

Humor Production and Comprehension from a Cognitive Science Perspective

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Abstract: *From the perspective of cognitive science, as well as from a cultural and sociological lens, the study of humour has been an ever-evolving field. Humour has been shown to be a key factor in forming societal bonds, increasing resilience to adverse circumstances, and even acting as a catalyst for positive social change. Humour also has an important economic component, since it is a key tool that can be used to increase brand recall, and have consumers form a positive association with a product, service, or a company. With the advent of new technologies like Artificial Intelligence and machine generated humor, used especially in a business context, it is important to assess how this might change the landscape of humour and its societal impact – and how humans perceive humour as a topic when it is generated by a machine. This paper aims to provide a critical analysis of these issues by reviewing the literature in the field, finally suggesting spaces for future study as society contends with the increased intersection of technology in our daily lives and the ethics of technology mimicking human behaviours.*

Keywords: Humour, Cognitive science, Societal bonds, Artificial Intelligence, Ethics

1. Introduction

The study of humour and its societal impact both from an individualistic and collective perspective has been of interest in the field of cognitive science. Especially given the impact of mass events of adversity such as the COVID-19 pandemic, environmental disasters and other situations in relation to social unrest, humour has been seen to have a correlation with a wide range of psychosocial outcomes – such as being a relational mechanism, a method of adaptation and coping, and inter-cultural bonding (Lonczak, 2020). Character strengths are of great interest to positive psychologists since they are qualities that have been said to be essential to human flourishing. It makes sense that people with a good sense of humor will be better able to handle challenging circumstances, have more cohesive relationships, find humor in a variety of situations, and enjoy more positive mental and physical health. Proposed links between humor and positive wellbeing are intuitive. Moreover, humor can serve as an adaptive ego protection by helping people see the humorous absurdity of really difficult circumstances. In this sense, comedy functions as a coping strategy as well as a defensive mechanism (Lonczak, 2020).

Research has also shown that the effects of humour can also be used to enhance memory recall and attention, in turn being an effective tool for advertising which introduces an economic dimension to the relevance of humour on human behaviour (Point Park University, 2018). Regarding the impact of humor in advertising, a 1993 study published in the Journal of Marketing found that "humor is more likely to enhance recall, evaluation, and purchase intention when the humorous message coincides with ad objectives, is well-integrated with those objectives, and is viewed as appropriate for the product category." This study remains valid to this day. In these situations, funny ads have a higher chance of grabbing viewers' attention, making their message more memorable, overcoming sales resistance, and strengthening message persuasiveness (Point Park University, 2018).

With the increasing use of AI (such as ChatGPT and Siri), it is important to examine from a societal perspective our changing attitudes towards machine generated humour and evaluate the effect of this on human behaviour and psychosocial aspects. Given that humour is an aspect which has been shown to be so fundamental to the human experience, in terms of coping with adversity and experiencing joy, it is important to expand this field of study to explore the impacts of technology on the production of humour. This area is also likely to provide important insights into the interaction between emerging technologies and society, which can be extrapolated to other forms of technology as well. This paper aims to explore theories of humour established in the field of cognitive science and assess the impact of emerging technologies on its psychosocial impact.

2. Background

Over the years, various theories which have been developed about the effect of humour on human and societal behaviour – such as, a method for society to cope with tragic events, break taboos and stereotypes through satire, challenge dominant discourse, and increase collaborative behaviour. Over time, scholars have accumulated a considerable body of evidence suggesting that certain forms of comedy, such as sophisticated satire, which is becoming more and more popular, serve important societal functions such as shattering taboos and holding the powerful accountable (O'Hara, 2016). Avner Ziv, a prolific author of works on humor, delves deeply into this subject. Comedy and satire have one thing in common: they both aim to use humor to alter or improve society, as he states in Personality and Sense of Humor. The combination of the two forms provides the clearest explanation of how humor serves societal purposes (O'Hara, 2016).

Laughter has also been shown to demonstrate the ability of groups of people to pick up on social cues. For instance, a

large - scale global study carried out in 2016 discovered that people can recognize the same minor social indicators from laughing everywhere in the world. Additionally, laughter patterns can act as codes for intricate human social hierarchies, according to research (Michel, 2017). A group of psychological researchers led by Christopher Oveis of the University of California, San Diego discovered that over the course of two experiments, people with different social statuses laughed in different ways, and that people's laughter could reveal something about a person's dominance or submissiveness (Michel, 2017).

Given the significant psychosocial impact of humour, it also important to examine the cultural differences between the perception of humour, given the differences in viewing humour among East and West. While humor is universal, it also varies by culture. However, the results regarding East - West cultural differences in humor usage and the relationship between humor and psychological well - being are rather mixed and inconsistent (Jiang and Hou, 2019). Previous literature has shown that Easterners and Westerners differ in their perception of humor. It is unknown whether there are cultural differences between East and West in terms of how humor is perceived and used, as well as the relationship between humor and psychological health. comedy has substantial ramifications for human psychological well - being, hence it is important to understand how culture influences comedy perception, humor usage, and humor's implications for psychological well - being (Jiang and Hou, 2019). In order to answer this query, we need to develop a systematic view of the cultural differences with respect to humour and humour perception.

With this background, the following section of this paper explores how perceptions of humor are changing with the advent of technology and AI, and how this affects human behaviour from a cognitive science perspective, along with an exploration of its cross cultural impact.

3. Discussion

The development of AI is leading to applications which relate to humour, for example, using computer - based recommendation technology to predict people's preferences in purchasing products, including predicting what jokes people would find funny. This was tested by a study team headed by post - doctoral scholar Michael H. Yeomans of Harvard Business School. He tested whether humans or artificial intelligence (AI) may be more adept at guessing which jokes other people would find humorous in a new study using that joke and thirty - two others (Gerdeman, 2019). With more firms using computer - based recommendation technologies to assist customers in making decisions, the subject is more pertinent today. Yeomans' research highlights the challenges that AI technology will face in gaining the trust of skeptical consumers (Gerdeman, 2019).

In the same study referred above, the results demonstrated that while the AI was able to predict the type of humour a participant would like better than a human, humans continue to distrust and dislike a joke when it was revealed to be machine generated (Gerdeman, 2019; Purtill, 2022). In

multiple studies, if people believed the jokes were machine - generated, they would like them less. They had no faith in them. Studies have also shown that, along with writing news stories, making music, and operating trucks (all of which AI can accomplish to some extent), consumers trust people significantly more when it comes to humor. Jokes are about having a similar worldview, being prepared to go against the same rules, and laughing at the same things (Purtill, 2022). Despite the fact that algorithms frequently outperform humans at activities, research indicates that customers are reluctant to entrust jobs that are normally completed by humans to algorithms. The writers examine in many different fields when and why this is the case. They discover that when it comes to jobs that seem subjective (as opposed to objective), algorithms are trusted and used less (Castelo et al, 2019). Nevertheless, they demonstrate that the perceived objectivity of a task may be altered, and that a task's perceived objectivity can be raised to encourage the employment of algorithms for that activity. Customers erroneously think algorithms are incapable of handling subjective jobs (Castelo et al, 2019).

However, in another study conducted in 2021, it was found that although the participants ranked jokes that they attribute to humans as the funniest and those to AI as the least funny, there was no explicit difference in the ratings, demonstrating that attitudes to AI are more flexible than previously believed. In a growing number of areas, humans ought to submit to AI's better judgment, but biases keep us from doing so. One of the main challenges in human - computer interaction is figuring out when and why these biases happen. One theory about the origin of this prejudice is task subjectivity. The study put this theory to the test by having both claimed and actual AI engage in humor, which is one of the most arbitrary forms of expression (Bower and Steyvers, 2021). In two experiments, the study tackled the following issues: if people think jokes were made by an AI, will they find them to be less funny? Participants assess jokes and determine the source of the jokes. They find jokes about humans to be the funniest and jokes about AI to be the least funny. There is no discernible rating difference when the same jokes are stated clearly as being either human or artificial intelligence (AI) made. The study shows that, contrary to popular belief, user attitudes toward AI are more flexible, even when they (apparently) try the most basic human expressions (Bower and Steyvers, 2021).

The literature also provides other interesting insight into the intersection between AI generated humor and human behavior. For example, Tay et al. found that people consider jokes funnier when told by humans, but only if the joke is non - disparaging. Interestingly, people also expressed less disgust at a non - disparaging joke when told by AI (Tay et al, 2016). However, some experts believe it is premature to consider AI generated humour as capable of replacing human ability, given the limited technical capabilities of AI at this point in time. The technology isn't quite there, according to Fei - Fei Li, a professor in Stanford University's computer science department and codirector of the Human - Centered AI Institute. "Today's technology is not there yet," she has said. "What is comedy? What sentiment is it carrying? Deep and complex reasoning is needed for humor, which is not a capability of modern AI. " (Tercatin, 2020).

Therefore, it is clear that there are significant strides to be made in relation to researching the actual impact of the development of AI generated humour, as technology evolves and societal attitudes about technology evolve as well.

4. Conclusion

In conclusion, is viewed as a critical and fundamental aspect of individual behaviour, as well as societal engagement. Comedy can also influence social change better than simply stating facts. Campaigns to modify behavior frequently "frame" messages in terms of advantage or loss to the individual. Exchange theory, which emphasizes the cost - benefit exchange of adopting a behavior, serves as the foundation for this argument (Borg and Goodwin, 2018). An emotional reaction may then be elicited by this framing. For instance, "loss" framing, which emphasizes the unfavorable effects of a behavior, can elicit feelings of shame, shock, rage, or sadness. Theoretically, when we encounter such messages, we will consider our own actions and make necessary adjustments to prevent similar unpleasant emotions in the future. A humorous statement might serve as a hook to draw us in. Generally speaking, comedy is a kind of subtly expressed critique. It serves as a mirror for society, mocking our flaws and vices and making us feel ashamed of ourselves (Borg and Goodwin, 2018).

Given the varying results regarding human attitudes to AI generated humour, a key area for future research is the examination of individual and societal beliefs with regard to AI, algorithmic bias, and examining the cultural variations in these perceptions as well as humour itself. The first thing to do is try to dissect the fundamentals of human humor. Large volumes of data are fed through algorithms, or precise formulas or sets of instructions, by machines to find patterns or distinctive qualities (Purtill, 2022). This method can completely ruin a joke, dissecting it in a brutally unfunny operation, yet it works when it comes to, say, distinguishing between photographs of cars and dogs. People can draw from enormous mental repositories of linguistic subtleties and cultural allusions when they hear or tell jokes. People can draw from enormous mental repositories of linguistic subtleties and cultural allusions when they hear or tell jokes. AI can only access the data that humans choose to provide it, thus if we want an AI to make us laugh, we must be explicit about the type of comedy we wish to impart to it.

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