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# ATTITUDES OF EGYPTIAN YOUTH TOWARDS THE USES AND IMPLICATIONS OF DEEPPAKE TECHNOLOGY

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## ABSTRACT

*In this research, it was aimed to understand attitudes of Egyptian youth towards the uses and implications of Deepfake technology, as well as recognizing respondents' understanding of methods and techniques used in producing fake videos and content. The data collected from 29 undergraduate students by using the focus group discussion technique, revealed their general awareness of deep fake technology, in addition to the potential benefits and challenges of it. Also respondents provide effective recommendations to face this phenomenon concerning community awareness, legal and educational aspects.*

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**KEYWORDS:** Egyptian youth -Deepfake- Artificial intelligence (AI).

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## 1. INTRODUCTION

Deepfake technology is a type of artificial intelligence (AI) that use machine learning algorithms to generate realistic digital media with the intent of deceiving viewers. Deepfakes entail the use of algorithms to edit or substitute existing information, such as images, videos, or audio recordings, to create a false appearance of reality. Deepfakes can be made for a variety of reasons, including amusement, political propaganda, and criminality. (Udari Harshani,2024) . Deepfakes are one of the most dangerous forms of misinformation, posing widespread and serious security and privacy dangers to important governmental institutions and common citizens worldwide (Vaccari, C., & Chadwick, A., 2020) . Lately, media forensics got an enormous attention, in part because of the growing Deepfakes concerns. Since the earliest Deepfakes databases of the first generation were released until the most recent Deepfakes databases of the second generation, numerous visual advancements have been made, creating fake videos practically undetectable to the human eye. After this threat emerged, several Deepfake detection techniques have been presented. (Hussein, S. A., & Mohamed, S. N. 2024) . For example, Deepfake was used on President Barack Obama, accusing him of stating things he didn't say. Not only famous people could be affected, but also it can be anyone around so that the person who created fake content of theirs could blackmail them; deep fakes involved a large number of famous political leaders, actresses, comedians, and entertainers who had their faces stolen and used in unreal videos causing them huge problems. (Zeina Ayman and others, 2023) .

### 1.2. Research Problem

Nowadays, social media allowed users easy access to multimedia content. With recent advancements in computer vision, natural language processing, machine learning (ML), and deep learning (DL) models have evolved. With advancements in generative adversarial networks (GAN), it has become possible to create fake images/audio/and video streams of a person or use some person's audio and visual details to fit other environments. Thus, Deepfakes are specifically used to disseminate false information and propaganda on social circles that tarnish the reputation of an individual or an organization.

Therefore, the study's problem lies in understanding the impact of these videos on youth audiences. This will be achieved through a study conducted on undergraduate students, relying on the

"focused group discussion" method to assess the recipients' understanding of the reality of fake videos and images and how to take action to protect themselves from this phenomenon.

### 1.3. Research Objectives

1. Understand how respondents interpret the concept of Deepfake technology and its impact on them.
2. Identify the most common themes in fake videos and images to understand the nature of misleading content.
3. Recognize respondents' understanding and awareness of the methods and techniques used in producing fake videos and content to enhance awareness of manipulation tactics.
4. Identify the potential benefits of Deepfake technology and how it can be used positively in certain contexts.
5. Evaluate the risks and challenges perceived by respondents regarding the use of deep fake technology.
6. Document personal experiences by gathering information about respondents' experiences with fake videos and how they affect their perception of digital content.
7. Identify the fields where deep fake technology is most commonly used to understand its scope of prevalence.
8. Provide effective recommendations and solutions to address the challenges associated with Deepfake content and help enhance awareness and prevention.

## 2. LITERATURE REVIEW

### 2.1. Risks and consequences of Deepfake

The literature reveals risks and consequences of deepfaking technology. Different studies explored the ethical and psychological risks of this technology, (Olga Martínez, David Fernández et al.2024) conducted qualitative thematic study to determine how young nursing students perceive Deepfake technology, the results revealed that the nursing students see both pros and cons in Deepfake technology and are aware of the ethical dilemmas it poses. Pros or benefits include use in diagnosis, patient accompaniment, training, and learning, while cons or risks include cyberbullying, loss of identity, and negative psychological impacts from unreal memories. In addition to that (S. A. Laczi and V. Póser,2024) focused on The mechanisms behind Deepfake technology, and its harmful effects on children. Serious ethical and moral issues raised by this technology were highlighted through real

examples. It was also shown how Deepfake technology has been used as a tool for cyberbullying and its psychological, social, and educational consequences were discussed.

Part of the literature studies explored digital privacy and security risks of using deepfaking technology. (Jarvis,2021) demonstrated the risks of deep fake applications on the digital privacy of users, especially considering their easy and simple usage, which encourages people of all age groups to use them. All it takes is capturing a simple "selfie" image of a person to embody the famous personality they dream of impersonating. Therefore, the study emphasized the importance of calmly reading the terms of use and privacy policies. In the same side (Bode, 2021) revealed this results by depending on a case study conducted on an approximately 3-minute film titled "Keanu Reeves Stops A Robbery!" The video utilized the Face swap application for deep fake, which relied on recontextualizing the content, altering the timing of shots, and using a similar character to Keanu Reeves. The viewers were unable to detect the video as fake. Similarly, (Kwok ,2021) highlighted the risks resulting from the harmful use of deep fake videos in fraud, deception, and misuse of biometric data, as well as the rapid advancements in Deepfake technology and its potential impact on impersonating real identities. (Saad Ibrahim,2023) and (Mohammed Al-Othmani,2021) focused on the forms of digital privacy violations, and aimed to identify the negative consequences of using Deepfake applications in facial recognition using unique physiological features such as fingerprints, hand geometry, retinal patterns, irises, and handwritten signatures to determine an individual's identity. (Agarwal & Lim,2020) confirms the danger of fabricated content in such applications that are used to create misleading videos, especially with the widespread use of mobile phones and the common use of biometric verification technologies worldwide. The same result in (Santos 2021) which discussed the extraction of personal data from the sensors of mobile devices, and revealed that the danger lies in storing sensitive biometric data such as fingerprints and iris patterns. (Ahmed & Sonuc ,2021) and (Wojewidka,2020) detailed additional instances where deepfakes have been used in ways that can violate societal norms and enable illegal activities – from producing indecently altered videos to the unauthorized exploitation of biometric data. On the other hand (Chen ,2021) and (Mahdvifar & Ghorbani,2019) introduced solutions to protect privacy of users, like using effective algorithm in facial video editing or in detecting and classifying

malware, detecting digital privacy breaches. Besides that (Saad Mufleh,2023) recommended utilizing artificial intelligence applications to develop countermeasures against the spread of rumors and combating harmful posts and publications using machine learning, neural networks, algorithms, and information analysis.

Besides studying individual and technical risks, several studies have examined the societal and political impacts. (Doherty,2025) examined the dangers of deepfakes to democratic stability, emphasizing their capacity to pollute information ecosystem and undermine trust in media. Expecting that this could foster widespread skepticism of all media . Also, (Volkova, S. ,2025) proved that deepfakes have numerous positive and beneficial applications, such as replacing the faces of deceased actors to complete the movies, creating realistic special effects, visualizing historical events with real figures, or creating personalized advertising materials. (Vecchietti et al. ,2025) introduced a novel business privacy calculus model by delving into the impact of deepfakes through a qualitative explanatory study involving twenty-seven bank managers from three global banks across nine countries. the evidence showed how data integrity can mitigate deepfake threats, manage business risks, and ensure operational continuity. On the same category (Pramod et al. 2025) identified that public discourse on deepfakes forms a concept hierarchy emphasising technology and its entertainment applications, with core concepts including AI, voice, actor and job, while peripheral concerns such as consent and company receive less focus. and revealed neutral or negative attitudes, indicating concerns over the risks and societal impacts of deepfake technology. Besides that (Kaur & Siddhey ,2025) revealed that current knowledge about the effects of deep fakes on the market is incomplete and dispersed. the primary dangers facing businesses are the quick obsolescence of current technologies and harm to their reputation, image, and credibility. On the other hand, customers could also experience identity theft, intimidation, extortion, and harassment.

## **2.2. Detection and Confrontation of Deepfake**

Deepfake technology poses unique challenges that have prompted a diverse range of research efforts.

Several studies have focused on developing cutting-edge technological solutions to accurately identify deepfakes. For instance, (Hussein and Mohamed,2024) which has built a model with

integrated vision transformer to mitigate the negative effects of Deepfake, and maintain an individual's reputation by detecting the alteration of people's photographs and videos. This model architectures Deep-ViT and Cross-ViT, which is designed to process pre-extracted faces from FF++ dataset. The model distinguishes between the real and fake faces in two different perspectives, subclass detection on each manipulation method and overall detection of all types. The proposed model achieves an outstanding results and the highest accuracy in Face Swap manipulation method with 98%. Similarly (Rimsha Rafique et al. ,2023) presented a practical automated solution for identifying Deepfakes using Deep Learning and Machine Learning. Its strength lies in overcoming the limitations of handcrafted features, enabling robust detection of complex patterns. The method combines Error Level Analysis, Convolutional Neural Networks, and Support Vector Machines/K-Nearest Neighbors for classification. The system's 89.5% accuracy highlights its potential for real-world Deepfake detection. )Suratkar et al. 2023) further enhanced a detection model utilizing transfer learning, which demonstrates effectiveness and accuracy even against un seen Deepfake manipulations. Results show the model's potential for practical application, while future work aims to enhance efficiency and employ diverse datasets to further its ability to combat emerging Deepfake techniques. (Raza Ali et al. 2022) contributed a novel deep learning approach empowers cybersecurity professionals to combat Deepfake crimes by accurately detecting manipulated content. Outperforming current methods on real-world datasets, the model utilizes Xception, NAS-Net, Mobile Net, and VGG16 neural networks and achieves 94% detection accuracy. In a similar vein, (Singh et al. 2025) developed a- fresh deep fake detection system that relies on facial embeddings and fine-tuned VGG16-based models. Through capturing subtle facial features and rigorous training with meticulously curated datasets, this system provides a reliable strategy to combat the malevolent use of deep fake technology. Leveraging sophisticated algorithms and evaluation metrics.

Other studies analyzed the evolution and effectiveness of various detection techniques. (Patel, Y et al. 2023) proposed a comprehensive review of Deepfake generation and detection and the different ML/DL approaches to synthesize Deepfake contents. The paper discusses the implementation challenges and future research directions regarding optimized approaches and models. A unique case study, IBMM

is discussed, which presents a multi-modal overview of Deepfake detection. Likewise, (Babaei et al. 2025) presented an analysis of the development from traditional deepfake generation methods to state-of-the-art models. It confirmed the importance of interpretability and real-time performance in detection systems. (Dehghani and Saberi,2025) reviewed the state-of-the-art in deepfake generation and detection, focusing on modern deep learning technologies and tools based on the latest scientific advancements. findings proposes solutions to counter the potential threats posed by this technology is essential. This paper critically examined the ongoing "arms race" between deepfake generation and detection, analyzing the challenges in identifying manipulated contents. (Habib Khalaf,2021) also contributed by conducting a wide-ranging survey on the prevalence of Deepfakes on websites. The study found a growing trend of Deepfake manipulation in news, images, and videos. It also identified methods and tools that can be used to detect fake images, videos, and news. The study revealed that it has become less challenging to detect the manipulation occurring in images, news, or videos.

In addition to technological detection, many studies showed the need for measures to counter deepfake threats. (Kaur, J., Sharma, K., & Singh, M. P. (2024) research looks at the growing threat that deepfake poses to individuals' safety and privacy. With the rise of deepfake technology, powered by AI, it is becoming increasingly difficult to differentiate between real and altered media, which puts individual identities and information security at risk. This research highlights the necessity for new regulations in the future and questions the efficacy of existing legal systems. (Subrahmanyam,2025) presentd unprecedented risks to businesses, individuals, and society. It emphasizes the need for legal frameworks, innovative detection technologies, public education, and digital literacy to build resilience. It highlighted successful strategies and identifies gaps in current approaches, advocating for proactive solutions to anticipate future technological developments. Ultimately, it calls for continuous, unified efforts to create a safer, more trustworthy digital ecosystem. Moreover, (Lai et al. 2025) examined the advancements in Deepfake detection and defense technologies, emphasizing the shift from passive detection methods to proactive digital watermarking techniques. Passive detection methods, which involve extracting features from images or videos to identify forgeries, encounter challenges such as poor performance against

unknown manipulation techniques and susceptibility to counter-forensic tactics. In contrast, proactive digital watermarking techniques embed specific markers into images or videos, facilitating real-time detection and traceability, thereby providing a preemptive defense against Deepfake content. (Stamatis Karnouskos, 2020) suggested that the society is not prepared to deal with the rise of Deepfakes on any level. Because this phenomenon is still in its early stages of development and shows some flaws. A combination of technology, education, training, and governance is urgently needed to address this issue effectively.

Addressing the human factor in the fight against deepfakes, (El Mokadem, 2023) investigated the impact of media literacy on detecting fake news in both video and text messages. 204 highly educated Egyptians were divided into three groups: one received a lecture on misinformation, another on Deepfake technology, and a control group received no information. Each group's ability to identify two types of fake messages was assessed: a Facebook post with text and images and a Deepfake video. The results showed that media literacy lectures were effective in raising the detection rate of fake news in both text and video formats. The study recommends designing media literacy lectures that include general information on misinformation and specific information on Deepfake technologies.

### 2.3. Research Questions

1. What does Deepfake mean to the Egyptian youth?
2. What are the most common themes found in fake videos and images?
3. What techniques are employed in these videos, images, and audio clips?
4. Are there potential benefits of Deepfake technology?
5. What risks and challenges do respondents perceive regarding deep fake technology?
6. Have you ever watched videos that you felt were fabricated and doubted their authenticity?
7. What are the most common fields where deep fake technology is used?
8. What solutions could be implemented to counter manipulated videos, clips, and images?

### 3. METHODOLOGY

This study employed a qualitative research method. Qualitative data collection and analysis conducted through focus group discussion

technique. This method approach provided a deeper understanding of the research topic by understanding the participants' insights from discussions and their directions towards the Deepfake technology.

#### 3.1. Data Collection

The study explored the impact of Deepfake technology on individuals and society, focusing on its benefits, risks, and the challenges it presents. To achieve these objectives, the following procedures were undertaken:

- Four focus group discussion sessions were organized, each designed to encourage open dialogue about the research topic.
- Data were collected using a structured focus group discussion guide, ensuring alignment with the study's objectives.
- The sample consisted of 29 undergraduate students at Faculty of Media and Mass Communication. Because they are more connected to the subject, follow it closely, and strive to understand it. This may be related to their future work, especially since some of their academic materials involve graphics and montage, in addition to the nature of media studies, which focuses on such topics.

The sample was divided into Four groups. The first group consisted of (2 males and 4 females), while the second group consisted of (2 males and 6 females), the third group consisted of (3 males and 4 females) while the fourth group consists of (3 males and five females). The students were selected through purposive sampling to represent youth perspectives.

### 4. RESULTS

The study reached a number of important results. The following is a presentation of these results, through several main topics, which are:

- Respondents' knowledge of deep fake technology.
  - How to use and develop deep fake.
  - Potential benefits of deep fake technology.
  - Risks and challenges resulting from deep fake.
  - Actual misleading situations that respondents or their acquaintances were exposed to using deep fake.
  - Sectors most exposed to deep fake.
  - Challenges of detecting fake content.
  - Solutions proposed by respondents to confront deep fake technology.

At the level of the respondents' knowledge of deep fake technology:

The respondents' answers showed a general awareness of technology, as the following became clear:

- 80% of the respondents confirmed that they are generally aware of technology without knowing the specific name.
- 20% mentioned that they only know the name without any details.
- 90% of them confirmed their ability to detect fake videos, whereas detecting fake images takes them longer.
- Regarding fake audio recordings, all of them confirmed their ability to identify a fake recording if it is in Arabic, unlike when it is in English.
- The respondents agreed that deep fake is a phenomenon created by artificial intelligence, through which images are modified and manipulated, or audio recordings or videos are created to appear realistic.
- Those who use this technology aim to achieve the highest viewing rates and create a "trend" on social media platforms.
- The first and second groups agreed on the difficulty of distinguishing real materials from fake ones due to the high level of proficiency.
- Meanwhile, the respondents in the second and third groups were able to identify the fake video of former U.S. President Obama and another video of actor Tom Cruise playing golf. We then presented them with two other videos from a program on an Egyptian satellite channel called "Fashnk," which means fake or unreal. The program host discussed a biased report from programs opposing the Egyptian state, highlighting flaws in Egyptian society and government shortcomings, such as the construction of a large wall along the Corniche in Alexandria. And another report on poverty and citizens' complaints was presented. We showed these clips without the host's explanation of how these reports were fabricated to gauge the respondents' awareness of the falsity of these reports. Regarding the first video, the respondents noticed a change in facial expressions and some slowness in speech, noting that it did not seem like a head of state being filmed while addressing the camera. They also observed that the color quality of the video was not good.
- One of the respondents showed significant awareness in detecting the fake video, stating that the first things she looks at are the eyes, then the background, then the way of speaking and the teeth. She emphasized that artificial intelligence cannot fake the fluttering or twitching of eyelids, nor the teeth, and that the background is portrayed. Perhaps an uneducated person would not be able to distinguish that it is a fake video.
- Only one respondent could not detect the falseness of the video and was surprised that it was not real. She said she realized from her colleagues' discussions that it was fake. The respondent added that she only learned about the technology now and did not have an in-depth background on the subject except for images, although she had suspected a photo of Ronaldo and Georgina at the Kaaba in Mecca.
- Regarding the video of Tom Cruise playing golf, only seven individuals out of the entire sample believed that it was Tom Cruise and not a fake video. Some said that the hand movements appeared natural and his movements were correct, with natural facial features. Others noted that when a strand of hair moved over his eyes, it did not ruin the video's deception, and some mentioned that his voice and body movements were like those of the real Tom Cruise.
- Those who were able to detect the falseness of the video attributed it to the fact that this was not Tom Cruise's body, and they all agreed that it was clear it was not him when his face turned.
- As for the fake reports on the "Fashnk" program, 90% of the respondents did not believe those reports, agreeing that the quality of the reports was poor. The respondents' awareness of this issue was reflected in their observation that it was filmed using only one camera. They noticed a woman in the video clapping. Even those who believed the content presented by the respondents attributed this to their perception that the content discussed in the report on poverty—excluding the report about the wall along the Corniche—might be true based on their social experiences. However, some felt that the video was simply filmed with poor quality, yet they could still believe the content. Others mentioned that they did not believe it due to feelings of negativity, recognizing that the video was biased, even if they felt it touched upon their reality. The statements from the respondents reflect their objectivity and significant awareness.

- One respondent cited an example of deep fake in South Korea, mentioning a website called "K-Pop" that fabricates images and videos of Korean singers and celebrities, particularly female artists, aiming to defame them and tarnish their image in the eyes of the public or to extort them.
- This issue also extends to news materials, where fake news is broadcasted to mislead the public politically and socially, eroding trust in media and its credibility, as well as inciting the public against governments, stirring unrest, and damaging the economies of countries.
- There is a consensus on the fear and concern that this technology could lead to a loss of trust in media content.
- How to use and evolve: deep fake
- The respondents pointed out that the technique of faking images, sound and videos originally existed before artificial intelligence, which helped to develop and master them. For example, before artificial intelligence, faking videos was very difficult and almost impossible, due to the multiplicity of video clips, but now it is different.
- 90% of the respondents confirmed that artificial intelligence has become the main element in the falsification of photos and videos, and that it has helped to make falsification more accurate and widespread.
- 80% of the respondents confirmed that the ease of access to counterfeit tools - whether through mobile phones or free sites - has helped in the spread and circulation of the technology, in addition to the spread of fake content after that through social networking sites.

The potential benefits of deep fake technology from the point of view of the respondents:

The respondents agreed on the following:

- Artistic and technical creativity, such as producing high quality films or advertisements.
- A realistic and dazzling revival of the departed historical figures, such as the concert performed by the late Egyptian singer "Umm Kulthum" with hologram technique.
- 60% of the respondents indicated the usefulness of technology in education and documentation, and the possibility of using it to explain difficult topics or document certain historical events.

Risks and challenges of employing deep fake technology from the point of view of the respondents:

The respondents believe that the purpose of deep fake technology is negative by 90%, and they do not see any good intentions behind any information that is falsified using this technology; rather, it is deliberate. In this context, they agreed on the following risks and challenges associated with the use of deep fake technology.

- Misleading and making fabricated accusations against people: politicians, artists, celebrities, and even ordinary people, with the aim of blackmailing and discrediting, for example:
- A video of the Egyptian president appears showing him singing, and it looked very realistic, matching both the voice and manner of speaking, and it was more accurate than the video of Barack Obama.
- A video was created showing Facebook founder Mark Zuckerberg, declaring as if he admits to using Facebook users' data in order to manipulate and control the world, which misleads the public and creates confusion.
- Publishing fake news and pictures attributed to American boxer Mike Tyson raising the flag of Palestine.
- Publishing fake news, photos and videos about imaginary changes in the Sphinx, and showing it with closed eyes, with the aim of stirring controversy and media hype.
- Fake videos on the TikTok by Tom Cruise showing him performing comedic situations such as magic or singing, and these videos were made by a specialized artist where they were used to resemble the body and voice of Tom Cruise. There was also a video of Tom Holland dancing to an Egyptian folk song.
- A scammer in China used deep fake to impersonate a senior businessman, as he impersonated his voice, image, and even known facial expressions until he became a replica of the real character, then he communicated with the "video call" and "zoom" with other businessmen and agreed with them on projects, then he scammed them and escaped.
- In the midst of a war between Russia and Ukraine, a video attributed to Ukrainian President Y. Zelenskyy was faked in which he declared the defeat of his army completely, and appealed to the Ukrainian people to bow to the Russians.
- At the beginning of the war on Gaza in October 2023, a video appeared in which the famous football player Mohammed Salah spoke in support of Palestine, and this video caused a

very big stir due to the mastery of its falsification, as the audience could not distinguish between being real or fake.

- Theft is currently spread in Korea by video and audio calls, where the person receives an audio and video call from the same number of the person close to him, and the latter requests a transfer of money to him because he is in a critical situation, depending on the element of surprise and urgency, these allegations are not verified.
- He attributed statements to the US president about astronauts who went to the moon, that their spacecraft exploded, and that they died.
- Installing videos of some broadcasters of channels such as "CNN or Al-Jazeera" with false news, and when the viewer focuses on the video, he discovers its falsehood, because of the mismatch between the eye and body movements of the broadcaster.
- The respondents agreed that the previous effects would be as follows:
  - Impact on the personal security of individuals, as well as companies, institutions, governments, and entire countries.
  - Loss of privacy.
  - Loss or reduction of trust in digital content.
  - Creating profound psychological and social effects of fake content.

Actual misleading situations that the respondents or their acquaintances were exposed to using deep fake:

- Most of the respondents were not directly exposed to this, but one of the respondents mentions what happened to her brother, as he was subjected to fraud through trading sites and Bitcoin, where the behaviour of this user was known to be trading, and therefore he was involved in a platform for this, and even earned money from it that appears to him as a balance only and shows him false videos and audio clips to congratulate him, in order to be tempted and to achieve credibility at the beginning, and then asked to participate in larger amounts, and lost all his money in this matter.
  - One respondent mentioned that they were deceived by a video of an Egyptian singer named Wegz, only to later discover that it was faked using artificial intelligence.
  - Another respondent said they were deceived by an image related to marketing and advertising on Instagram, which they later found out was a fake advertisement.

Respondents saw the areas most exposed to Deep Fake:

#### **Media Field:**

- Deep Fake technology is widely used in media disinformation, such as falsifying news and spreading rumours, with the aim of creating chaos or directing public opinion in a certain direction.

#### **Social Field:**

- Even if we believe that the video is fake, it is enough that it evokes certain emotions in us, whether negative or positive, and that the creator of the video has a specific ideology.

#### **Political area:**

- Distorting the reputation of politicians, by producing fake photos and videos of them, which affects their image among the public, and also affects the popularity of candidates in the elections.

#### **Artistic and recreational field:**

- Celebrities and artists have been heavily exposed to Deepfakes, where their photos and videos are edited to discredit or blackmail them, or create a trend.

#### **Commercial and marketing field:**

- The public is misled by the dissemination of false information about companies or products, within the framework of conflicts between them.

#### **Field of Education and Scientific Research:**

- Falsifying academic lectures or interviews and attributing them to well-known scientists or personalities, in the sense of stealing scientific theories and discoveries.

How to detect fake content from the point of view of the respondents:

- 90% of the respondents confirmed the difficulty of detecting fake content due to the development and continuous updating of technologies, in addition to the emergence of websites and applications that ensure that artificial intelligence manipulation of content is not detected.
- On the other hand, 90% of the students in groups three and four confirmed their ability to detect fake content, whether it be videos or images, although discovering fake images takes longer.
- The respondents put forward some mechanisms to detect fake content, including:
  - Analysis of abnormal details such as: movements of the face and eyes as well as the body, as this movement can be constant for a longer period than normal, or for example lip movements do not match the sound accurately, as well as changes in lighting, or skin colour.
  - Voice analysis, where falsification is detected by repeating the tone of the voice, or the mismatch of the falsified voice with the person

being imitated.

- Employing specialized programs to detect fakes, so that they recognize unfamiliar patterns, such as sound and movements that are not produced naturally. Such as Wizardi, AI or Not, and Google Fact Checking.

The solutions proposed by the respondents to confront the phenomenon of deep fake:

- Community awareness, where the respondents agreed on the need to raise sufficient awareness of the public, in order to facilitate the distinction between fake media materials and the truth, whether they are images, videos or others.
- Attention to the legislative and legal aspect, where 80% of the respondents suggested that strict penalties be imposed on violators, so that they serve as a deterrent to those who think about the negative use of technology, with the need to benefit in this regard from the legislative experiences of developed countries in a way that suits each country and its culture.
- The need to include educational materials in the curricula on deep fake technology, in order to raise the awareness of new generations.
- The need for technology companies to develop solutions to detect counterfeiting, while constantly updating these solutions to keep pace with developments.

#### **4.1. Discussion of Research Findings in Light of Previous Studies**

1. Previous studies indicated that the public is aware and knowledgeable about deepfake technology, which is confirmed by the current study's findings on participants' perception of deepfakes. This highlights that younger generations are keeping pace with modern technology, its developments, and risks. Participants even noted that deepfake image, audio, and video manipulation existed before artificial intelligence.

2. Previous studies also suggested that deepfake technology contributes to manipulating public awareness and promoting false ideas and information. The current study supports this, indicating that deepfakes aim to mislead the public politically and socially, erode trust in media credibility, fuel anti-government sentiment, incite unrest, and damage national economies.

3. This study's participants concurred with that deepfake technology has potential benefits. The

previous study highlighted benefits in nursing, while the current study and its participants, being communication and media students, acknowledged deepfakes' creative, technical, educational, and documentary advantages.

4. Previous studies emphasized the dangers of deepfakes in harassing celebrities. The current study agreed, finding that deepfakes are used to deceive and falsely accuse ordinary individuals and celebrities. Participants demonstrated awareness of such videos, citing examples from entertainment, politics, and warfare.

5. The current study added real-life instances of deception experienced by participants or their acquaintances through deepfakes.

6. Research showed participants have some knowledge of detecting fake content, although challenging due to evolving technologies. They proposed detection mechanisms reflected in the findings.

7. Participants suggested solutions to counter this phenomenon, including community awareness, legislative attention, and integrating deepfake education into curricula to raise future generations' awareness.

## **5. CONCLUSION**

With the continuous growth of smartphone and tablet ownership, advancement of new AI technologies, and substantial enhancement of applications, deep fake technology will continue to be a major concern. Our results showed general awareness of the technology. 90% of the respondents confirmed that artificial intelligence has become the main element in the falsification of photos and videos, and that it has helped to make falsification more accurate and widespread. They also pointed out that misleading and making fabricated accusations against people are the main challenges of employing deep fake technology. Respondents confirmed that this phenomenon has great effects concerning personal security, loss of privacy and decreasing trust in digital content as well as psychological and social effects. Some important suggestions were made to detect fake content and confronting the phenomenon of deep fake. Consequently, future research should build on these results not only to monitor the aforementioned associations but also to investigate prevention and therapy strategies.

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