the months leading up to elections. Relevance of Facebook advertisements and intention to click an ad in this study were included as binary outcomes. These variables could also be included as continuous variables in future studies to provide capture more details for the outcomes.

7   Future research direction

Social media platforms offer tremendous opportunities to customise messages based on demographic and psychographic profiles of users. Sharing of disliked content depends on social motivations (Tellis et al., 2019). If a user believes that unpopular posts on Facebook can help others, or if the shared content will be helpful in making connection with others, the content is more likely to be shared. Previous research in marketing has focused on how brands can make positive connection with consumers by creating effective advertising content. In contrast, more research is now needed to investigate emotions that cause fake news content sharing. This will help develop better algorithms that can detect fake news and help stop it from propagating before the content can go viral. Going beyond this study, it may be possible if generational identity can identify and shape voter preferences which is information that can be useful to marketers looking for segmentation to effective marketing campaigns. Because social media is used more by a younger audience, which is inclined to share and amplify messages from candidates, more research is needed to understand how different generations of users shape the political dialog on social media. Users should be able to filter fallacies from the truth when consuming news social media. Fake news dissemination continues to evolve at a rapid pace because of widespread availability and access to user information, and advances in technology such as data mining and big data. Information access, storage,

privacy, and sharing of content are critical to functioning of society. In today's dynamic environment, this study provides academics and practitioners new opportunities to research by identifying variables from literature and using empirical techniques to study issues that affect information on social media platforms such as Facebook that can be impacted by fake news.

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