

Assessing Public Perspectives of Parapsychology through YouTube Commentaries

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Abstract: YouTube as a social media platform plays an important role in sharing public views about a range of scientific topics such as parapsychology: an area of science committed to exploring the workings behind anomalous experiences or abilities. This qualitative study analyses how conversations about public perspectives of research into parapsychology, take place on YouTube. Reflective Thematic Analysis (RTA) is used to examine comments on the threads for two comparative films posted by two leading academics with opposing views. Three central themes have emerged: (i) *Confirmation Bias*; (ii) *Laws of Nature*, and (iii) *Trashing the Holy Altars*. Following on from this study, it would be beneficial to carry out a larger study with an additional social media platform for further in-depth analysis of public perceptions of parapsychology and how they are presented online.

Keywords: cyberpsychology, Dawkins, Internet, parapsychology, telepathy, Sheldrake, YouTube.

INTRODUCTION

Considering how information about science is shared on the Internet, research can be well-served by examining the impact of the free video-sharing website YouTube (Soukup, 2014; Welbourne & Grant, 2016). YouTube is the second most popular website in the world, and a study carried out by YouTube revealed it to be the most watched channel in adults aged 18 or over across the globe (Landrum et al., 2021). YouTube also plays an important role in how parapsychology and research into anomalous, or what is often popularly termed as ‘paranormal’ phenomena, is presented and discussed publicly. There are two distinct strands of science which deal with investigating human experiences and abilities which, if they are what they seem to be, do not follow *known* scientific *paradigms* or currently accepted models about how the universe works. For

example, *anomalous psychology* (French & Stone, 2014) explores how human beliefs, human cognition, and indeed human error or fraud, can produce perceptions or illusions of anomalous phenomena (i.e., telepathic phenomena, visions of the future, witnessing ghosts, etc.), as one strand.

The other more dominant strand in history and recognition is *parapsychology*, which is interested in testing such claims for potential psi processes at work through established social scientific methods, while also having interest and awareness for how beliefs, fraudulent behaviour and other factors impact on our perceptions of seemingly anomalous phenomena (Irwin & Watt, 2007; Vernon, 2020). Although formal research in this area has existed for just over a century and a half, the collective human effort (i.e., employed lecturers/researchers, voluntary and working beyond retirement) and funding for this field of science has been limited, making for an unbalanced comparison to the other sciences or even mainstream psychology in the USA alone (Roe, 2017a; Schouten, 1993).

Even so, much has been achieved within this time regarding the development of research methods now used widely among the social sciences (Watt, 2005), exploration of altered states of consciousness (e.g., Roe, 2009; Stanford, 2020; Williams, 2015), and research findings in support of anomalous cognition (extra-sensory perception, or ‘psi’) through *replicating* or duplicating similar studies and *meta-analyses* as a statistical means of combining the results of multiple studies in a specific area of research (cf. Cardeña, 2018; Rhine, 1934). That is, despite dated criticisms of such research continuing from outside of the field, while skepticism within the field has evolved with the times (Roe, 2017b). Even so, some of the assumptions of science exploring telepathy and associated phenomena—which are often unjust, uninformed, or irrelevant—still exist due to social stigmas around data and inappropriate terms such as ‘paranormal’ and ‘supernatural’, and misleading media portrayals of how science approaches these exceptional human experiences (e.g. Jones, 2017; Thomas & Cooper; 2016; Sheldrake, 2012/2020).

Outside of authoritative websites (i.e., Australian Institute for Parapsychological Research, Parapsychological Association, the Society for Psychical Research and Psi Encyclopedia, etc.), information about parapsychology on the Internet is arguably split between websites presenting parapsychological research as ‘entertainment’ (Winsper, Parsons, & O’Keeffe, 2008) and parapsychology represented as a ‘pseudoscience’ not worthy of serious investigation (Phillips, 1996; Weiler, 2020; Storm, 2022). Online platforms that allow for commentary are no exception to this, including social media. There is, however, a growing body of literature regarding the polarisation between opponents and proponents of parapsychology. For example, observations of the impact of social networking platforms, and indeed Wikipedia, on how parapsychology is

viewed by society, weighs heavily on the lay public and pseudo-skeptical movements (McLuhan, 2010; Weiler, 2020). Added to this, beliefs regarding anomalous phenomena, and indeed the empirical evidence, have been extensively researched and continues (e.g., Irwin, 2009; Simmonds-Moore, Rice, & O’Gwin, 2019; Wright & Cooper, 2019). However, aside from observations, practically no research exists analysing how parapsychology or research into anomalous phenomena is discussed on the internet. This includes formal assessment of the various online outlets for such discussions of parapsychological research and people’s reactions to them. Therefore, there is much scope for gathering and assessing the masses of pre-existing data already publicly available online.

This study aims to explore public feedback to filmed lectures posted on YouTube given by established and respected scientists, who have delivered talks on research into anomalous phenomena. Previous literature exploring YouTube as a research tool emphasises its popularity and flexibility as a platform for broadcasting, viewing, commentary and networking (Burgess & Green, 2013; Konijn et al., 2013). With the opportunity to hide a commenter’s identity through the option of aliases and pseudonyms, the platform has become an online space for often frank and sometimes brutally honest exchanges, which may allow for the sharing of accurate personal views albeit in ways that can contribute to a toxic online environment (Alsaad et al., 2018; Ernst et al., 2017; Munger & Phillips, 2020; Murthy & Sharma, 2018; Watts et al., 2017).

The role of algorithms should also be considered when exploring what information YouTube users have access to, and how algorithms can essentially ‘curate’ content that users are exposed to and therefore potentially curate the decisions they make about a range of subjects including scientific research (Rieder, Matamoros-Fernández, & Coromina, 2018). YouTube arguably has the potential to narrow, as well as extend, information individuals gather about a subject (Wolf, 2016).

Examining the affordances of YouTube as a social media platform is important within the wider context of how the public considers and shares information and beliefs associated with parapsychology. Despite focusing on events and experiences that can have a profound effect on the lives of individuals (Drinkwater et al., 2013), parapsychology is a branch of science that is arguably often misrepresented, and seldom understood (Phillips, 1996; Roe, 2017b). The debate about parapsychology on the internet may act as a *microcosm* for *how* the public discuss beliefs, experiences and, interestingly, how they define what is, and what is not, ‘real science’.

Additionally, assessing how parapsychology is discussed online arguably has consequences for how the public engage with scientific discourse in broader terms. Social media is key to this assessment in that it affords members of the public the opportunity to actively *engage* in

scientific discourse in terms of ‘consuming, participating in and generating content’ (Taddicken & Krämer, 2021). This engagement has implications both for the accuracy of information and nature of discussion. Further assessment of online content and commentary may assist in identifying potential influences on conversations from a range of theoretical perspectives, and therefore the potential to allow for the informed consideration of potential solutions. This may include, as examples, facilitating online conversations for accuracy, avoidance of polarization in discussion or identifying and signposting members of the public to accurate, up-to-date, and peer-reviewed sources of information.

There are several arguments between skeptics and non-skeptics surrounding the difficult-to-explain nature of those who experience parapsychological events and those who do not. For example, mediums (people who can communicate with non-living and non-visible entities through extrasensory perception) can be deemed to be charlatans, and those who believe in mediumship can be portrayed as suffering from mental health difficulties (Roxburgh & Evenden, 2016).

The largely negative discussions about fraudulence and ‘madness’ are often used to ridicule those who believe in parapsychological or ‘paranormal’ phenomena by separating rationality from irrationality, and truth from fantasy (Wooffitt, 1992). In addition, it is important to explore the representative language being used in our analysis as research indicates that using pseudonyms and a lack of physical proximity and a lack of non-verbal cues can also add to hostile interactions taking place within online spaces (Watts et al., 2017).

Foucault (1964) argues that discussions are used as a way of representing knowledge; this knowledge then becomes a source of power; the combination of knowledge and power can then be used to apply social control (see also Burr & Dick, 2015). This is an important position to think about when considering how language is used in opposing ways to either support a viewpoint or oppose viewpoints that others may hold. This, we suggest, is evidence of the dominance of rationality: the idea that a sane and therefore, reliable, and normal person is one who is governed by reason and logic, not fantasy and emotion.

METHOD

Rationale

This study aims to examine underlying views and behaviour evidenced in postings in the comments thread generated by viewers in response to *Paranormal or Peri-normal* and *The Science Delusion*—two

films focused on scientific research into anomalous phenomena. Although as mentioned, observation of such online behaviour has been noted in popular works, there are few if any formal studies addressing this matter in relation to parapsychology. Therefore, in this preliminary assessment, YouTube was used as a research tool to explore existing public data (Koniju et al., 2013).

Participants (Data)

No face-to-face real-time participation occurred in this study. Data was already published material on YouTube by various members of the public, many of whom act under pseudonyms. From the names that are provided, they are unidentifiable. Many such users who had already published comments on the thread, had used an alias or pseudonym or otherwise remained anonymous. Samples of the first 50 comments were taken from two groups of commenters on two videos. Given that these are general comments submitted to the videos uploaded, the mean figures for age and sex cannot be provided in this instance. Focus is on those who engage in these comment options and *how* they engage.

All comments in both threads had already been published online and were therefore already in the public domain. Data collection presented minimal levels of risk to individual's confidentiality in accordance with the British Psychological Society's ethics guidelines for Internet Mediated Research (British Psychological Society, 2017).

Procedure

YouTube¹ is an American video-sharing platform based in California, USA. It provides a free platform for companies and individuals to host videos that are either made or sourced. The platform also allows viewers to leave a 'thumbs up' (i.e., approval) or 'thumbs down' (i.e., disapproval) message to content, and to leave written comments in a thread below any videos posted. Comments can sometimes form the basis for a discussion with post and reply to options.

For the purposes of the present study, two YouTube videos were chosen which presented two very different perspectives on anomalous phenomena. Each featured a presentation by one of two leading biologists

¹ www.YouTube.com

and academics: a video presentation by Richard Dawkins,² and another video presentation by Rupert Sheldrake.³ They were as follows:

Richard Dawkins: Paranormal or Peri-normal (Muon Ray, 2012): Richard Dawkins is a biologist and is described as "... one of the most respected scientists in the world and the biggest draw in secularism" (Dawkins, 2022). An evolutionary biologist, from 1995-2008 he was the Charles Simonyi Professor of the Public Understanding of Science at Oxford University (UK). He is known as a figurehead for atheism and is widely published, which includes his best-selling book *The God Delusion* (Dawkins, 2006). It could be suggested that Dawkins presents a materialist view of the universe based on secularism and materialism and is therefore highly skeptical of what are popularly referred to as 'paranormal' explanations for anomalous experiences. In this video, Dawkins examines differences between *paranormal* (i.e., what is 'beyond normal') as opposed to '*peri-normal*' (i.e., what may be 'normal' in the future, but current scientific knowledge cannot yet explain). Dawkins argues that much of parapsychological research (e.g., telepathy) lacks methodological thoroughness or statistical evidence and therefore does not currently deserve further investigation.

Rupert Sheldrake: The Science Delusion (Dartington TV, 2013): Rupert Sheldrake is a biologist and author best known for his hypothesis of morphic resonance. He studied natural sciences at Clare College, Cambridge University (UK) where he was a fellow and was Director of Studies in biochemistry and cell biology. He is currently Fellow of Schumacher College. His critically acclaimed book *The Science Delusion* (Sheldrake, 2012/2020) argues that scientific knowledge has been restricted for years by assumptions about how the universe works, which over time, he believes, have become *dogmas*. In this video, he sets out the case for a *post-materialist* view of how the universe works, which can potentially include the existence of what is currently viewed as 'paranormal' phenomena (e.g., psi, and more specifically, telepathy).

Both Videos in Context

Both videos were chosen because they are of similar length and posted within the period of late 2012 to early 2013. Although both films are nearly ten years old (at the time of writing), they are still a fair representation of the positions of both scientists who remain leading authors

² www.richarddawkins.net

³ www.sheldrake.org/

and researchers in their respective fields. Both films also continue to reflect the prevailing materialist and post-materialist viewpoints still often consistent with online commentary about parapsychology (Weiler, 2020). Both cover similar concerns regarding discussions related to telepathy, ‘paranormal’ phenomena and ‘materialist’ and ‘post-materialist’ science. The videos were chosen to maximise consistency of content and subject matter of what constitutes ‘paranormal’ or anomalous phenomena, as the basis for both presentations.

These two videos were also chosen because Dawkins and Sheldrake are both biologists and leaders in the field from opposing perspectives: Dawkins as *materialist* and skeptic, Sheldrake as advocate of *post-materialist* science. They are both high profile in relation to their positions, so it was felt that they were the most suitable choices as authors and speakers in representing the current arguments taking place online.

Reflective Thematic Analysis

Reflective Thematic Analysis (RTA) provides an opportunity to examine underlying influences in online conversation, and this methodology has the flexibility to do this from a range of theoretical perspectives. Recent developments within the field of traditional Thematic Analysis (TA) have called for TA researchers to analyse data in a variety of ways. This could be, as examples, from the point of view of ‘critical realism’ which is a philosophical position that makes the distinction between the ‘real’ world and the ‘observable’ world (Archer, 1998), or social constructionism, which is a sociological theory that explores how individuals develop knowledge of the world in a social context, including exploring, for example, shared beliefs and assumptions about ‘how the world works’ (Burr, 2003), with the emerging analysis being dependent on the theoretical framework being used by the researcher to inform their work (Braun & Clarke, 2020; Terry, 2021). The increased flexibility of data analysis has now been reframed as RTA (Braun & Clarke, 2020).

Data Collection and Analysis

The first 50 comments on each of the two YouTube film comment threads were collected and analysed in the order that they appeared on the screen on June 3, 2020. A reflective thematic analysis (RTA) approach was used to code the data, with resulting themes emerging from both data sub-sets (Braun & Clarke, 2020). Both data sub-sets captured both the viewers responses to the videos directly *and* any interaction the commenters had between themselves (e.g., online discussions between the commenters). As

the study wished to capture a wide range of comments in a way that did not place types of commentary in order of importance, it was felt that RTA gave the flexibility required as a qualitative methodology for key themes to emerge from the data.

RTA for this study was carried out by taking a social constructionist/discursive approach, which offered a greater level of analytical flexibility focusing particularly on the importance of language in how subjects are socially constructed. Previously, TA has normally been associated with analysing subjective accounts from the point of view of individuals own feelings, thoughts, or experiences (Braun & Clarke, 2006, 2021; Flick, 2014).

The data was analysed in two stages. Firstly, after reading and re-reading both data sub-sets, structured transcripts were created by one of the researchers (C.M.M.) for analysis and further inspection by all three authors. The RTA approach generated meaningful units of text and preliminary codes leading to key themes emerging from each data sub-set (Frith & Gleeson, 2004). The same comment could be included in more than one code. Data was analysed to saturation point whereby further observation did not generate any additional codes and themes. On reviewing and coding both data sub-sets, we felt that a constructionist/discursive approach was best suited to capture the specific discussion points being used within these online interactions and how discussion points created certain social positions within online social contexts and particularly when viewpoints clashed (Braun & Clarke, 2020; Parker, 2002). The second stage focused on a further inspection of the data set as a whole which generated the final superordinate themes.

RESULTS

Manual coding and analysis of the Dawkins film generated 13 codes and 3 sub-themes: (i) 'Confirmation Bias'; (ii) 'Online Interaction Style'; and (iii) 'The Topic of Conversation'. Analysis of the Sheldrake film generated 13 codes and four sub-themes. The first three sub-themes were consistent with the Dawkins film, with an additional sub-theme, (iv) 'Upsetting the (Scientific) Status Quo', which was generated from the Sheldrake film data.

The second stage of data analysis focused on refining the analysis of the full data set to get an overview of key superordinate themes generated from the data. The two films and resulting discussions gave some clues as to how parapsychology and research into anomalous phenomena are currently being discussed in cyberspace. Further inspection and refinement of themes across the full data set produced three final superordinate themes: (i)

‘Confirmation Bias’; (ii) ‘Laws of Nature’; (iii) ‘Trashing the Holy Altars.’ Each final theme is now discussed in turn.

Confirmation Bias

Confirmation Bias, the tendency for individuals to favour information that confirms their existing beliefs or values (Wason, 1960), was generated from the data in that there was evidence to suggest that individuals reinforced their rigidly held beliefs with little interest in considering alternative viewpoints beyond rhetorical questioning. With regard to the Dawkin’s film, commenters appeared to assume that they were posting to others with similar viewpoints:

Suzie Q: Finally, (*of Dawkins’s presentation*) someone said what we were all thinking.

Additional commenters assumed that individuals holding opposing views to their own were flawed in their thinking:

Mr. Creosote: I have experienced many things, and have changed my mind, all based around evidence. You say you have evidence for the supernatural but chose not to share that with others. So I can only conclude that 1) You do not have any evidence or 2) That evidence is not evidence at all. So show us the evidence, if you believe anything without evidence you are deluded. So why accuse Dawkins of being close minded when he asks for evidence that you refuse to show. It is you who is closed minded.

Here, ‘Mr. Creosote’ focuses on highlighting potential failings when different views to his own are held. The most important point of this exchange is based on being open-minded *or* closed-minded, and ‘Mr. Creosote’ sets the scene at the beginning of his response by highlighting that his viewpoints can be changed due to experience, but the main feature is that his changes of mind have all been influenced by evidence-based arguments. He then draws this argument around evidence by further claiming that those who do not share his perspective do not have evidence of their perceptions around the existence of the supernatural which he then implies renders those who believe in the supernatural as being deluded (Roxburgh & Evenden, 2016). There is a fine line here between being deluded (to be tricked or deceived) and being delusional (which is a serious psychiatric disorder whereby people are unable to tell the difference between reality and what is imagined), but in terms of everyday non-psychiatric discussion, the two adjectives can mean the same and are often

used to present an opposing belief as being ridiculous with an implication of being weak-minded.

In the context of *Confirmation Bias*, from the perspective of viewpoints regarding parapsychology, there was also evidence that some commenters held preconceived ideas that parapsychological research necessarily includes poor methodologies and even fraud:

Muon Ray (host): But, to answer the question I would think that the most likely explanation is that most (if not all) of the ghostly green glows were probably concealed lights picked up from the very primitive infrared cameras they used (under medium to long exposures). Other effects of “ghostliness” could even be done by taking pictures through smoked glass concealing the camera frame. I would even say they would cheat if they had to create the effects, using fluorescent smoke, say, filmed in a dark room.

In this extract, ‘Muon Ray’ suggests that the research under discussion lacked validity and that the researchers in question had manipulated the experimental equipment to present visuals of “*ghostliness*”. This extract provides a variety of ways in which the “ghostly green glows” were visible to the viewer by offering various means that these phenomena could be achieved without any supernatural activity present—as ‘Muon Ray’ states “they would cheat” to gain the effects necessary to suggest that ‘paranormal’ activity had taken place. This is not surprising as the public have access to media focusing on ghost-hunting and anomalous activity. The difference here is that the available media are for ‘entertainment’ purposes where limited methodological controls are in place (if at all), whereas in the professional field of parapsychology, experiments are largely controlled for outside variables and parapsychologists look to provide alternative conclusions as to why some phenomena have taken place. The lines around experimental research and entertainment within the realms of parapsychology are blurred and this in turn, can lead to polarised positions within online forums.

In response to Sheldrake’s film, commenters shared entrenched beliefs or assumptions and, with relevance to parapsychology, belief in a lack of empirical research in the field of parapsychology to investigate the lines of enquiry presented by Sheldrake:

R.P.: Does this obviously intelligent person (*Sheldrake*) have huge logical gaps in his thinking or is he deliberately trying to con people? I have to think the latter, due to his selective filtering of facts, distortion of history, straw man arguments, use of hyperbole, and just plain misrepresentation. I couldn’t even get through his mangling of the conservation laws. I can’t

believe he actually lies to the extent that he says that no experiments have ever been done to prove them. I guess it sells books.

In this excerpt, ‘R.P.’ shows two contrasting positions on Sheldrake’s theoretical ideas—on the one hand describing Sheldrake as an “obviously intelligent person”, and on the other hand, describing Sheldrake as lacking in logical thinking and the possibility of Sheldrake even being fraudulent. The language used in this extract seems to have been chosen selectively to discredit Sheldrake with comments such as: “selective filtering of facts”, “distortion of history” and “mangling of conservation laws”. What ‘R.P.’ is doing here is using specific language as a way that dismisses both Sheldrake’s *and* his followers’ perspectives as unscientific and false.

The rhetorical use of language used such as “selective”, “distortion”, and “mangling”, suggests that Sheldrake’s works are both self-centred and contorted. The idea of Sheldrake’s self-gain is reinforced by ‘R.P.’ by their suggestion that these theories are only a marketable product suggesting “I guess it sells books”, which can further cement ‘R.P.’s’ perspectives that Sheldrake’s theoretical idea is a commodity and not a logical process of thought.

Confirmation Bias was present in most of the comments and conversations for both films: commenters either reaffirmed their own strongly held beliefs about science, parapsychology, or anomalous phenomena, to the rejection of other viewpoints. Many commenters also criticised what they saw as the confirmation bias of the scientific establishment.

With regard to Sheldrake’s film, the style of interaction between commenters with differing views was at times confrontational with commenters becoming quickly defensive or offended by interactions with others leading to polarised discussion:

GeoCoppins: @ Josh Sardine It’s utterly moronic to say that science is someone’s religion! Science has results; religion ZERO! You have your head up your ass!

Conferencereport: I’m very familiar with Sheldrake’s work and have followed it closely for many years, so I don’t take kindly to being told to ‘listen again’ thank you. Since you think it acceptable to offer advice, I’d suggest you follow it yourself and apply a more critical ear.

Laws of Nature

‘*Laws of Nature*’ focused on widely held beliefs about how the world works, as evidenced in the data for both films, and, in the words of one commenter: “...the laws of nature are uniform and repeatable.” The

implication of this comment being that ‘paranormal’ or anomalous phenomena do not exist, and that reports of anomalous experiences can, on further investigation, be explained away within a materialist paradigm. Many commenters agree with this worldview, but some do not, and both viewpoints result in a polarised discussion. Materialist worldviews are evidenced in the data, and opposition or challenges to this view are played out in the discussions. The data includes discussions about thermodynamics and perpetual motion machines, and there was an attempt at a discussion about this being a *worldview* rather than constant laws, but this line of discussion was not followed by other commenters.

The discussion included demands of empirical evidence from parapsychological studies, with comments that demonstrated assumptions about how studies conducted (in one example involving mediums as participants) were necessarily ‘flawed’ or even ‘bogus’. Data provided some evidence that assumptions were made about scientific investigations outside of the ‘scientific status quo’ with assumptions about necessarily poorly conducted experiments with no proper controls or assessments of results or data. There were comments on both threads which, it could be suggested, demonstrated attempts to ‘show off’ an understanding of good practice research as a way of reinforcing viewpoints and challenging others.

The online interaction style represented in much of the data generated examples of rhetorical questioning and comments:

Mr. Creosote: I am still waiting for evidence, what a shame you refuse to give it. I may have been able to learn something.

In this extract, ‘Mr. Creosote’s’ response indirectly suggests the factual evidence he is requiring has still not been made available and he even suggests that there is a reluctance from the other party to provide this information. This position gives the impression ‘Mr. Creosote’ believes there is no valid response to be made to his comments. By drawing on discussion points rooted in rationality and science this interaction suggests that, from ‘Mr. Creosote’s’ point of view, there is no reliable evidence available (Wooffitt, 1992). ‘Mr. Creosote’s’ position also possibly suggested that he is discounting the original interaction as meaningless, and he is staking his own viewpoint as being the more rational and valid explanation around this online conversation.

Some commenters had low expectations of the interaction they were expecting whilst talking with others online:

G.A.: I’ll stay open minded. I’ve seen one Law violated already – we’ve managed to have a discussion over the Internet without insulting each other once.

There was some evidence of attempting to genuinely open out the discussion. However, given how YouTube is structured as a platform, it was difficult to see if questions were answered or engaged with further on, the thread beyond the data sample collected:

Táltos66: Question out of curiosity: How would you control for the placebo effect in Dawkins hypothetical double-blind homeopathy experiment?

However, what is interesting here is to focus on the language being used by ‘Táltos66’ when considering the discussions about evidence-based science. First, ‘Táltos66’ does not seem to appear to want to encourage provocative comments from others as ‘Táltos66’ has not yet confirmed a position on the argument and this potentially avoids any direct hostility from others. However, ‘Táltos66’ does draw from the conversations of science and rationality by asking the question using language often used within evidence-based scientific research methods (Burr & Dick, 2015). For ‘Táltos66’, this approach can suggest to those who interact that, whilst there is some curiosity, ‘Táltos66’ comes from a position of scientific knowledge and some level of expertise in the area.

A large body of data referred to topics discussed in the film, including thermodynamics and the concept of perpetual motion machine. The data demonstrated examples of commonly held materialist perceptions of science:

G.A: Science:.. is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe. [...] In an older and closely related meaning, “science” also refers to a body of knowledge itself, of the type that can be rationally explained and reliably applied” Predictability requires that the Laws of Nature are uniform and repeatable.

Muon Ray (*host*): He (*Dawkins*) is saying the 2nd law of thermodynamics can never be broken. People who claim perpetual motion machines can be created are effectively saying they are breaking the 2nd law of thermodynamics, which is impossible, by conservation of energy. The reason for this of course is to do with entropy. In any closed system, such as an engine or power cell, entropy always increases, so the system producing an output of energy will also create waste energy (heat) that will degrade the system.

Again, the above excerpts demonstrate the use of language coming from within scientific research; important issues supporting a deductive or ‘reasoned’ approach to research by G.A.’s emphasis on the importance of

replication and prediction regarding scientific research methods. This materialist position is reinforced by ‘Muon Ray’ by drawing attention to the theoretical concepts of physics such as entropy when discussing thermodynamics and therefore denying the counterargument put forward by critics of Dawkins of perpetual motion machines being able to break the proposed second law of thermodynamics. Both accounts appear to be written by those with ‘expert’ knowledge by drawing from scientific language and concepts rather than using non-scientific or ‘lay’ terms to put forward their viewpoints. This approach is an attempt to emphasise their intellectually ‘superior’ positions of arguing for a materialistic approach in a professional manner rather than resorting to using non-scientific language to put their points across.

However, there were also questions that challenged the mainstream scientific view that a scientific ‘law’ is the same in *every* instance:

guyboy625: Well, what I mean is thermodynamics is certainly true enough for me and everyday science. The only thing I’m skeptical about is it it’s universally true. Maybe it needs to be generalized. Maybe it doesn’t need to be generalized but will still be, only to be de-generalized later.

The discussion included demands of empirical evidence from parapsychological studies, with comments that demonstrated assumptions about how studies are conducted (in one example involving mediums as participants) were necessarily ‘flawed’ or even ‘bogus’. Data provided some evidence that assumptions were made about scientific investigations outside of the ‘scientific status quo’ with assumptions about necessarily poorly conducted experiments with no proper controls or assessments of results or data. There were comments on both threads which, it could be suggested, demonstrated attempts to ‘show off’ an understanding of good practice research as a way of reinforcing viewpoints and challenging others.

Trashing the Holy Altars

The theme of ‘*Trashing the Holy Altars*’ was generated from a substantial number of comments that demonstrated commenters’ views that Sheldrake’s talk was outside of the widely held views of materialist science, and widely accepted scientific theory, regarding how the universe works. These views included accusations of pseudoscience and even scientific heresy:

GeoCoppins: “The Science Delusion” is the Sheldrake Delusion.” Rupert Sheldrake is a pseudoscientist!

Osprey Flyer: Everyone return to the box and stay inside! Sheldrake is a heretic and a blasphemmer.

Conferecereport: Critical thinking also means developing informed judgement based on clear procedures for the evaluation of evidence. Conversation is great, and I would applaud Sheldrake's ability to think creatively, but he's not at his strongest when he does the anti-science contrarian thing.

Here we have three separate threads of discussion being used to discredit Sheldrake. 'GeoCoppins' alludes to Sheldrake being deluded and a pseudoscientist (it is worth noting that the word delude/delusion is used again in interactions on this forum). 'GeoCoppins'' position clearly suggests that they believe Sheldrake's work "The Science Delusion" was written by somebody who is deluded (Sheldrake) and even though Sheldrake has a history of scientific endeavour and academic success, he is nothing more than a 'fake' scientist and therefore is not to be taken seriously. This position therefore argues that Sheldrake is a charlatan rather than a scientist to be taken seriously.

The potential irony of materialist commentary referring to Sheldrake as a 'heretic' and 'blasphemer' was not lost on one of the commenters:

Wtnomad: @ GeoCoppins science buffs can behave like theists when scientific claims are questioned, when claims of experiences or theories not proved by science, are put forth. they can get hostile, abusive, anything they've not experienced is "woo-woo" and other such dismissals.

There was a similar number of comments in support of Sheldrake, which in themselves question the more widely accepted materialist worldview and how parapsychology continues to be viewed as being 'outside' of the currently accepted realms of science:

S.H.: Rupert does not at any point abandon the scientific method – he applies to explore questions shunned by mainstream science. If anything, it is mainstream science that refuses to think critically about areas that might undermine mechanistic thinking. Please listen again [with] a careful ear and an open mind and you might be intrigued by the possibilities that Rupert points to.

HereticNews: Excellent talk by Rupert Sheldrake. There is a double standard in the scientific community right now. String theory, dark matter, dark energy and multiple universe theory all have little or no observable evidence to support them. They are by definition pseudoscience but they get a free pass because they do not contradict materialist dogma. Meanwhile alternative theories are labelled pseudoscience before they are even tested simply because they contradict the current consensus.

Data in support of Sheldrake's arguments challenge widely held scientific views, which also present a challenge to what is thought of as the scientific status quo.

There were some interesting exchanges from what could be argued were presented as evidence of 'science as religion'. Data examples refer to Sheldrake as a 'heretic' and a 'blasphemer' and, where commenters put it to other commenters with a more materialist worldview, they were said to hold their scientific beliefs as strongly as many religious people held theirs. Commenters on the Sheldrake thread expressed mistrust of 'so-called experts' and conversely there were complaints regarding Sheldrake being given the opportunity to platform his work and that he was 'just doing it for the money'.

There was a discussion on both threads that contained arguably a New Age vs Old Order focus. For example, some commenters challenged the idea that the laws of thermodynamics were set in stone, or that the law of constants necessarily applied universally. On the other hand, Sheldrake was accused by some commenters of being a purveyor of 'new age nonsense'.

DISCUSSION

The purpose of this study was to assess public opinion regarding research into anomalous or 'paranormal' phenomena, and to explore how YouTube as an online platform enables the sharing of views and engagement in conversation. YouTube was selected due its ubiquitous role in the dissemination of films focused on scientific discourse, the free availability of such films to the public, and the comments feature that allows members of the public to share their views. Applying RTA across two films generated three final themes: (i) Confirmation Bias; (ii) Laws of Nature, and (iii) Trashing the Holy Altars.

Confirmation bias generated as a theme within the current study agrees with previous literature exploring how bias frames conversations between persons of opposing viewpoints, with individuals tending to cling to their own belief system and to either ignore or dismiss information that fails to reflect their existing worldview (Del Vicario et al., 2017; Klayman, 1995). This bias appears to be reflected in interactions online, whereby individuals will seek out information that confirms their current beliefs, resulting in often polarised and hostile debate with others (Murthy & Sharma, 2018). The data gave no evidence that commenters had watched both films, as no pseudonym or commenters appeared on the thread for both films in the selected data. There is scope therefore to examine in further detail the role that algorithms have played in terms of presenting both or

either film on commenters' YouTube channels, or to what extent algorithms have filtered choices for an individual's viewing (Rieder, et al., 2018).

Although interactions were less offensive or abusive than on many other YouTube threads, there was much hostility in the discussions, and a tendency for individuals to believe in their own favoured hypothesis and preservation of beliefs already held. Discussion appeared to increase group polarisation in this case between commenters with 'materialist' worldviews largely dismissive of 'paranormal' or anomalous phenomena, and commenters, who expressed views that suggested that paranormal or post-materialist views should be questioned and explored, pushing current scientific paradigms.

Confirmation bias appeared to play a significant part in forming assumptions about parapsychology and how research has actually been carried out (e.g., poor research designs, accusations of fraud, etc.). These assumptions are consistent with the way in which parapsychology is often presented online, as is evident in the entry for 'Parapsychology' on Wikipedia where it claimed many scientists view it as a 'pseudoscience' (Murphy-Morgan, McLuhan & Cooper, 2021; Weiler, 2020), which in fact contradicts parapsychology's legitimate place in the sciences and surveyed views (e.g., McClenon, 1982; Padgett, Benassi, & Singer, 1980). The Wikipedia entry doubts or ignores parapsychology's strict approach to methodology and data analysis, yet these have been generally adopted by the social sciences today (Neppe, 2005; Watt, 2005).

The emergence of two additional themes ('Laws of Nature' and 'Trashing the Holy Altars'), may reflect a '*first impression*' case for two opposing camps within the public debate about parapsychology and research into anomalous phenomena: those who believe and those who do not. It could be suggested that much of the commentary for both films also illustrates the ongoing sociological struggle between parapsychology and scientific 'decision making elites' (McClenon, 1984). However, it is worth noting that there were genuinely open and enquiring questions on both threads which, although they appeared to go unanswered, did suggest a desire for free and open discussion on the part of a minority of commenters. Many comments also illustrated a contrast between scepticism as a form of fair and objective enquiry, and 'pseudo-scepticism' that merely expresses deeply entrenched beliefs and ridicule of opposing viewpoints that only serve to shut down discussion (Gebelein, 2018; Phillips, 1996; Weiler, 2020).

There was much discussion of 'Laws of Nature' as an accepted paradigm for how the universe works (McClenon, 1984; Sheldrake, 2012/2020). In this instance, there was evidence of the sharing of opinions that both shared and challenged the widely accepted materialistic paradigm. YouTube and social media provide some limited opportunities for new

opinions to emerge in relation to science and what constitutes scientific investigation, but to what extent this can take place without censorship of material on YouTube is debatable. YouTube is a profit-making entity that will not allow all users to do and say what they will (BBC News, 2020; Kopf, 2022).

The current study appears to provide some evidence that public opinion on the accepted 'scientific culture' in relation to parapsychology and research into anomalous phenomena may be shifting towards an appetite for considering post-materialist perspectives (Taylor, 2018), but further inspection with a larger data set is required to consider if this is truly representative of a newly emerging trend. The third theme, 'Trashing the Holy Altars', may reflect these changes, with 'materialist dogma' coming under increasing scrutiny (Laszlo & Laszlo, 2021; Lorimer, 2019; Taylor, 2018). Again, it is important to assess whether this is a widely held public opinion, as it would arguably continue to contradict the widely upheld materialist view in scientific discourse.

The comments related to the Sheldrake film criticised Sheldrake as a 'heretic' and a 'blasphemer'. This is possibly ironic in terms of the commentary coming from commenters who, on the surface, would be expected to hold a 'purely scientific' and atheistic view of the world (Dawkins, 2006). This name-calling is potentially a reminder of the 'culture' of scientific enquiry dominant in the Western world, with positive correlations between Puritanism and a belief in the natural world as being 'mechanistic' and absolute (McClenon, 1984). There is also a question as to whether this criticism is potential evidence of 'science as religion', with dogma or beliefs that cannot be challenged (Sheldrake, 2012/2020; Taylor, 2018). Sharing of information and opinion on parapsychology and research into anomalous phenomena does not exist in a virtual vacuum apart from a wide range of other material online, and in a 'fake news' era the risk of sharing of inaccurate information continues (Lazer et al., 2018; Weiler, 2020).

The current study was not able to account for variables such as sex, gender identity, age, nationality, or ethnicity, which may have provided further influencing factors on how individuals form beliefs about anomalous phenomena, attitudes to parapsychology, or use of YouTube as a social media platform. The current study was also not able to account for commenters' scientific credentials, education, or prior knowledge of parapsychology. In some instances, it was difficult in terms of data analysis to untangle comments as many could be coded in more than one way (Braun & Clarke, 2006), and the tone of comments or questions were essentially undecipherable. Future studies would potentially benefit from grading or classifying comment *types*. Further classification of *types* of comments (e.g., a simple like or dislike including thumbs up or down;

rhetorical question; insult) would provide a much more systematic picture of how the conversation is constructed on YouTube, and arguably a more complete picture of how the affordances of YouTube may structure the nature of interaction (Kopf, 2022). This initial research phase assessed two small and focused data sets, whereas analysis of views on anomalous phenomena, and parapsychology generally, using a larger YouTube dataset, would broaden our understanding of patterns of online comments and conversations.

YouTube is one of the most widely used social media platforms for the dissemination of scientific information, yet is more likely to be used for posting material, and less used for conversation in comparison to other social media platforms, such as Facebook or Twitter. Comments are often weaker in comparison to other social media platforms and limited in interactive dialogue (Murthy & Sharma, 2018). However, it could be argued that YouTube is consistent with other social media platforms when it comes to the dissemination of misinformation, and commenters often claiming to know more than they do about a subject in question (Storm, 2022; Weiler, 2020; West & Bergstrom, 2021). Therefore, a comparative analysis with an alternative social media platform (e.g., Facebook, Twitter) would potentially give a more in-depth understanding of public perceptions. Classification and statistical analysis of the types of comments posted (e.g., statement, question, conversation, insult) could give a greater understanding of the nature of the conversation, and how YouTube as a social media platform contributes to the shaping of user opinion. Variables such as age, sex, and gender identity, nationality, and ethnicity would require participants' consent potentially allows for a more controlled study with more in-depth information. Singling out commenters for in-depth interview may also lead to understandings of how such views held are developed in the first place and shaped or held throughout life against their various experiences, education, peer groups and profession.

Conclusion

In conclusion, YouTube commentaries appear to present polarised points of view of parapsychology, anomalous phenomena, and post-materialist science. Confirmation bias still influences much of the conversation about research into anomalous phenomena in online discussion, as does the perception that, with claims of heresy and violation of 'natural laws', parapsychology is still viewed by some members of the public as existing outside the scientific establishment.

Analysis of a larger YouTube data set, together with demographic information about participants, would provide further details and may confirm the evidence, accuracy and prevalence of the themes generated

within this current study. In addition, comparisons of YouTube data with data gathered from alternative social media platforms would potentially allow for more in-depth conversation and debate about anomalous phenomena and might even indicate widespread and changing attitudes towards parapsychology and materialist science.

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