Book review: Deep fakes, fake news, and misinformation in online teaching and learning technologies

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Keywords	Abstract
Online Learning, Educational Technology, Information Literacy, Digital Literacy, Digital Security	The book entitled *Deep Fakes, Fake News, and Misinformation in Online Teaching and Learning Technologies*, which is edited by Rebecca J. Blankenship, is published by IGI Global in 2021. The book has a total of 271 pages that features 9 chapters. The chapters cover several topics including, but not limited to: artificial intelligence, cybersecurity, data literacy, deep fakes, digital citizenship, digital literacy, educational technologies, fake news, infodemic, information literacy, misinformation, multimodal literacy, online learning, social media, and teaching faculty.

1. Introduction

The book entitled *Deep Fakes, Fake News, and Misinformation in Online Teaching and Learning Technologies*, which is edited by Rebecca J. Blankenship, is published by IGI Global in 2021. The book has a total of 271 pages that features 9 chapters. The chapters cover several topics including, but not limited to: artificial intelligence, cybersecurity, data literacy, deep fakes, digital citizenship, digital literacy, educational technologies, fake news, infodemic, information literacy, misinformation, multimodal literacy, online learning, social media, and teaching faculty.

2. Overview of the Book

The first chapter of the book, which consists of 9 chapters, titled "*Educational Resposibility in the Deepfake Era: A Primer for TPACK Reform*" states that the dynamic structure of the internet should be considered in the selection of technologies used in educational activities. In this chapter, the author states that a large number of audiovisual contents has been changed significantly through artificial intelligence (AI) technologies and deep fake activities are becoming more common day by day. According to the author, the importance of accessing accurate and reliable information increases in digital environments where students' access to information increases and diversifies from day to day. In this respect, this section discusses which techniques can be used to reduce deep fake so that students can fulfill their basic learning responsibilities to achieve the determined learning outcomes. Moreover, the author focused on how deep fake images, videos, audio and texts affect learning-teaching processes and learning outcomes cognitively.

The second section discusses the three-dimensional interactive technologies such as artificial intelligence (AI), virtual reality (VR) and augmented reality (AR) used in learning and teaching processes, as well as the concept of extended reality (XR), which is also a rising technology. In this section titled "*Extended Reality (XR) Teaching in the Era of Deepfakes: A TPACK and LOU Primer for Filtering Deepfakes and Malinformation in Subject-Area Content*", the author discussed the digital side effects of the transformation in face-to-face and two-dimensional learning-teaching activities. While talking about side effects such as deep fake or deliberate alteration of audio-visual

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content, the use of TPACK in XR environments has been examined in order to reduce these effects and prevent or control misinformation.

In the third chapter, which deals with how fake news occurs and can be distinguished, the authors discuss that fake news has existed and will exist for centuries, but what can be done to predict, make sense of and prevent it. The section titled "*The Never Ending Intellectual Theft of Truth: How Mainstream Media Cartel Dismembers the Facts*", which also deals with digital citizenship and digital literacy issues; provides explanations and recommendations for investigating controversial issues about fake news in individual, political and academic contexts.

In the fourth chapter, the reflection and spread of fake news on social media, which is stated to have increased especially after the COVID-19 pandemic, has been examined. While discussing the social media censorship and the decrease in social freedom of expression with the increase in fake news, it was mentioned that social awareness about the dangers that concern the society is weak in these matters. In addition, this section describes the social consequences of fake news. Emphasizing that there is much to be learned from librarians in order for the society to protect their fundamental rights of expression, the author also examines and defines the role of librarians in preventing fake news in social media.

The fifth chapter titled "*Teaching and Assessing Data Literacy for Adolescent Learners*", which deals with the role and importance of data literacy for adolescent learners, draws attention to the context and purposes adolescent learners' social media usage. In this section, the author states that in order for adolescents to act consciously in digital environments, they should have data literacy such as questioning, evaluating and making inferences about information. It was also mentioned that data literacy is important in order to distinguish frauds such as deep fakes, and in this context, it was stated that many students in the USA were not trained in this awareness. Accordingly, in this section, applications that support students' acquisition of data literacy competencies and evaluation of data and the future of these applications in learning and teaching environments are mentioned.

In the sixth chapter, it is mentioned that besides the advantages of artificial intelligence, it also brings with it various disadvantages. In this section titled "*Deepfake and Digital Citizenship: A Long-Term Protection Method for Children and Youth*", the manipulation of audio-visual media through artificial intelligence technologies and their individual and social effects are emphasized. In this section, the author also mentioned that researches are aimed at raising awareness about individual and social threats and harms caused by artificial intelligence technologies. Stating that children and adolescents are vulnerable to the related threats and harms, the author emphasizes the importance of digital citizenship as a protection method. In this context, the long-term effects of digital citizenship for children and adolescents are discussed in order to minimize the threats and harms brought by artificial intelligence technologies in the context of deep fake, misinformation and modified information.

In the seventh chapter titled "*Flattening the Curve of Fake News in the Epoch of Infodemic: An Epistemic Challenge*", the author expressed the rapidly increasing misinformation epidemic after the COVID-19 pandemic with the metaphor of "infodemic". In this section, where it is said that a fight against the false information epidemic has begun with the COVID-19 epidemic, it is stated that the false information epidemic has deeply affected the whole world. It has been discussed that with this epidemic of misinformation, in which the authenticity of the information and the verifiability of the news are questioned, harmful digital traces are left in the democratic, social, societal and individual dimensions. In this direction, within the scope of this chapter, strategies to prevent fake reporting and fake news epidemic are discussed.

In the eighth chapter, under the title of "*Schrodinger's Deepfake: Multimodal Analysis to Combat Deepfakes*", the threats posed by deep fakes in the media are discussed. While discussing the multimodal structure of social media, it is emphasized that its dangerous aspects are also used as a weapon. In addition, in this section, raising students' awareness of these dangers and manipulative persuasion techniques is discussed. In the section, the importance of understanding, adopting and using persuasion techniques in daily life in the digital multimodal propaganda era and its educational dimension are mentioned. In this context, three different anti-propaganda practices were examined and these practices were exemplified by a deep fake video.

The last chapter titled "A Novel Extended Ripple and Cyberbullies Data Detection (E-RACYBDD) Framework to Mitigate Deep Fake Attacks on Social Media" deals with cyberbullying activities against teenagers in social media environments. It has been emphasized that teenagers who are not guided by their parents are the major target of cyberattacks and cyber harassment in social media environments. The aims and consequences of modifying digital

contents using image processing and different computer techniques are discussed. While examples of deep fake activities on social media are given on Twitter and Facebook, an expanded framework called extended-RACYBDD has been proposed to predict and make sense of these attacks.

3. Conclusion

When all the chapters are evaluated together with aforementioned facts and suggestions, it can be said that this book is a outstanding resource to anticipate and evaluate not only beneficial aspect but also dangerous sides of the digital world from various perspective including education. In this context, this book draws attention to the threats and dangers that should be considered in the use of technology in education and online learning activities. In addition, by emphasizing the suggestions for different age groups in the learning-teaching processes, awareness of possible manipulations in educational and social digital environments is discussed.

References

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