

The Relationship Between Internet Memes as Extended mind and Egyptians' engagement and Gratifications in the Digital Environment: Mixed methods study

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ملخص:

ظلّ الإنسان منذ القدم يحاول تطوير أدوات تساعد على قضاء حوائجه، وبعد الثورة الصناعية تمكّن من صنع أجهزة تكنولوجية أكثر ذكاءً وأكثر قدرة على تحقيق رفاهيته وجعل حياته أكثر رخاء وسهولة. واستعان الإنسان بالكثير من تلك الأجهزة في إنجاز الكثير من الأعمال، لعلّ أبرزها حفظ المعلومات والبيانات (ذاكرة رقمية)، مما يجعل تلك الأجهزة تعمل كامتداد ذهني لاسلكي لعقل الإنسان، وجزء من هذا العقل. وفي تسعينيات القرن العشرين اقترح كلارك وشاليمار نظرية "العقل الممتد" وهي فكرة فلسفية تقوم على أن عقل الانسان في العصر الحديث ليس محصورا داخل جمجمته فقط، وإنما يمتد ويتوسع بتوسع البيئة التكنولوجية التي تحيط به. فكما يصبح الطرف الصناعي جزءا من جسم الانسان فان التكنولوجيا مثل أجهزة الكمبيوتر أو الموبايل تصبح جزءا من عقله. وتفترض نظرية العقل الممتد أن عقولنا تصل إلى العالم، وتعتمد على الموارد الخارجية لزيادة وتعزيز عملياتنا المعرفية الداخلية.

في هذا الإطار سعى البحث الراهن إلى دراسة العوامل المؤثرة على تعامل المستخدم مع تكنولوجيا ما على انها امتداد لعقله، مثل كيفية استخدام هذه التكنولوجيا وطبيعة التفاعل والاندماج معها وما سوف يحصل عليه المستخدم من إشباعات من خلال استخدامه لها علاوة على عوامل الإتاحة، وسهولة الوصول والثقة، بالتطبيق على الميمات الالكترونية التي انتشر استخدامها على الانترنت. والتي تتميز وفقاً لنتائج بعض الدراسات الحديثة بقدرتها على جذب الانتباه ونقل المعلومات ببساطة والسهولة والسرعة. وطبقت الباحثة أدوات الاستبيان ومجموعات النقاش من أجل معرفة العلاقة بين أسباب استخدام المصريين للميمات ومستوى اندماجهم وتفاعلهم معها والإشباعات المتحققة لهم من استخدامها وبين نظرتهم للميمات كامتداد لعقولهم. وأشارت النتائج إلى أن أغلبية المستخدمين يعتبرون الميمات بالفعل امتداداً لعقولهم، وأن المستخدمين الأكثر اندماجاً في استخدام الميمات يعتبرونها امتداداً لعقولهم بشكل أكبر. كما أشارت النتائج الى صحة الاعتقاد بأن هناك علاقة بين درجة اندماج المستخدم في استخدام الميمات والإشباعات المتحققة، وبين رؤيته للميمات كامتداد لعقله في البيئة الرقمية

الكلمات المفتاحية:

الميمات، الميمز، العقل الممتد، دمج المستخدم، الاستخدامات والإشباعات.

Abstract:

Since ancient times, humans have been trying to develop tools that help them meet their needs. After the Industrial Revolution, they were able to create more advanced technologies for their well-being and easier lives. Humans have used many of these devices to accomplish various tasks, perhaps the most prominent of which is the storage and retrieval of information and data (digital memory), which makes these devices function as a wireless mental extension of the human mind, and a part of this mind. In the 1990s, Clark and Chalmers proposed the "extended mind" theory, a philosophical idea based on the notion that the human mind in the modern era is not confined solely within the skull, but rather extends and expands with the growth of the technological environment that surrounds it. Just as a prosthetic limb becomes part of the human body, technologies such as computers or mobile phones become part of the human mind. The extended mind theory posits that our minds access the world and rely on external resources to augment and enhance our internal cognitive processes.

In this context, the current research aims to study the factors affecting the users' interactions with technology as an extension of their mind, such as how to use this technology, the nature of interaction and integration with it, and the gratifications the user will obtain through its use, in addition to the factors of availability, ease of access, and trust. The research applied this framework to the study of electronic memes that have spread on the Internet. According to the results of some recent studies, memes are distinguished by their ability to attract attention and convey information simply, easily, and quickly. The researcher used a questionnaire to investigate the relationship between the reasons Egyptians use memes, their level of integration and interaction with them, the satisfactions they achieve from using them, and their view of memes as an extension of their minds. The results indicated that the majority of users actually consider memes to be an extension of their minds, and that users who are more involved in using memes consider them to be an extension of their minds to a greater extent. The results also suggested that there is a relationship between the degree of user integration in using memes and the satisfactions achieved, as well as their view of memes as an extension of their mind in the digital environment.

Keywords:

Uses and gratifications, Extended mind, user engagement, memes, Egyptians.

Introduction:

Memes are popular for conveying information on social media through humor, sarcasm, and thought-provoking visuals. They have permeated our culture, influencing conversations, trends, and even political landscapes (Wang, 2022; Andrew and Damian, 2017). Memes provide a unique way for individuals to share ideas, opinions, and emotions concisely, altering daily life and our relationship with technology (Shifman, 2014; Beskow, Kumar, & Carley, 2020). This dynamic interplay between our cognitive process and the external world we navigate raises intriguing questions about the extensions of our cognition, the uses and gratifications of communication in the digital age, and the mediating factors affecting this process.

Uses & Gratifications theory suggests that individuals actively seek media to fulfill specific needs, such as information seeking, social connection, entertainment, and emotional release (Leung, 2013). Recent studies suggest that gratifications are not only derived from the use of specific media but also from engagement with them (Shao, 2009). The more we engage with a medium, such as the internet and its content like memes, the more gratification we derive from it (Taha, 2020). Consequently, the more immersed we become in the internet content and its diverse features, the greater the potential for cognitive extension and gratification.

Extended Mind Theory posits that our minds reach out into the world, relying on external resources to augment and enhance our internal cognitive processes. This extension encompasses our ability to communicate, interact, and engage with external resources (Clark & Chalmers, 1998). Factors like availability, accessibility, and trust impact the relations with these sources and consequently the gratifications derived from them (Clark, 2010; Choi, 2021). The integration of humans and technology blurs the boundaries between them, leading to the concept of the Extended Mind Theory (EMT), where external elements become part of our cognitive processes based on engagement and gratification (Clark & Chalmers, 1998).

This study aims to bridge the gap between the Uses & Gratifications theory and the Extended Mind Theory by examining how and why users use memes and if it might function as cognitive extensions for its users. This research seeks to unlock a deeper understanding of how memes contribute to user gratification and potentially extend human cognition in the digital age.

Internet Memes:

The Internet is a hub of folk culture, where insider slang, chain emails, and trendy videos circulate among users via inboxes and news feeds. This exchange of user-generated content often leads to the creation of "memes," which are strings of reappropriated words and images. These memes can range from a photo with a caption on a message board to iconic digital artifacts music videos or collections of funny yearbook quotes. Memes provide insights into the participatory culture of the Internet, as described by communications scholar Henry Jenkins, where constant flux is the norm (Marwick, 2013). Davison defines an internet meme as a piece of culture, usually a joke, that gains influence through online transmission (Davison, 2012). Schifman describes memes as cultural information that spreads from person to person and gradually evolves into a shared social phenomenon. With the widespread availability of social media, any piece of Internet content has the potential to reach a vast audience (Shifman, 2013).

The concept of memes originated from the biologist Richard Dawkins who proposed that behavior is influenced by both culture and genes (Dawkins, 1976). Dawkins compared culture to a gene, as it can be passed down through generations through imitation. Meme, in this context, refers to non-genetic behaviors and cultural ideas that are transferred between individuals in a similar mechanism of a gene (Davison, 2012). Their proliferation has been closely tied to the rise of new technologies, especially social media platforms as they encourage users to participate in the network by sharing content, which facilitates the dissemination of memes (Gal, 2018).

Internet memes can be defined as digital visuals that combine with texts, other visual or audio elements, and revolve around a common theme. They are created with the intention of achieving a goal or spreading humor (Al-Rawi, 2021). Memes often focus on political and social themes but come in the form of humorous images or video clips with added text. These memes are copied, reposted, and modified by users. Typically, a visual image serves as the source, and its meaning is transformed by adding verbal text or other images, often from unrelated domains. This creates a sense of incongruity and surprise (Wong, 2023).

Hakoköngäs, Halmesvaara, & Sakki (2020) argue that memes serve as powerful tools for persuasion, mobilization, and reaching new audiences. Their concise and easily shareable form allows arguments to be crystallized. Memes, often infused with contagious humor, effectively communicate social and political beliefs.

Memes are widely regarded as a dominant form of digital expression and integral components of popular culture, with creators and consumers sharing a common understanding of their elements and meanings. While memes often take the form of jokes that circulate among online users and continuously evolve, they go beyond simple humor or trivial content. Memes incorporate references that carry profound cultural significance, adding layers of meaning to their comedic nature. (Shifman, 2013, Gal, 2018)

Memes gained significant attention during events such as the Arab Spring revolutions and the subsequent periods of instability (El-Faahaty, 2019). They were extensively studied during the COVID-19 pandemic (Myrick, Nabi, & Eng, 2022) and other significant occurrences, as they serve as a means to express various ideas related to daily life (Zidani, 2021), education (Brown, 2020), and elections (McKelvey, DeJong, & Frenzel, 2023; McLoughlin & Southern, 2021).

Several studies have examined the role of memes in conflict areas. Liang, Chen, and Dianzi (2018) analyzed 1,130 Facebook memes from China and Taiwan and concluded that memes served as influential tools for social and political discourse in the public sphere. They found that each country's memes addressed distinct issues: Chinese memes employed sarcasm to discuss national issues, while Taiwanese memes adopted a critical approach toward China, focusing more on politics. Zidani (2021) explored memes created by Palestinians in Israel and discovered that despite living in the same city, Israeli and Palestinian memes revolved around different lives. She argued that memes serve as a reflection of the daily social, cultural, and political landscapes in which meme creators reside, shedding light on the intricate relationship between new media technology and political, cultural, and spatial arenas.

Other studies highlighted the potential role of memes to direct audience attention in specific issues, owing to their humorous style, irrespective of the accuracy of the information they convey. Dang, Moh'd, Gruzd, Milios, and Minghim (2015) examined how internet memes contributed to the spread of rumors about the Swine Flu in 2009, prompting the US government to refute the rumors through its official website. De Saint Laurent, Glăveanu, and Literat (2021) investigated the involvement of politics in COVID-19 memes. They found that memes portrayed Trump and Johnson in a negative light, highlighting their disregard for safety protocols, and criticized the government for its failure to support preventive measures and limit the spread of infection.

Recent studies have also explored the influence of memes on shaping political attitudes. Andrew and Damian (2017) emphasized the role of memes in groups with shared ideologies, particularly in creating a negative image of Trump and Clinton during the 2016 elections.

Although there is limited research on how audiences use memes to fulfill their needs, it has been suggested that studies should employ the uses and gratifications approach to investigate the effects of humor on audiences and their construction of meaning (Zhang & Gearhar, 2022).

Uses and Gratifications Theory:

The theory of Uses and Gratifications suggests that audiences actively seek out specific media to fulfill specific needs and obtain desired gratifications (Leung, 2009). These gratifications, along with past media experiences, motivate continued media usage (Hsu, Chang, Lin, & Lin, 2015).

Previous research extensively explored the uses and gratifications sought and gained from traditional media such as television (Rubin, 2009) and newspapers (Katz, Blumler, & Gurevitch, 1973). Subsequent studies focused on the internet environment (Diddi & Larose, 2006) and delved into specific content on television, such as reality TV (Papacharissi & Mendelson, 2007), or women's magazines in journalism (Jere & Davis, 2011). Over the years, this framework expanded to encompass social media platforms (Whiting & Williams, 2013; Taha, 2020), including specific platforms like Facebook (Hossain, 2019), TikTok (Falgoust et al., 2022), and Twitter (Chen, 2011).

Recent studies have focused on even more specific content areas, such as Instagram Reels (Menon, 2022), YouTube videos (Hanson & Haridakis, 2008), internet memes (Das, 2023), political internet memes (Leiser, 2022; Zhang & Gearhart, 2022), and cultural internet memes (Cahya & Triputra, 2017). Interestingly, all these studies identify that traditional motivations, such as self-promotion, entertainment, escapism, surveillance, novelty, documentation, and information-seeking, still emerge and persist.

Whiting & Williams (2013) found that information and entertainment remain the primary drivers for users to consume and engage with content. Information seeking allows users to learn more about themselves, their peers, and the world around them. Entertainment, on the other hand, offers relaxation, enjoyment, mood management, escape from daily routines, and emotional release (Shao, 2009). This study is interested to answer

- *RQ1: What are the primary motivations and gratifications that users derive from engaging with memes on social media platforms?*

To answer this question, participants were asked about the *motivations and* gratifications they experience when using memes, and they were provided with various sentences to give their opinion from very agree to very disagree.

Gratifications and user engagement:

The interactive nature of social media platforms has expanded the scope of Uses and Gratifications Theory to include social engagement and motivations behind content creation (Menon, 2022; Leiser, 2022). Users actively engage with and shape content, blurring the lines between audience and sender. They modify, share, and repurpose content, often recontextualizing its original meaning. According to Lessig (2008), remixing content represents a generational shift in how users communicate, allowing them to express unique perspectives on content that holds personal significance.

Content production is primarily associated with self-expression, providing users with the opportunity to express themselves and define their own voice (Meyers, 2012). The high reactivity of social media platforms incentivizes users to create content that others are likely to engage with (Daugherty, Eastin, & Bright, 2008; Joyce & Kraut, 2006). Leung (2009) found that generating and interacting with content can fulfill social and affection needs, provide a channel for venting negative feelings, offer recognition, and entertainment. Shao (2009) suggests that interacting with other users directly (user-to-user interaction) or indirectly (user-to-content interaction) fulfills social needs and fosters online communities.

Social interactions refer to communication among users through social media, fostering personalized relationships, transparent communication, access to social resources, and determining the benefits and costs of engaging with social media (Pralhad & Ramaswamy, 2004; Jensen & Aanestad, 2007; Kettinger & Lee, 1994). Social interactions provide meaning and guide users in evaluating their desired level of involvement.

Users engage with social media to promote themselves, express their feelings, enhance their self-esteem, receive social support, and interact with others (Baams, Jonas, Utz, Bos, & van der Vuurst, 2011; Utz, Tanis, & Vermeulen, 2012; Gangi & Wasko, 2016). Shao (2009) argues that

although these behaviors are often analyzed separately, they are closely related and better understood as different degrees of involvement. The uses and gratifications identified for specific behaviors can also apply to other degrees of involvement. For example, while social needs primarily play a role for users who engage with content or other users, consuming content can also relate to a sense of belongingness and social support (Baams, Jonas, Utz, Bos, & van der Vuurst, 2011;).

The theory of user engagement outlines different tiers of engagement measurement, characterized by increasing levels of complexity (Gangi & Wasko, 2016):

- Tier 1 (Lurkers) represents the lowest level of engagement, where users monitor social media and visit pages sometimes silently. While some may consider this an indicator of engagement, it actually signifies a potential for engagement at a low level.
- Tier 2 (reactors and conversationalists) represents a mid-level of engagement. Measurement at this tier focuses on connections and relationships with the media. Possible measures of connecting and understanding include relationship indices and interaction quality, which can be measured by outcomes derived from an interaction. In this study, I applied this concept to memes and measured it by users' interactions with the memes, such as likes, loves, etc.. and comments.
- Tier 3 (sharers, watchdogs, and creators) represents the highest level of engagement, with measurement focusing on action and impact at a social level of analysis. In this study, I applied this concept to memes, and the measurement of engagement at this group level could include searching for memes on specific websites, sharing memes, re-texting them, creating memes, and reporting them.

This leads us to *RQ2: How do users engage with memes on social media platforms, according to different tiers?*

Several studies have examined different levels of engagement in online communities, commonly referred to as "posters" and "lurkers." Lurkers, also known as the "silent groups," constitute the majority of community members. Sun, Rau, & Ma, (2014) argue that within an online community, 90% of participants solely read content, 9% edit content, and only 1% actively create new content. Therefore all participants in online communities tend to read more posts than they write (Ebnar, Holzinger, & Catarci, 2005).

The key distinction between posters and lurkers lies in the fact that posters occasionally contribute to the community by sending messages, whereas lurkers predominantly remain silent. However, studies have presented diverse views on the gratifications experienced by lurkers.

In an online course, 19 inactive students expressed that they felt they were learning just as much, if not more, from reading others' comments than from writing their own (Beaudoin, 2002). Lave & Wenger, (1991) regarded lurking behavior in a community of practice as a form of cognitive apprenticeship, which can be seen as a legitimate form of peripheral participation. In an online community, peripheral members may be less visible but derive significant benefits from knowledge exchange (Nonnecke, Andrews, & Preece, 2006)

On the other hand, other studies have found that users with higher levels of engagement reported greater gratification compared to users with lower engagement (lurkers) (Ellison, Steinfield, & Lampe, 2007). McCay-Peet & Quan-Haase, (2016) discussed how users' actions and level of engagement within a context influence the gratifications they derive from that context. Based on this argument, this study hypothesized that:

- *H1: The gratifications derived from consuming and engaging with memes will vary across different levels of user engagement.*

Other factors:

Other factors that have been found to affect social media engagement include the content's creator (e.g., who is the creator, his/her credibility, sex, age, number of followers) the post's context (e.g., time, location) and certain features of the content, such as, textual content (e.g., words, tags), visual content (e.g., images, GIFs), (Jaakonmäki, Müller, & Brocke, 2017) and content characteristics (specific topics) as users may like to engage in specific topics more than other topics (O'Brien & McKay, 2018). Thus User engagement with memes will be significantly influenced by the combined effects of content factors, including creator profile, post context, and specific meme features.

- *H2: Users engagement with memes will be influenced by content factors*

Engagement takes into account the role of technology as the underlying platform that facilitates social interactions among globally and temporally distributed users (O'Brien & McKay, 2018). Technical features refer to the perceived capabilities of the technology, providing users

with tools for interactions and influencing the direction, magnitude, and scope of benefits for users (Brown & Magill, 1998; Simon, 1991). Technical features include the ability to retrieve information, interact, use features for multiple purposes, integrate content, manipulate the original content, and adapt to users' specific needs as they become more proficient with the platform. Applying this factor to memes, Users' technological abilities will also play a role in their level of engagement with memes.

- *H3: Users engagement with memes will be influenced by the users' technological abilities.*

Demographics:

Research suggests that various demographic characteristics, including age, gender, education level, and income can significantly impact how users engage with social media content. Age has been found to be related to more intense media use, particularly on recently launched social network sites, with young adults exhibiting high levels of social media usage (Barker, 2012; Hanson & Haridakis, 2008; Menon, 2022). Different generations, such as Baby Boomers, Baby Bust, and the Net Generation, have distinct media usage patterns influenced by the internet (Tapscott, 2009; Leung, 2013). Gender differences exist in internet usage and social media engagement, with males engaging in activities like job searching, gaming, and politics, while females focus more on interpersonal activities (Kimbrough, Guadagnol, Muscanell, & Dill, 2013). Females demonstrate more frequent social media usage for maintaining relationships and self-presentation, while males use it for expanding networks and showcasing social status (Thompson & Lougheed, 2012; Fallows, 2005; Muscanell & Guadagno, 2012; Tifferet & Vilnai Yavetz, 2014). Educational level is also linked to computer anxiety, with higher-educated individuals displaying less anxiety and higher acceptance of computer usage (Igarria, 1993). Higher educational levels are generally associated with greater familiarity with computers and gadgets, leading to increased social media consumption (Brancheau & Wetherbe, 1990). Also, user's income directly affects online content creation, with higher-status individuals being more active in this regard (Hargittai & Walejko, 2008). Higher-income individuals adopt the internet for information and data gathering, while lower-income individuals see it as a cost-effective source of entertainment (Goldfarb & Prince, 2008). Considering these findings, I hypothesize

that user engagement with memes will be significantly influenced by a combination of demographic factors, including age, gender, education level, and socioeconomic status.

- *H4: Users' engagement with memes will be influenced by Demographic factors.*

Extended mind theory:

Do we have an extension to our minds or brains, or it is limited to our skull? The extended mind theory challenges the notion that our cognition is solely confined within our brains, suggesting that external resources, including technology and internet-based platforms, can become integral parts of our cognitive processes. Clark and Chalmers (1998) argue that not all cognitive processes are limited to the physical brain, but can occur outside of it. In other words, the existence of the mind and the beliefs it forms depend not only on the internal brain but also on the external world, including technology and our interactions with it. This perspective raises the question of whether our cognitive state can extend beyond our physical boundaries and encompass online resources.

As Clark and Chalmers point out, When we remember or process information, we can use our own memory or rely on technological devices. For instance, we may recall a street address from our memory or use a map or GPS app. We use notebooks to write things down and calculators for faster and more accurate calculations. These external tools serve as extensions to our cognitive processes. Clark (2013) further argues that the function of these devices, such as a GPS or calculator, is an extension of our cognitive processes rather than the devices themselves. This perspective leads to the question of whether our cognitive state can be spread across the Internet.

To evaluate whether the web allows for the emergence of extended cognitive systems or if web-extended minds are merely theoretical, Clark and Chalmers (1998) proposed three criteria aimed at determining when bio-external resources, including web resources, should be considered integral parts of the mind's machinery. suggest that for a resource to be considered an extension of our mind, it should fulfill three criteria: availability, trust, and accessibility.

Smart (2012), explored the idea of the web-extended mind, expecting that the technology and vast information available on the web could become part of our cognitive and mental states. He expected that new forms of user interaction technology and new approaches to information representation provide promising new opportunities for web-based forms of cognitive extension.

Smart (2017) further explores the concept of extended cognition and the internet, investigating whether the Internet can truly be an extension of our minds. He identifies factors that can influence the answer, including the old factors represented by Clark and Chalmers (1998) availability, trust, accessibility, and added other factors like continuous reciprocal interaction between the agent and external artifact.

McLuhan (2003), also considered technologies and media as extensions of our minds, perceiving screens as extensions of vision and radios as extensions of hearing. In the same vein, smart devices can be seen as extensions of memory and information-processing brainpower. scholars also discuss the role of technologies like smartphones in extending cognitive systems.

Cocchiarella (2019) notes that smartphones, which are now ubiquitous, serve a wide range of purposes beyond making calls. They allow us to access the Internet, schedule appointments, connect on social networks, and retrieve information. These devices have become external memory repositories, extending our minds and enabling us to store and retrieve information beyond what is encoded in our neurons. Applications on smartphones, such as online calendars, GPS, or notepads, assist us in remembering and processing information. They facilitate calculations, data analysis, and various mental operations that were traditionally performed solely within the brain. Choi (2021) built on this and experimented to compare the accuracy of recall when receiving information through a Facebook page versus face-to-face video speech, concluding that recall in the Facebook condition was superior which prof the ability of social media to be extensions to our minds.

Logan (2013) argues that, in line with McLuhan's perspective, all artifacts created by humans act as extensions of our minds. Memes, in this context, can be considered an extension of thoughts that connect individuals' minds together. He asserts that the extended mind hypothesis provides a more comprehensive and coherent explanation, description, and exploration of various aspects such as languages, technology, artifacts, and even viral media or memes. In his article, he poses several inquiries, including queries about the circumstances and reasons behind the viral nature of memes and their ability to function as extensions of our minds. This study is interested in answering these inquiries by building on the framework of (EMT), U&G, and the concept of meme effects to explore memes' ability to be seen as an external resource that extends our cognitive processes beyond the boundaries of our brains and asks:

RQ3: To what extent do memes function as external cognitive tools for their users?

To answer this question, I depended on Clark and Chalmers (1998) factors and asked the participants about their trust in memes' content, and if memes are available and accessible to them.

While trust and accessibility influence the basic ability to utilize memes as cognitive tools, the extent of their effectiveness might depend on user engagement. The Uses and Gratification Theory (U&G) suggests that individuals actively seek information and fulfill specific needs through media consumption (Egede & Chuks-Nwosu, 2013). This applies to memes as well.

As U&G suggests the audiences are active and they choose the content that fulfills their needs, I assume that audiences choose to engage with memes more if they are trusted, available, and accessible. Users with higher engagement levels may be more motivated to delve deeper into meme meanings, analyze their layers of references, and creatively connect them to their own thoughts and arguments. They might engage in active interpretation, sharing, and creation of memes, further solidifying their role as cognitive extensions. Therefore, it's important to explore the relation between the levels of engagement and how effectively users leverage memes as external cognitive tools, this leads us to the following hypotheses:

- *H5: Users' engagement levels with memes are related to the effectiveness of memes as cognitive tools.*

Three tiers of engagement were tested then I tested the relation between them and the levels of users' extended mind factors.

I also hypothesized that:

- *H6: Users' gratifications from memes are influenced by their perceived accessibility, availability, and trustworthiness as external cognitive resources.*

Here, I have asked the participants about their gratifications and tested the relation between them and their trust in memes, and whether the memes are available and accessible to them.

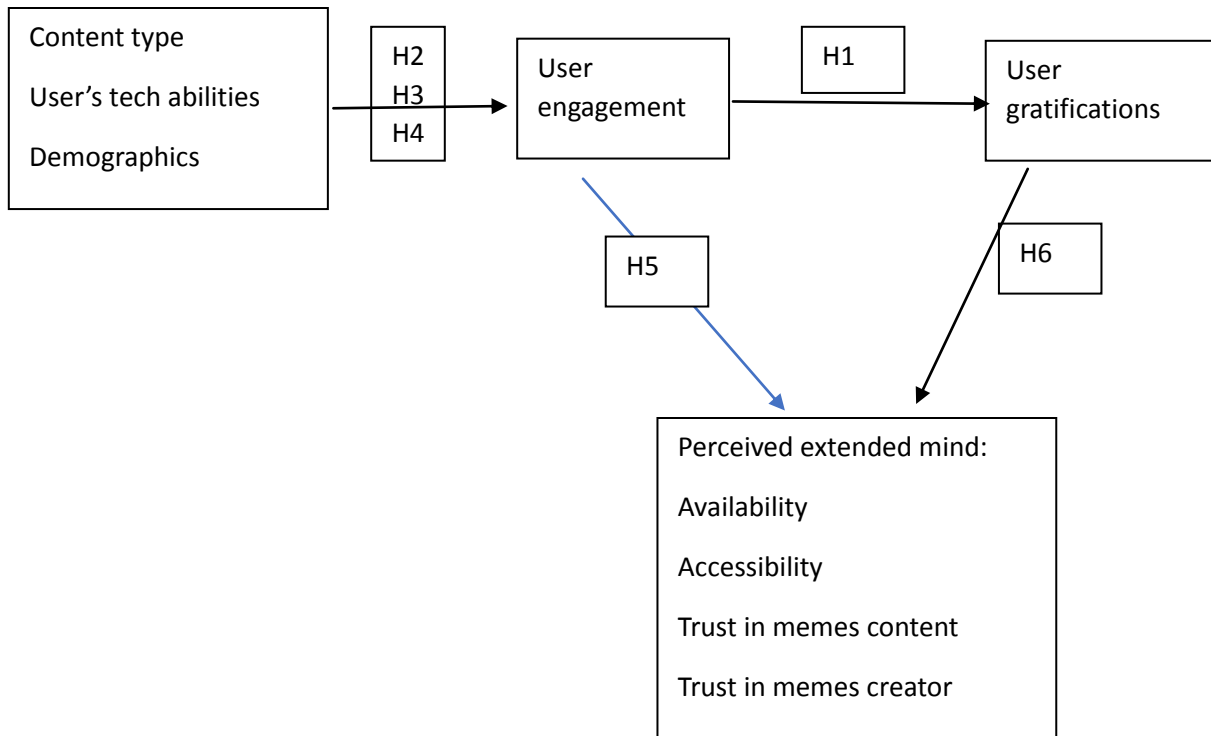


Figure (1): the study model and hypotheses

Methodology:

To achieve the study goals, this study uses mixed methods mixing qualitative and quantitative research methods. This study is divided into two studies, the first one uses two semi-structured discussion groups, and the second one uses a questionnaire.

Study1

In the preliminary stage of my study, I conducted two focus group discussions to gain a deeper understanding of how and why people use and engage with memes, as well as the gratifications they derive from this usage. I was also interested in exploring whether participants consider memes as an "extended mind" and how they conceptualize and utilize memes in that capacity. I used the insights from the focus groups in the survey.

The focus group participants were master's students from the Afro-Asian Institute at Suez Canal University. This institution draws students from diverse backgrounds across Egypt, representing a range of ages (22-65), and they graduated from different disciplines (medicine, arts, media,

language, military, police, business, law, and agriculture) and universities (Suez Canal, Suez, Cairo, Police Academy, Military Academy, El-Shorouk Academy, Sohag, Zakazek, MIU, MSA, Beni-Suef) reflecting diverse socioeconomics and demographics. I put out a call for volunteers to participate in a study on memes, and a total of 16 students signed up and were divided into two separate focus groups. I have applied the focus groups in November 2023, the same time of the survey

By engaging with these focus groups before administering the main questionnaire, I aimed to gain deeper insights into the lived experiences and perspectives of meme users. This qualitative exploration was intended to inform the development of the subsequent quantitative survey, ensuring that the questions and response options aligned with the nuanced ways in which people understand and utilize memes, including any considerations of memes as an extension of their cognitive and social capabilities.

This approach was intended to enhance the relevance and depth of the subsequent quantitative data collection and analysis by authentic experiences and viewpoints of Egyptians, rather than relying solely on preconceived notions or existing literature.

Focus Group Guide

1- Introduction and ice-break

First of all I Welcomed the participants and thanked them for their time. Then Explained that the purpose of the focus group is to understand how and why people use and engage with memes, and their perspectives on memes as an "extended mind". I Emphasize that there are no right or wrong answers, and that the goal is to have an open discussion. Then asked for their permission to record the session.

2- Meme Usage, gratifications and Engagement

- Can you describe the types of memes you typically encounter or share?
- What are the main reasons you engage with memes? What gratifications do you derive from using them?
- How often do you create, share, or interact with memes? What triggers these behaviors?

- Can you walk us through a recent experience of engaging with a meme - what led you to that meme, how did you interact with it, and what was the outcome?

- How do memes fit into your daily life and communication with others?

3- Memes as Extended Mind

Here I started to talk about the concept of the extended mind and explain it to the participants to be sure that they can answer the questions in full awareness. Then started asking these questions:

- Do you consider memes to be an extension of your own mind or cognitive capabilities? Why or why not?

- In what ways, if any, do you utilize memes to augment your thinking, express ideas, or communicate with others?

- How do memes influence your understanding of the world, current events, or social issues?

4- Conclusion

Summarize the key points discussed and ask if participants have any final thoughts or reflections.

Study2

A self-administered online survey in Arabic was conducted to investigate meme usage among Egyptian users. The survey was hosted on Google Forms and shared on one of the most popular Facebook pages (انا وابن عمى بنساعد الغريب) and the data was collected in a convenience sample. This page contains around 7.7 million Egyptians. The survey remained active for a month, from November 9th to December 9th, 2023. During this specific period, public attention was focused on the Egyptian presidential elections, the economic challenges facing the country, the war between Palestine and Israel and many other social issues. These events captured public interest and influenced the prevailing discussions and discourse, making it an opportune time to examine how and why Egyptians use memes.

Justifications for platform:

Facebook was chosen as the platform for the survey due to its popularity among internet users in Egypt, as it attracts a more diverse demographic compared to other platforms. As of the third quarter of 2022, approximately 85 percent of internet users in the country utilized Facebook (Halversen & Weeks, 2023;Galal, 2023)

The development of the questionnaire was completed as follows:

Firstly, the pretest was conducted with twenty participants to facilitate the understanding of questions and the flow of the content and to learn the flaws which were unrealized by the researcher. According to the feedback of the participants, the final questionnaire was developed. The final draft of the questionnaire was presented to specialized professors to ensure the reliability of the form for application¹.

A total of 400 Egyptian individuals completed the survey randomly. Twenty-one responses (6%) were excluded due to inaccurate or incomplete information, such as unreal age or income value. Therefore, the final sample size for analysis was 376 respondents.

Out of the participants, 303 were male, representing approximately 80.6% of the sample, while 73 were female, accounting for around 19.4%. No other gender categories were identified in the study. Egyptian data report, (2023) reveals that male users of social media (60.9%) were more than females (39.1%) in 2023 (KEMP, 2023).

The participants were further divided into different age groups as follows: 116 individuals in their teens (30.9%), 226 individuals in their twenties (60.1%), 24 individuals in their thirties (6.4%), 5 individuals in their forties (1.3%), 2 individuals in their fifties (0.5%), and 3 individuals in their sixties (0.8%).

Regarding the participants' educational backgrounds, the distribution was as follows: 3 individuals with an elementary school education (0.8%), 21 individuals with a middle school education (5.6%), 147 individuals with a high school education (39.1%), 9 individuals with a technical high school education (2.4%), 160 individuals who were university graduates (42.6%), and 36 individuals with a master's/PhD degree (9.6%).

Additionally, Based on Egypt's latest economic classifications by the Central Agency for Public Mobilization and Statistics (الناصر، ٢٠٢٠), income is categorized as follows:

Low: Less than 6,000 Egyptian pounds per month

Average: 7,000 - 40,000 Egyptian pounds per month

¹ Dr. Hassan Ali: Professor, Faculty of Mass Communication, Suez University
Dr. Keel Guido: Professor, ZHAW School of Applied Linguistics, Institute of Applied Media Studies, Swiss
Dr. Adel Mustafa: Associated professor, Faculty of Mass Communication, Menoufia University
Dr. Kyser Lough: Associated professor, Grady College, University of Georgia. USA

High: Above 40,000 Egyptian pounds per month

Within the sample, 70.5% fell into the low-income category, 28.2% were average income, and 1.3% were high income.

Table (1) the fragmentation of the sample

Demographic factor	Frequency	Percentage
Gender		
Male	303	80.6
Female	73	19.4
Educational level		
Elementary school	3	0.8
Middle school	21	5.6
High school	147	39.1
Technical high school	9	2.4
University graduate	160	42.6
Masters/ Phd	36	9.6
Income		
Low	265	70.5
Average	106	28.2
High	5	1.3
Age		
Teens	116	30.9
Twenties	226	60.1
Thirties	24	6.4
Fourties	5	1.3
Fifties	2	0.5

Sixties	3	0.8
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Survey Structure and Measures:

The first section includes two filter questions and general questions about social media usage. With the help of two filter questions, those who did not know/use internet memes through social media were eliminated. To state it more clearly, two filter questions were asked to ensure that the respondents are suitable to participate in the research. The first question is about whether the respondent has been using social media platforms and the second question is about whether the respondent has been using internet memes. If both questions were answered positively, the respondent was allowed to continue to complete the questionnaire. Moreover, the respondents were allowed to answer the following questions according to one social media platform they follow. Besides, the second section consists of item questions of the variables of the study and the third section includes demographic questions about age, gender, level of education level, and income.

The survey explored seven key aspects of meme usage:

- Motivations and Frequency of Use:

This section assessed meme usage frequency based on a modified version of Kankanhalli et al.'s (2005) measure with the highest value representing frequent use throughout the day by a user, incorporating different usage motives and the various reasons they use memes..

- User engagement:

Evaluating the overall level of engagement with memes through metrics like views, likes, and shares is crucial. This assessment helps determine whether memes are limited to a specific audience or if they possess wider appeal and reach as a form of communication. Modifying Gangi & Wasko's (2016) model, this section categorized user engagement into three tiers: low (Lurkers), medium (interaction), and high (creation/sharing). A low level means the participants know what memes is and they see it while navigating social media. Medium level measured by users' interactions with the memes, such as likes, loves, etc.. and comments. High level engagement is measured by searching for memes on specific websites, sharing memes, re-texting them, creating memes, and reporting them.

- Content factors

Measuring the presence of valuable information within memes is essential for evaluating their potential to enhance knowledge and understanding. The survey investigated the impact of various factors, such as content (topic, design, format, text length, inclusion of celebrities, women, or children) and information delivery style (sarcasm, informative, etc.), on user engagement. Additionally, participants were asked about their preferences regarding the content of memes (political, social, etc.) and whether the personal information of the meme creator, such as their number of followers, gender, or age, made any difference.

- Technological abilities

I asked the participant to assess their technological abilities and they self-reported their ability to modify photos for meme creation, focusing on skill rather than actual meme creation behavior.

- Gratifications

This section explored the various gratifications people gain from using memes.

- Extended Mind Theory:

Drawing on Clark and Chalmers' (1998) criteria (availability, trust, and accessibility), this section investigated whether memes serve as cognitive extensions. Additional questions explored participants' trust in meme information and their interest in meme creators.

- Demographics

Age, gender, education, and income were collected.

Validity of the survey

Cronbach's Alpha was used as a reliability statistic which is considered the standard for the accepted validity of survey measures (Nunnally, 1978). The overall questionnaire had an alpha of 0.931. All measure items had an alpha ranging from 0.869 to 0.947.

Study 1 Results:

Meme Usage, gratifications, and Engagement

- Can you describe the types of memes you typically engage with and how?

The results provided valuable insights into how people engage with memes. Interestingly, a range of engagement levels emerged. While all participants reported engaging with memes, their interaction levels differed.

A small portion of the participants demonstrated high engagement. These participants actively created memes at least once a week, suggesting a creative approach to meme culture. They tended to share these memes publicly, contributing to online meme trends.

The majority of participants, however, fell into the moderate engagement category. Their primary interaction involved reacting to or commenting on existing memes. They preferred to share some of these memes privately with friends and acquaintances, suggesting using memes in personal connections. Fewer participants reported that they sometimes share memes in public.

Finally, a small number of participants exhibited lower engagement. They limited their interaction to reacting or commenting on memes encountered online but didn't participate in sharing them publicly or privately. None of the participants reported any original memes before.

Humor and satire were the common threads' reasons for usage and engagement with memes. All participants agreed to find these elements appealing in memes. Additionally, situational memes that reflected everyday experiences like work, relationships, and daily life resonated strongly. Current event memes and those related to politics were also popular choices. Notably, participants expressed a preference for memes that aligned with their personal interests, sense of humor, and the social contexts they identify with. All participants engage with memes on Facebook and WhatsApp, while most of them do not have a Twitter account or use it regularly.

Enas mentioned that she learned about the recent devaluation of the local currency through memes. Mohammed said he uses his Facebook page more than five times daily, and when he feels stressed at work, he typically scrolls through his feed until he finds a meme that resonates with his feelings or ideas, which he then shares on his page. Ahmed shared that he particularly enjoys the satirical memes that can criticize situations in a concise and humorous way.

- What are the main reasons you engage with memes? What gratifications do you derive from using them?

Participants agreed that responding to someone with a meme is more engaging and effective than a text-based reply. They also felt that sharing memes is better than sharing photos or text alone.

Nahla explained that memes allow you to take a part of a movie or TV series and add a concise sentence or phrase to represent an idea, which could require extensive text to describe otherwise. Mai added that memes can better represent our feelings and everyday situations.

Salah talked about the renowned Egyptian sense of humor, and how memes that make people laugh and feel witty are very popular in the country. Many of the participants' statements addressing this question were reflected in the survey statements and measures.

Overall, all participants agreed that they engage with memes because they find them humorous and because memes allow them to criticize situations in a funny way. They also widely use memes to express their daily experiences and emotions. However, they did not agree that using memes could significantly impact one's fame or popularity.

Other potential reasons and gratifications, such as staying informed and learning new information, were not mentioned as frequently by the participants

- Memes as Extended Mind

Here I started to talk about the concept of the extended mind and explain it to the participants to be sure that they can answer the questions in full awareness. Then started asking these questions:

- To what extent do you consider memes as accessible and available to you? Do you trust information in memes?

The participants generally viewed memes as highly accessible and available to them. They reported that memes are easy to find and share across various social media platforms they use, such as Facebook and WhatsApp.

When it comes to trusting the information contained in memes, the responses were more nuanced. Most participants acknowledged that the information in memes is not always reliable or factual, as memes are often intended to be humorous rather than informative.

As Nahla explained, memes typically involve taking snippets from existing media (like movies or TV shows) and adding a brief, often comedic caption. This process of re-contextualizing content can lead to the spread of misinformation or exaggerated claims. Tamer argue that trusting in media information is arguable, while mainstream media could spread wrong information for political or security purposes it is not likely to be the case in memes as it is not directed by a group or the government. He ,and little participants agreed, argue that he trust

information in memes and social media more than mainstream media. Osama argue that memes with wrong information will die soon and the right ones only could survive as we have many sources for the information now which was not exist twenty years ago.

However, the participants also noted that they are able to discern when a meme is meant to be satirical or ironic, versus when it is attempting to convey factual information. Mai shared that she is able to assess the trustworthiness of meme content based on her own knowledge and research through other sources of information.

Overall, the participants viewed memes as highly accessible and ubiquitous in their digital lives, but they approached the information in memes with a degree of skepticism. They seemed to understand the inherent limitations of memes as a medium for conveying accurate, reliable information. Instead, they tended to appreciate memes more for their entertainment value and ability to humorously reflect shared experiences and perspectives.

- Do you consider memes to be an extension of your own mind or cognitive capabilities? Why or why not?

The participants had mixed views on whether they consider memes to be an extension of their own mind or cognitive capabilities. Some saw memes in this way, while others did not.

Those who felt memes were an extension of their mind and cognition tended to emphasize how memes allow them to express their thoughts, emotions, and perspectives in a concise, relatable way. Enas, for example, explained how memes enable her to take complex ideas or experiences and distill them into a single, shareable image or video with just a few words. This allowed her to communicate her internal mental states and thought processes to others. Ahmed talked about how the death of his freind was very bad experience to have, he felt no one can understand his feelings until he found a meme contained asense from an old movie with a captian that expresses his feelings well. Mohammed argued that "ذات مومنت" memes were really expressing daily life situations that we all have and sharing these memes is like sharing parts of our daily experiences. Similarly, Mai discussed how memes serve as a shorthand for her to reference shared cultural touchstones or in-jokes that her peers would understand. In this sense, memes become a common cognitive framework that facilitates connection and expression within her social circles.

However, few participants were more hesitant to view memes as an extension of their own minds. Salah, for instance, saw memes as more of a tool or medium that allows him to engage with content created by others, rather than originating directly from his own thought processes.

Mahmoud tended to see memes as a way to access and interact with a broader cultural lexicon, rather than as a direct manifestation of their personal cognition. They appreciated memes for their ability to succinctly communicate ideas, but did not necessarily see the memes themselves as an extension of their own mental capabilities.

- In what ways, if any, do you utilize memes to augment your thinking, express ideas, or communicate with others?

The participants described several ways in which they use memes to augment their thinking, express ideas, and communicate with others:

Expressing Emotions and Experiences:

Many participants noted that they use memes to convey their current emotional state quickly and effectively or to humorously capture a relatable experience they are having. As Mai explained, memes allow her to "represent our feelings and situations better" than text alone.

Reem added that memes tapping into the Egyptian sense of humor help her and her peers feel connected and understood, as they can all relate to the situations or emotions being expressed.

Ideation and Conceptualization:

shaymaa pointed out that memes enable her to take complex ideas or concepts and distill them into a concise, visual format. This allows her to better organize her thoughts and clarify her thinking on a topic before trying to communicate it to others.

The participants felt memes could capture nuances or make connections that lengthy written explanations might miss. This ideation and conceptualization process using memes was seen as a valuable cognitive tool.

Communicating within Groups:

As mentioned earlier, many participants viewed memes as a shared cultural language that facilitates communication within their social circles and online communities.

Referencing popular media, current events, or inside jokes through memes allowed the participants to quickly signal their membership in these groups and activate a common frame of reference for exchanging ideas and information.

Overall, the participants saw memes as a versatile medium for augmenting their thinking, expressing complex ideas in simplified forms, and fostering a sense of connection and shared understanding with their peers. While not a replacement for other forms of communication, memes were viewed as a valuable cognitive and expressive tool within the participants' digital and social lives.

Study 2: Results

Frequency of meme usage on social media:

An aggregated scale was developed to measure the intensity of meme usage among the Egyptian users on social media platforms. The findings revealed that 65% of the participants exhibited a high frequency of meme usage, while 22% demonstrated a moderate frequency, and 13% had a low frequency. This can be attributed to the significant representation of young individuals in the sample, as they constitute the most engaged users of memes.

Motivations Behind Users' Utilization of Memes

Table 2 represents the motivations Behind Users' Utilization of Memes. Answering RQ1, Users engage with memes for a variety of reasons, driven by Ritualized and Instrumental motives. The table suggests that users primarily engage with memes for ritualistic purposes. Statements related to enjoyment, humor, relaxation, and emotional connection scored the highest on the mean scale and ratio scale. This indicates that people find memes to be a fun and mood-boosting way to pass the time and connect with their emotions. Instrumental motivations, while present, are generally less prominent than ritualistic ones. Statements related to learning, information gathering, communication, and social interaction scored lower on the mean and ratio scales. However, it's important to note that these instrumental uses still play a role in why people engage with memes.

Table 2 represents Motivations Behind Users' Utilization of Memes

Motivations	Statement	Very disagree	Disagreed	Neural	Agree	Very agree	Mean	Ratio Scale
Ritualized	- I enjoy memes because they contain witty and comedic elements that align with my sense of humor.	9	9	54	144	160	4.16	83.24
Ritualized	- I relate to memes because they reflect the feelings that I sometimes experience.	18	12	55	143	148	4.04	80.8
Ritualized	- I relate to memes because they reflect experiences, situations, or emotions that I can relate to.	16	11	63	144	142	4.02	80.48
Ritualized	- I use memes because they make me happy.	12	15	70	149	130	3.98	79.68
Ritualized	-To escape from the pressures and challenges of daily life	15	28	73	117	143	3.92	78.35
Instrumental	- I use memes to express my thoughts and opinions.	11	19	105	119	122	3.86	77.13
Ritualized	- I use memes to take a break and relax.	12	28	77	144	115	3.86	77.13
Instrumental	- I follow memes to stay informed and learn about trending topics or related discussions.	14	23	78	150	111	3.85	77.07
Instrumental	- I use memes because they criticize or comment on relevant social and political topics.	17	27	66	152	114	3.85	76.97
Instrumental	- I use memes to communicate complex concepts in a simple and visually attractive way.	13	29	77	142	115	3.84	76.86

Instrumental	- I follow memes because they serve as a tool for social and cultural commentary, sparking discussions and engaging me in societal issues.	17	26	88	137	108	3.78	75.59
Instrumental	- I use memes as a creative outlet to express my feelings and share them with others.	22	28	84	134	108	3.74	74.79
Instrumental	- I follow memes because they present me with new information, current events, or community issues in a concise and engaging way.	23	34	86	134	99	3.67	73.4
Instrumental	- I use memes to contribute to conversations and share my views on different topics.	21	44	95	126	90	3.58	71.7
Instrumental	- I use memes to communicate with friends and strengthen existing relationships.	34	52	101	118	71	3.37	67.45
Instrumental	- I use memes to exchange experiences with a specific group or community.	27	60	108	111	70	3.36	67.29
Ritualized	- I follow memes to find common ground and connect with others.	38	63	107	100	68	3.26	65.16
Ritualized	- I use memes because it is cool and to gain popularity among my colleagues.	91	117	102	37	29	2.46	49.15
Instrumental	- I use memes to increase followers and enhance my online presence.	100	117	95	39	25	2.39	47.87

User's engagement

In order to answer RQ2, participants were asked about their highest level of engagement with memes. Table 3 shows The results which indicate that creators represent the smallest category at 3.2%, Reacting to memes through likes or dislikes emerged as the most common form of engagement, with 42.6% of users participating.

Following Gangi & Wasko, (2016), Participants were divided into three tiers, as mentioned earlier. The first tier (low-level engagement) consists of lurkers who solely view memes, accounting for 25% of the sample. The second tier, which is the largest at 45%, comprises mid-engagement participants who are a combination of reactors and conversationalists. The third tier represents the highest level of engagement, including sharers, watchdogs, and creators, making up 30% of the sample.

Table 3: How participants usually use memes.

Action	Engagement Level	Frequency	Percentage
See memes online only	Lurkers	94	25.0
React to memes (like/dislike)	Reactors	160	42.6
Comment on memes	Conversationalists	9	2.4
Share memes	Sharers	99	26.3
Report inappropriate memes	Watchdogs	2	0.5
Create new memes	Creators	12	3.2
otal		376	100.0

User's gratifications

Table 4 presents the responses to various statements related to gratifications obtained from engaging with memes. Each statement is rated on a scale from "Very disagree" to "Very agree." The four categories of gratifications identified in the Uses and Gratification Theory are Hedonic Gratification, Utilitarian Gratification, Social Gratification, and Information Seeking. Hedonic Gratification focuses on gaining pleasure and entertainment (Menon, 2022b; Putri, et. Al., 2019), Utilitarian Gratification emphasizes fulfilling practical needs and ease of use (Thongmak,

2021), Social Gratification involves interactions and connections with others (Herna, 2022), and Information Seeking pertains to the quest for knowledge and relevant information online (Azizah, 2020). Each of these categories plays a crucial role in understanding user behaviors and intentions towards different media platforms, shaping how individuals engage with and benefit from the content provided.

Answering RQ1, the hedonic gratifications are the most prominent ones. The statement "Feel happy" received the highest agreement, with 125 respondents agreeing and 169 respondents strongly agreeing followed closely with "Relax and take a break", "show my sense of humor" and "Escape from tensions". This indicates that memes serve as a source of entertainment and positive emotions for many individuals and they provide an escape from everyday stress.

Regarding the information seeking gratifications, the highest agreement is observed for the statement "Learn about current events" with 147 respondents agreeing and 117 respondents strongly agreeing. This suggests that many participants engage with memes to stay informed about ongoing events. Express my ideas and simplifying complex issues also received high agreement, indicating that memes are seen as a means to learn and seek information making complicated ideas more understandable, more visible, and more effective.

For utilitarian gratifications, participants agreed that they use memes to express themselves better in the online environment. Interestingly, "criticizing situations I can't criticize in real life" receives moderate agreement, possibly reflecting Egyptians' concerns about voicing dissent. Social gratifications like "Communicate better with friends" and "Communicate better with others" received moderate agreement also. This indicates that memes are seen as a means to enhance social interactions and communication. However, the statements related to increasing followers, and gaining fame, had lower agreement, suggesting that fame-seeking is not a primary gratification gained from engaging with memes.

Table4: Show the gratifications gained from using memes

Gratification	Statement	Very disagree	Disagree	Neutral	Agree	Very agree	Mean	ratio scale
Hedonic	Feel happy	11	15	56	125	169	4.13	82.65
Hedonic	Relax and take a break	10	20	68	128	150	4.03	80.63
Hedonic	Show my sense of humor	17	18	62	136	143	3.98	79.68
Hedonic	Escape from tensions	14	26	69	117	150	3.96	79.30
Information seeking	Learn about current events	12	22	78	147	117	3.89	77.82
Utilitarian	Express my ideas	16	30	74	132	124	3.85	76.91
Utilitarian	Express my feelings	16	31	78	134	117	3.81	76.22
Utilitarian	Share my perception	20	25	80	137	114	3.79	75.96
Information seeking	Simplify complex issues	21	28	72	148	107	3.77	75.53
Social	Connect with others' experiences	16	30	83	161	86	3.72	74.41
Utilitarian	Criticize situations I can't Criticize in real life	20	33	78	148	97	3.71	74.31
Social	Communicate better with friends	23	41	85	124	103	3.65	72.92
Social	Communicate better with others	23	34	94	132	93	3.63	72.65
Social	Participate in important issues	20	32	97	146	81	3.62	72.55
Social	Exchanging experience	26	45	93	127	85	3.53	70.63
Utilitarian	Gain fame from using memes	70	94	109	61	42	2.76	55.26

Utilitarian	Increase followers and online presence	98	101	92	55	30	2.51	50.32
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Testing H1, the results reveal a weak but positive correlation ($r=0.165$, $p < 0.01$) between engagement levels and gratifications. This statistically significant correlation suggests that as engagement levels increase, so do the gratifications derived. Users with higher engagement levels do tend to derive slightly more gratifications compared to those with lower engagement.

Content and engagement:

All participants unanimously stated that they do not care about the identity of the meme creator and are open to using various types of memes, including images or GIFs. However, their engagement levels differ when it comes to content categories and characteristics.

Table 5 presents the relationship between content categories and engagement levels. It reveals that trendy memes hold the highest importance among participants, while the category of economy is considered the least important. However, the chi-square test ($\chi^2=13.72$, $p > 0.05$) reveals no statistically significant relationship between the two variables. This means that users with different engagement levels (low, medium, high) don't have significantly different preferences for specific content categories. In other words there isn't a significant association between engagement levels and specific content categories.

Table 5: the relation between engagement level and content categories

Content categories		Engagement levels			
		Low	Medium	High	Total
Sports	Count	17	32	11	60
	% of Total	4.5%	8.5%	2.9%	16.0%
Politics	Count	3	11	10	24
	% of Total	0.8%	2.9%	2.7%	6.4%
Social	Count	29	34	25	88
	% of Total	7.7%	9.0%	6.6%	23.4%
Trends	Count	25	55	35	115

	% of Total	6.6%	14.6%	9.3%	30.6%
Economy	Count	1	2	0	3
	% of Total	0.3%	0.5%	0.0%	0.8%
Others	Count	19	35	32	86
	% of Total	5.1%	9.3%	8.5%	22.9%
Total	Count	94	169	113	376
	% of Total	25.0%	44.9%	30.1%	100.0%

($\chi^2 = 13.723$, $P > 0.05$)

Table 6 presents the relation between Content characteristics and Engagement levels. It reveals that satirical memes are the most engaged memes, while the scary is the least type in engagement. However, the chi-square test ($\chi^2 = 10.070$, $p > 0.05$) reveals no statistically significant relationship between the two variables. This means that users with different engagement levels (low, medium, high) don't have significantly different preferences for specific content types. In other words there isn't a significant association between engagement levels and specific content characteristics.

Table 6: the relation between engagement level and content characteristics

Content characteristics		Engagement levels			
		Low	Medium	High	Total
Funny	Count	37	65	36	138
	% of Total	9.8%	17.3%	9.6%	36.7%
Satirical	Count	42	77	63	182
	% of Total	11.2%	20.5%	16.8%	48.4%
Serious	Count	3	10	5	18
	% of Total	0.8%	2.7%	1.3%	4.8%
Sad	5	12	3	20	5

	1.3%	3.2%	0.8%	5.3%	1.3%
Scary	Count	1	2	1	4
	% of Total	0.3%	0.5%	0.3%	1.1%
Other	Count	6	3	5	14
	% of Total	1.6%	0.8%	1.3%	3.7%
Total	Count	94	169	113	376
	% of Total	25.0%	44.9%	30.1%	100.0%

($\chi^2=10.070$, $p = .434$)

Based on these findings, I can conclude that content factors do not appear to have a significant impact on user engagement with memes. This conclusion does not support the H2 that suggests user engagement with memes will be influenced by content factors.

Engagement and technological abilities:

Table 7 presents the self-perceived tech abilities of individuals to create or edit memes, using a scale ranging from 1 (lowest) to 10 (highest). The majority of respondents rated their abilities between 7 and 10. This could be attributed to the availability of user-friendly and easily modifiable photo applications.

To test hypothesis H3, which examines the relationship between user engagement and their technological abilities, the results indicate a statistically significant but weak correlation ($r = 0.158$, $p > 0.05$). This finding supports the hypothesis that a user's technological abilities have an impact on their level of engagement.

Table 7: How do you assist your tech abilities on a scale from 1 to 10?

How do you assist your tech abilities on a scale from 1 to 10? (Example: your ability to edit or create meme)	Frequency	Percent
1	9	24
2	7	1.9
3	14	3.7

4	17	4.5
5	42	11.2
6	33	8.8
7	55	14.6
8	69	18.4
9	38	10.1
10	92	24.5
Total	376	100

User engagement and demographics:

This study investigated the impact of four demographic factors - gender, age, education, and income - on engagement with memes. The findings presented an intriguing outcome, as although some associations were observed, none of them reached statistical significance.

Regarding the gender factor, a weak and non-significant relationship was found with engagement levels ($F=0.199$, $P<0.05$). This implies that gender does not have a significant effect on engagement levels.

In terms of age, a weak and non-significant relationship was observed with engagement levels ($r=0.033$, $P<0.05$). This indicates that age does not significantly impact engagement with memes.

Similarly, the study found a weak and non-significant relationship between educational level and engagement levels ($r=0.036$, $P<0.05$). This suggests that educational level does not significantly influence engagement with memes.

Regarding income, a weak and non-significant relationship was found with engagement levels ($r=0.075$, $P<0.05$). This indicates that income does not significantly impact engagement with memes.

Taken together, these results do not support H4, which states that users' engagement with memes will be influenced by demographic factors.

Memes as extended mind:

To assess whether memes function as an extended mind, a scale was created consisting of three statements, each rated on a scale of one to ten, resulting in a total scale score of 30 degrees. I asked the participants about their trust in memes' content, and the availability and accessibility of memes to them. 100% of the participants reported having access to the internet and being aware of memes, indicating that memes are available to them for use. However, participants reported varying degrees of accessibility on a scale from 1 (lowest accessibility) to 10 (highest accessibility).

As shown in table (8) More than half (55.3%) of the respondents reported high accessibility (ratings 8-10), while a substantial portion (25.3%) experienced moderate accessibility (ratings 4-7). A smaller group (8.2%) reported limited accessibility (ratings 1-3), suggesting they may face significant barriers in accessing or engaging with memes. Based on these findings, it can be concluded that memes are generally accessible.

Table (8) show to what extend participants have access to memes

To what extent you have access to memes?	Frequency	Percent
1.00	21	5.6
2.00	6	1.6
3.00	22	5.9
4.00	10	2.7
5.00	28	7.4
6.00	20	5.3
7.00	25	6.6
8.00	21	5.6
9.00	15	4.0
10.00	208	55.3
Total	376	100.0

Regarding trust, as shown in Table 9, a significant proportion (44.4%) expressed distrust with ratings between 1 and 3. The most common trust level reported was moderate, with 45.5% of

participants rating their trust between 4 and 7. Participants with a high level of trust constituted 10.1% of the sample.

Table (9) show participant’s trust in memes content

To what extent do you trust memes content?	Frequency	Percent
1.00	90	23.9
2.00	26	6.9
3.00	51	13.6
4.00	44	11.7
5.00	82	21.8
6.00	18	4.8
7.00	27	7.2
8.00	11	2.9
9.00	7	1.9
10.00	20	5.3
Total	376	100.0

To address RQ3, which examines whether memes can function as an extended mind, a composite scale was created by combining the statements related to availability, accessibility, and trust.

Each statement was rated on a scale of one to ten, resulting in a total scale score of 30. Participants' scores were categorized as follows: scores between 1 and 10 were classified as a low-extension mind, scores between 10 and 20 indicated a moderate-extension mind, and scores above 20 suggested a high-extension mind.

By calculating the general average of the research participants on this scale, the mean value, shown in Figure (2), reached (21.93), exceeding 20 and falling within the category of those who believe that memes act as an extended mind at a high level. The standard deviation, shown in Figure (3), is (4.293) , which is a low value indicating that most of the values are centered around its center. This means that participants consider memes as an extension to their minds.

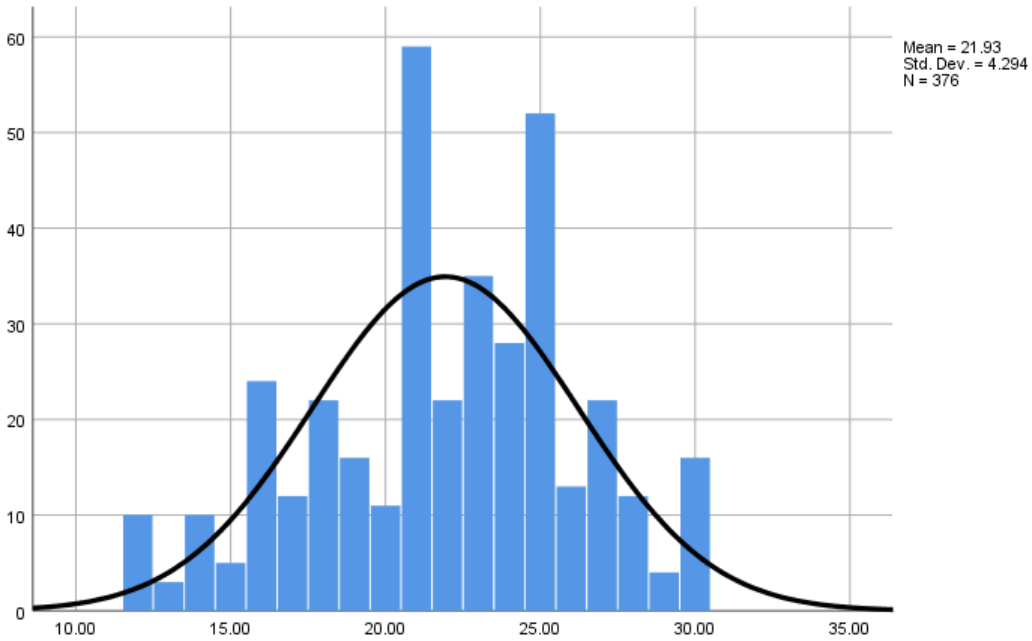


Figure (2) shows the mean value.

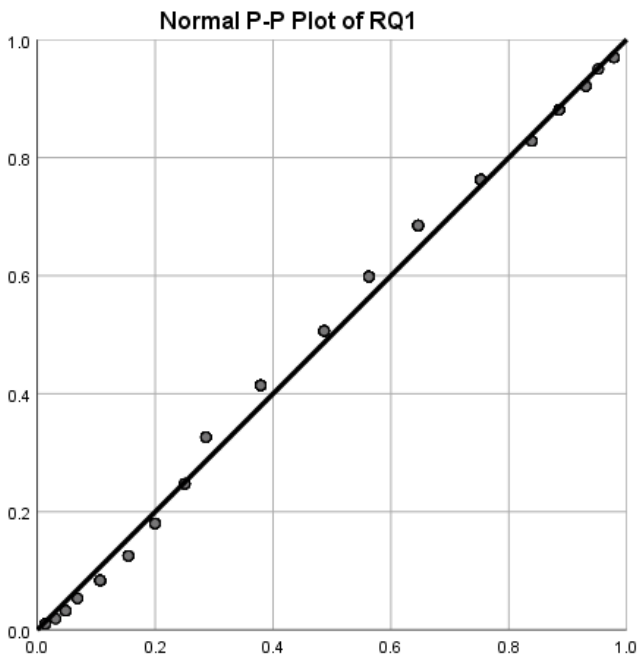


Figure (3) shows the standard deviation of the values

User engagement and extended mind

Results support H5, and indicated a relation between users' levels of engagement and utilizing memes as effective external cognitive tool. Although the relation is weak but it is significant

($r=0.232$, $p<0.01$). this means that Higher scores on Engagement levels tend to correspond with higher scores on Extended Mind, and vice versa.

Gratifications and extended mind

To test H6, I investigated the relationships between gratifications and three separate factors: accessibility, trust, availability and overall extended mind perception. Each analysis revealed statistically significant connections, ranging from weak to moderate in strength. The results show weak to moderate significant relations.

For accessibility, a weak but significant relationship ($r=0.223$, $p<0.00$) suggested that people who find memes easily accessible tend to seek more gratification from them. Similarly, a weak but significant correlation ($r=0.280$, $p<0.00$) emerged between trust and gratifications, indicating that individuals who trust the information in memes tend to experience greater enjoyment from them.

Finally, combining these individual factors revealed a moderate and significant correlation ($r=0.424$, $p<0.00$) between the overall perception of memes as an extension of oneself and the level of gratification they provide. This suggests that viewing memes as a kind of mental extension might be linked to increased gratification from their use.

Therefore, while the connections aren't overwhelmingly strong, the evidence suggests that individuals seeking gratification from memes tend to find them more accessible, trust them more, and ultimately perceive them more fully as an extension of their minds.

Discussion

The main objective of this study is to investigate how and why users use and engage with memes and whether they perceive them as an extension of their minds. Accordingly, this study explored users' engagement and gratifications derived from using memes, with a particular focus on their role as extensions of the mind.

- *RQ1: What are the primary motivations and gratifications that users derive from engaging with memes on social media platforms?*

This study's findings align with previous research by Leiser (2022), Cahya and Triputra (2017), and Moore (2015). Entertainment and self-expression are primary motivators, as memes often provide lighthearted humor and opportunities for personal expression.

Also, this study's findings align with research demonstrating audiences' capacity for self-expression through online personality (Hunt, Atkin, Krishnan, 2012). Insu Cho, Heejun, Sang (2014) found that self-expression was found to be influential. Similarly, Hunt, Atkin, Krishnan (2012) demonstrated a positive and significant correlation between self-expression and engagement with interactive Facebook features.

Users also use memes to stay informed about current events, although contrasting findings from Cahya and Triputra (2017) suggest that audiences may prefer other information-rich websites for specific information. One possible reason for the different results is that their study was conducted on the Path platform, whereas this study was conducted on Facebook. At the time of Cahya and Triputra (2017) study, Path did not have a feature to connect content with news websites, unlike other social media platforms like Facebook, which allows users to share a wide range of news and information.

- *RQ2: How do users engage with memes on social media platforms according to different tiers?*

The results of this study are consistent with Ebner, Holzinger, & Catarci (2005) indicating that creators represent a smaller proportion of participants, supporting the notion that most online community members tend to be passive consumers rather than active contributors.

Reacting to memes through various reactions emerged as the most common form of engagement. Studies like (Social, 2019) argue that user engagement has significantly increased since the

introduction of new reactions on Facebook. Shah, (2018) demonstrates this trend, showing a rise in post engagement with new reactions from 2.4% in 2016 to 12.8% in 2018. This suggests that reacting to memes offers a convenient and efficient way, particularly for millennials to express opinions and emotions without the need lengthy comments (Cassandra, 2021).

- *RQ3: To what extent do memes function as external cognitive tools for users?*

This study adopts Clark's (2013) criteria of accessibility, availability, and trust to identify memes as extensions of users' minds. This study aligns with previous research and finds that users perceive memes as extensions of their minds. McLuhan argued that media, including memes, extend our psychological and physical abilities, leading to an expanded state of consciousness (Logan, 2013). Clark and Chalmers (1998) suggest that as technology becomes more tailored to individuals' specific needs, the line between individuals and the coevolving smart world blurs, resulting in an integration known as Extended Mind. Smart (2012) and Halpin (2013) further emphasize the potential of innovative technology and the internet for extending our minds. Thus, memes contribute to cognitive extension in the digital era.

- *H1: The gratifications derived from consuming and engaging with memes will vary across different levels of user engagement.*

The results support H1. Users with higher engagement levels tend to derive slightly more gratification compared to those with lower engagement. This result aligns with McCay-Peet & Quan-Haase, (2016) study, which suggests that engagement is motivated by various U&G, and positive experiences in social media usage encourage further engagement, allowing users to both benefit from and make an impact within their social context.

- *H2: Users engagement with memes will be influenced by content factors*

The results of this study didn't support this hypothesis. This means that users with different engagement levels (low, medium, high) don't have significantly different preferences for specific content categories. This result differs from Results from the Buffer State of Social Media 2019 Report, which suggest that funny content generates the highest level of engagement (Read, 2019). Also, our finding differs from Malodia, Dhir, Bilgihan, Sinha, & Tikoo, (2022) study, which demonstrates that content-related factors significantly impact the virality of meme-based posts. This difference can be attributed to methodological differences. Malodia, Dhir, Bilgihan, Sinha, & Tikoo, (2022) conducted 35 in-depth interviews with various stakeholders involved in meme virality, such as brand managers, and influencers. They explored their perceptions of how memes can go viral. In contrast, our study focused solely on users' perspectives and found no significant relationship between content and engagement.

- *H3: Users engagement with memes will be influenced by the users' technological abilities.*

The link between technological abilities and engagement has garnered significant attention across various fields. The results of this study provide support for (H3) that individuals with stronger technological skills exhibit higher levels of engagement. This finding aligns with the research conducted by Calvo-Porrall & Pesqueira-Sanchez (2022), who propose a "direct impact model" suggesting diverse motivations directly influence user engagement with technology, and his technological abilities is one of them.

Similar findings were also observed in the education system, Pavlovich, (2021) Argue that technological abilities grow while engaging in internet platforms. D'Angelo (2018) highlights the relationship between students' technological abilities and their engagement in an interactive curriculum. According to D'Angelo, it is crucial for students to become familiar with various

digital applications in order to actively participate and integrate into the curriculum. This engagement not only enhances their technological skills but also provides them with opportunities to succeed academically.

- *H4: Users' engagement with memes will be influenced by Demographic factors.*

In this study, a higher number of male respondents participated in the survey compared to females. Alharethi (2020) argues that males are more likely to respond to surveys than females in the Middle East, even among journalists.

The findings of this study did not support Hypothesis 4 (H4), which suggests that users' engagement with memes would be influenced by demographic factors such as gender, age, education, and income. This finding aligns with the research conducted by Mierlo, Li, Hyatt, & Ching (2017), who did not find strong evidence that demographic characteristics explain user engagement. Although several studies have identified one or more demographic factors as influencing engagement with the internet (Goldfarb & Prince, 2008) and social media (Barker, 2012; Hanson & Haridakis, 2008; Menon, 2022), this study argues that there was no significant relationship between demographics and user engagement with memes.

- *H5: Users' engagement levels with memes are related to the effectiveness of memes as cognitive tools.*

The study results support H5 and found that increased engagement with memes strengthens the perception of them as extensions of cognitive processes. This finding aligns with Choi (2021) and Dongqiang, Serio, Malakhov, & Matys, (2020), which showed that higher engagement levels improve information recall, foster creativity, and simplify complex concepts. Memes have been found to enhance engagement, build rapport, and aid information retention in educational

settings (Youssef, 2023). These findings collectively support the idea that the more we engage with memes, the more likely we are to perceive them as extensions of our minds.

- *H6: Users' gratifications from memes are influenced by their perceived accessibility, availability, and trustworthiness as external cognitive resources*

The findings of this study support H6, indicating that perceiving memes as mental extensions is linked to increased gratification. Memes that are more available, accessible, and trusted lead to greater exposure and gratification. Abd-Allah's (2023) study aligns with these findings, highlighting how meme engagement satisfies various needs. Memes foster social connection, affirm identities, provide entertainment, offer digestible information, and allow for self-expression. (عبد الله، ٢٠٢٣).

This diverse range of gratifications suggests that memes can function as extensions of our minds, enhancing understanding, simplifying ideas, and stimulating critical thinking (Youssef, 2023). It is fascinating to imagine using a funny meme to remember a historical event or employing a satirical meme to analyze a social issue. Increased engagement expands our internal "meme library," shaping our interpretation of new information and influencing our thinking and communication. Memes become mental shortcuts, acting as cognitive tools, and thus, the gratifications gained from memes are associated with perceiving them as mental extensions.

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